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ICT IN HIGHER EDUCATION IN INDIA: CHALLENGES AND OPPORTUNITIES

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ABSTRACT: *The focus of this paper is to look at the role of knowledge and Communication Technology (ICT) in the educational activity in India .A smart educational activity system is needed for prosperity of a nation. Educational activity in India is experiencing a significant transformation in terms of access, equity and quality. It's evident from the study that the utilization of ICT in education is increasing terribly quickly in numerous states of India. This study to search out this usage level of ICT for teaching and learning barriers within the effective use of ICT among learner and teacher.*

KEYWORDS: ICT, E-Learning Educational Technology, CD-ROM,

1. INTRODUCTION

Higher education is of significant importance for the country because it may be a powerful tool to build a knowledge-based society of the twenty-first Century. With the growing size and variety of higher education sector, notably in terms of courses, management, and geographical coverage, it's become necessary to develop sound information on higher education .The most recent introduction of technology has brought out the complete whole world outside the Class room. Information and Communication Technology (ICT) play a really necessary role throughout this respect. It's treated as an integral part of educational innovation at secondary and higher secondary level schools. The National Policy on Education (1986), as changed 1992, stressed upon using instructional technology to enhance the standard of education. ICT may be a system that gathers totally different data or knowledge to communicate over some distance with the help of recent technology. The combination of ICT in education has been accepted as the capability of the new technological framework. ICT is not only the backbone of the knowledge age, however additionally a vital mechanism and tool for inducing educational reforms that amendment our students into productive knowledge workers. ICT will increase the flexibleness of delivery of education so that learners will access data anytime and from anyplace. It will influence the approach students are taught and how they learn as currently the processes

are learner driven and not by teachers. This successively would better prepare the learners for lifelong learning as well as to get better at improving the standard of learning. In concert with geographical flexibility,technologyfacilitated academic programs a dditionally take away many of the temporal constraints that face learners with special need. One of the foremost very important contributions of ICT within the field of education is- - quick access to Learning. With the help of ICT, students will currently now flick thru e-books, sample examination papers, previous year papers, etc. and should even have a simple access to resource persons, experts, mentors, professional, researchers, and peers everywhere the earth. Wider accessibility of best practices and best course material in education, which might be shared by means that of ICT will foster, enhanced teaching. ICT, likewise permits the academic organizations to achieve burdened gatherings and new global instructive markets. Moreover, as learning at whatever time, teachers are also finding the capabilities of teaching at whatever time to be opportunistic and able to be an accustomed benefit. Versatile Mobile technologies and consistent communications technologies support 24x7 teaching and learning. India has billion or more population is young and consequently it has a huge formal training framework. The demand for education in India has skyrocketed as education is still regarded as an important bridge of social, economic and political mobility.

2. ROLE AND IMPORTANCE OF ICT IN EDUCATION

ICT will assume an integral part in increasing access to education and to provide better quality education to the nation. ICT is utilized worldwide to build access to and enhance the relevance and quality of education. ICT provides understudies and educators new instruments with that to be told and instruct Topographical separation is no more an obstruction to acquiring training. It is no more vital for educators and understudies are in the same space, because of the advancements of advances, for example, video chatting and separates

realizing, which take into account synchronous learning. ICT gives understudies and educators new devices with which to learn and instruct. Topographical separation is no more an obstruction to acquiring an instruction. It is no more vital for instructors and understudies are in the same space, because of the advancements of advances, for example, video chatting and separate realizing, which take into consideration synchronous learning.

Many world-leading standard universities are currently giving a number of their educational guides through a variety of ICT tools for their distant learners and have established themselves as dual mode universities. Purpose and approaches of e-learning embraces web-based learning, computer-based learning, virtual classrooms, and digital collaboration, wherever content is delivered via the internet, audio-video tape, satellite TV Channels and CD-ROM. Although several developing countries have begun to require initiatives to introduce virtual classrooms at their School and colleges, the use of Web-learning/ E-learning continues to be a challenge for the least developed countries.

3. ISSUES AND CHALLENGES AFFECTING UTILIZATION OF ICT IN HIGHER EDUCATION

The role of ICT within the higher education sector, we also need to assess the issues and prospects in its implementation. India's higher education system by providing greater equity, larger the equity, higher access and improved quality. The penetration of ICT systems in education institutions is very poor in step with a survey of authorized faculties by UGC in 2008 that reveals shortcomings in IT infrastructure. The majority of Indians living in rural and backward areas has poor access to the internet, it is necessary that they are exposed and trained in basic computing knowledge and ICT utilization also the majority of the rural people does not speak English properly so they aren't operating ICT tools very well. Therefore, the need to develop content in all the regional languages of India becomes more important. But India is a multi-lingual country so to maintain standardization becomes even more difficult in the field of ICT especially in Higher Education.

CONCLUSION

The increasing use of ICT has brought changes to teaching and learning in any respect levels of higher education systems (HES) resulting in quality enhancements . Conventional forms of education in teaching and learning are increasingly being transformed into online and virtual environments. The teaching community is able to arrive remote and tribal areas and learners are ready to access qualitative learning atmosphere from anywhere and at any time. But we are yet to acquire the preferred stage of IT adoption in higher education within the country.

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ACKNOWLEGEMENT

HUMAN SYSTEM INTEGRATION (HSI), A WISE SOLUTION OF HUMAN COMPUTER CO-ORDINATION FOR MUTUAL BUSINESS DECISION MAKING

Niraj Chaudhari   **Md. Sadique Shaikh**

ABSTRACT: *Human system Integration (HSI) creates an effective communication medium between a human (Business organization) and a computer (IT & Advanced electronic communication). HSI basically any MIS, AI, BIS or DSS with data pool like super servers , Data marts / warehouses , but why it's need , and answer is that if software is difficult to understand and use , if it forces you into mistakes in decision- making process to run business with the support of IT & Business – HCI (Human computer Interface) often called GUI (Graphic User Interface) , but the concept is slightly different for HSI , though HSI is HCI (or GUI) but 100% under stable to end users to help in decision making and work mutually & sure simultaneously with computer not probably which almost found in poor HCI to run whole business with completely Human- computer co-ordination , and this Human- computer co-ordination only possible in those case where HSI is 100% accurate.*

Thus to change / modify or generate effective & useful HSI, Interface design must have to focuses on three major concern. For effective Integration in between human (i.e. organization) and system (i.e. computer) and are

1) The design of interfaces between software components

2) The design of interfaces between software and other non-human producers & consumers of information (i.e. other external entities), and

3) The design of interface between a human (i.e. users / business organization) and computer.

In HCI /GUI consideration equal emphasis to all these three aspects, but HCI/GUI with the intention to develop effective HSI for business organizations for decision –making process, major concern is third one. This paper covered this emerging need of effective decision making with some models & discussion.

KEYWORDS: HSI (Human system Integration), HCI (Human computer Interface), Business Intelligence.

INTRODUCTION:

To define needs of HSI in business management first need to know about why HSI must be accurate and always need in business, consider some hypothetical situation , computer system warn you after input several related data in it for products , don't launch product after data change to information and information again change into business intelligence , but you unable to understand what actually system warn you , consider another example person driving fully automated computer-based car and due to break failure unable to control it , though available HSI suggesting him/her how to overcome with situation but you unable get out from it , your MIS/BIS/DSS/ES Alter you to don't increase production due less demand, but users unable to understand it properly, and increased production. In all above mentioned example though there are involvement of computer with human , but due loosely bound or poor integration between Human and System conflict exist in organization hence no any co-ordination between man and machines , thus contextual , understanding , linguistic overall should say communication problem between Human & System and in result wrong/probable /partially correct decision , which directly affect to planning & execution of business .Thus for proper co-ordination between Human and System efficient integration(Interfacing design) needed to establish proper communication through Interfacing and this is the importance of HSI in next generation business world.

HIS- Model:

The following proposed model shows how one can able to construct useful & meaningful , HSI which strongly based on three major pillars with their substance pillars to give strongest support to HSI-building, the very first consideration is system , which distributed into three major concern and they are

1. System definition
2. System development
3. System deployment

(System)
System defination
System development
System deployment

Human related technologies and disciplines → HSI - Process ← Highly concentrated user focus

System Integration

People — Technology — Organization structure
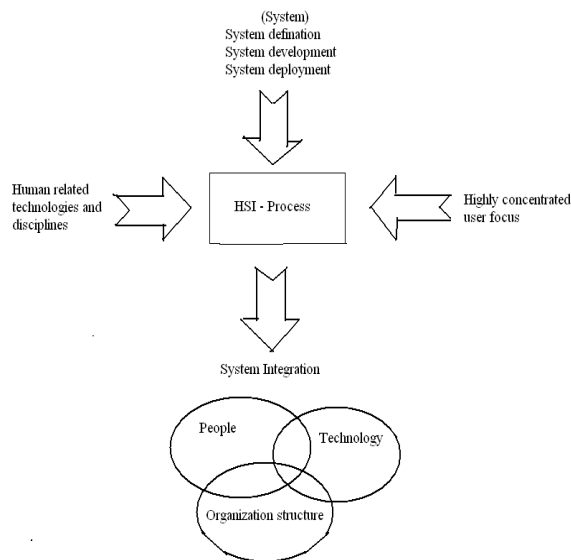
These three SDs play important role in HIS development , in system definition all major consideration about requirement & technical expertise of system & the business area with it's concern, in system development feasibility of HSI instruction tools like programming languages , packages , quantity , maintenance & testing tools where system deployment focused attention strongly how generate HSI used effectively. In second phase system designers & software analyst , designers/engineers & developers must have to identify all possible human related technologies & disciplines to make HSI/HCI/GUI more & more business organization users centric , interactive , conflict-free & flexible to support to man , execute , & control their routine business , to forecast , to generate computerized information & intelligence on the basis of those organization able to make effective & efficient decisions and the last one highly concentrated users focus where intension is that to generate users friend HSI operating system/business software and to do so every HSI developers must more will operation research ; Business-HSI optimization , simulation and requirement analysis of users to make it more interactive/flexible. After these three precise inputs at output of model system integration developed which is constructed on the basis of several facts of people, Technology and organization and it is combination of these three.

Elements for successful HSI Implementation:

New paradigm — R → changes in vision / strategy — R → changes in work culture — R → changes in organisation components — R → Ability to manage integrated HSI process

R - required

The above exhibit is due simple idea how one can able to implement successful HSI with vital

elements. At very first for new paradigm it's equivalent changes in vision/strategies requires which create changes in work culture and this changes in work culture requires for changes in all organization components related to man , material , machineries , money and of course technology and after these requisites business organizations have ability to manage integrated HSI – process.

Why "change" is vital for HSI:-

Exhibit 1:- Economic and social forces are driving the need for major "change" in organizations

Technological change:-
• faster and better communication
• faster and better transportaion
• more information networks connecting people globally

International economics integration:-
• fewer tarriffs (GATT)
• currencies link via floating exchange rate
• more global capital flows

Maturation of markets in developed countries:-
• slower domestic growth
• more aggressive exporters
• more deregulation

Fall of communists and socialist Regimes:-
• more countries link to the capitalist system
• more privatization

The Globalization of markets and compitition

more hazards
• more comitition
• increased speed

more opportunities
• Bigger markets
• fewer barriers

More large scale change in organization
to avoid hazards and / or capitalize on opportunities, sirms must become stronger compitioins. typical transformation methods include-
• HSI/HCI
• BPR
• reengineering
• restructuring
• Quality programs
• mergers and acquicition
• stratagic change
• cultural change

Sources : from the new rules : How to succeed in today's post - carporate world. By John. P. Kotter.

. The Exhibit 1 shows the correlation in between HSI development and change , because today's business environment has both Hazards as well opportunities for business due to the globalization , thus strong competition and all competitor keep update themselves with new pans, procedures , strategy , decision to run their business better than one another having close or same substitute where substitute may be any product or services , thus for effective & efficient decision making export business intelligence system (BIS_S), decision support system (DSS_S) & export system (ES_S) required which only possible to engineered by effective & accurate HSI-modeling with respective changes. And to create accurate "change" for effective HIS-modeling/engineering eight steps as given in the exhibit: 2

Exhibit 2 : The eight stage process of creating Major change.
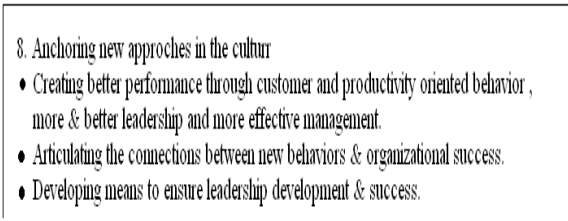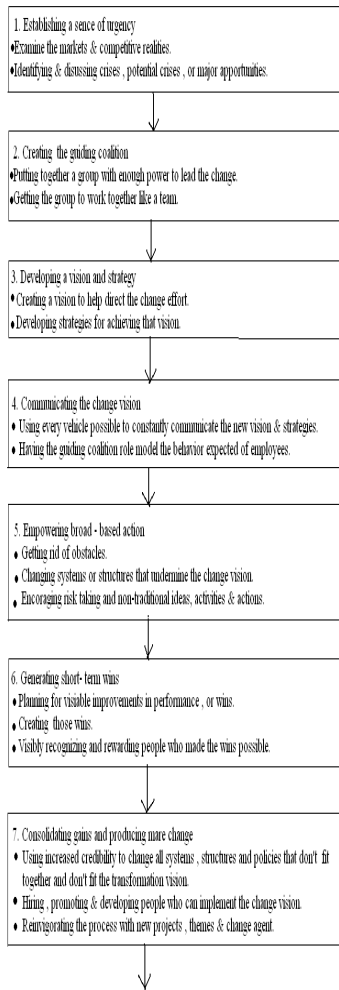
Source: John. p. Kotter, "Why transformation efforts fail"

Harvard Business Review.

Transformational change model:

With two reference of exhibit 1 & exhibit 2 for change management needs to effective HSI-generation HSI- Integration change model display in above illustration. The model passes through four phases for change i.e. Decide to change , Guide to change , support to change and sustain to change with several co-actions to follow in each phase to create HSI integrated change and Transform change

with effective HSI for effective decision making process in business organizations
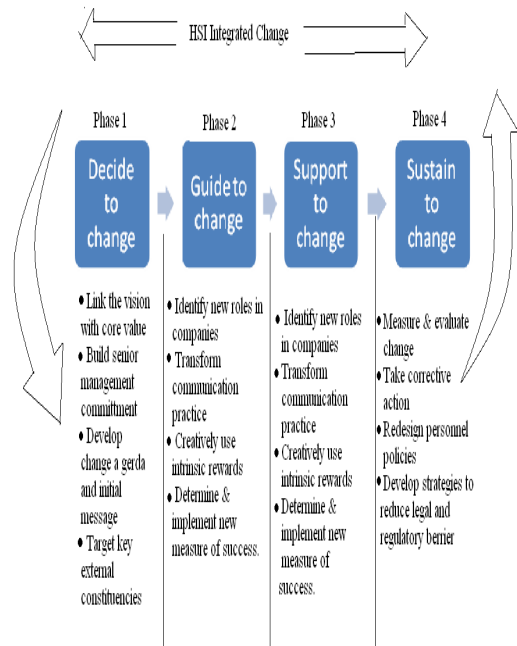
CONCLUSION:

Human System Integration(HSI) is the best solution to run business with dynamic changes with making decision for Anti-plans , control & Anti-strategies against the plans & strategies of competitors , and only possible when computer & IT play vital role in decision making process with human being within business organization thus excellent co-ordination & understanding required in between electronic technologies computers and human being i.e. both should able to understand each other and only happen possible when strongest interactive GUI/HCI offered to business environment in the form of HSI and these HSI_S provide interfacing between computer/system and people for communication & understanding to make effective decisions and synchronize with each other to run business.

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THE STUDY OF SOME MOBILE BASED PROJECTS USED FOR EMPOWERING FARMERS IN INDIA

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ABSTRACT: *Agriculture plays very vital role in Indian economy .India is a country where in 70 % of population is depending directly or indirectly upon agriculture sector. Now a days mobile technology can revolutionize Indian agriculture sector . Mobile technology is appreciate by farmers due to easy to use ,its present convenient and one of the fastest way of communication to the farmers and get prompt information relating to the farmers to communicate directly and share updated agriculture information to each other related to market situation, seeds farming practice, climate pesticides, application of machinery ,post-harvest strategies etc. In this paper I have studied some of the existing mobile technology based project in India this would help the agriculture sector to formulate strategy & enhance the overall efficiency if documented. This study showed that mobile phone can saved cost, energy, and time of the farmers by improving their productivity and income.*

INTRODUCTION:

In India 70% population depends directly or indirectly upon agriculture sector .With growing urbanization & reduction in fertile land it is imperative to have efficient farming to feed the growing population .New approaches and technical innovations are required to cope with these agriculture challenges. This could be achieved with uses of technology for the various functions of agriculture e.g. information on soil testing, information on availability of quality seeds ,cultivation practice ,market information ,information relating to storage .

Now- a- days farmers of India are becoming mobile and internet friendly day by day .Mobile technology coupled with internet be very helpful to the Indian farmers. Now a days mobile technology is affordable with 3 G, 4G, &5G to farmers .farmers can call to call centers on toll free no to get information on agricultural needs.

E –agriculture is an emerging field focusing on enhancement of agriculture in India .e-agriculture means evaluation and application of innovative ways to use information and communication in rural domain .This includes the use of computer, internet, geographical information system, mobile phone as well as traditional media like radio and Television.

In this paper I have studied some mobile based projects which are used in India for Agricultural development e.g. a Aqua Mini, Fisher Friend, M Krishi , Rauters Market Light(RML), IFFCO Kisan Sanchar, Life Tools, CERES, Kisan Kerala, Agropedia.

II. NEED OF MOBILE TECHNOLOGY IN AGRICULTURE:

Agriculture sector of India facing no of problems in increasing the crop productivity .In rural area Indian farmers community depending on conventional method for information so right information not reach on right time to the farmers .These situations create various problems for the farmers ,but now a days the mobile phones has presented an opportunity to the Indian farmers to get information about marketing ,weather, with the help of mobile phone farmers directly stay in touch with market and get reasonable price for his produce in minimum time and minimum cost and improved their income.

Advantages of mobile phone technology in agriculture:

1]Mobile phones have been adopted by rural and urban populations in developing countries and getting a good benefit and latest information regarding weather market and other related issues (Aker and mbiti 2010)

2] Mobile phones provide communication and information transformation to the farmers in minimum cost and time.

3] Mobile phone provide support to the farmers to make tentative decisions more easily relating to farming activities.

4] Mobile phone helps in improving social relationship among farmers.

5] Mobile phone technology has provided connectivity and offer benefits like as mobility and security to owners .(Bayes et al; 1999,Good man 2005,Kwaku &kwaku 2006 ,Donner2006)

6] Mobile phone can help farmers to improve agricultural productivity by giving them access to

new agricultural techniques and new markets ,secure better prices on produce.

7] Mobile phone technology have greatest potential for improving farmers income by accessing agricultural information via mobile.

8] Mobile phone create link between partners of agricultural supply value chain.

9] Mobile phone provide regular information to farmers about nearby market in local language.

Mobile based projects for agricultural development in India – Themobile based projects are providing farmer need based M services through their technological innovative application. The basic objective of mobile based project has benefit to the farmers by providing information about markets ,data relating to the input output availability ,social connectivity etc.

M-services satisfied the basic information needs and demands of farmers in affordable cost ,and create the confidence in the users The application used in the M - services are of short message service (sms),multi-media service(mms)and voice stream.

III. INDIAN MOBILE BASED PROJECTS

1) **a Aqua-Mini –** a Aqua-mini mobile based project is decision –support tools to farmers for progressive farming .This project provided services mainly to farmers including localized – remote crop, diagnostic solution ,audio guide, application in (English, Marathi, Hindi) ,crop and land based disease diagnostics, weather information including (temperature ,cloud ,precipitation) ,sms enabled register and query mechanism, this services are available on GSM and CDMA Network. The a AQUA e-agri service is a problem solving system to find solution to the problems faced by Indian farmers in 24 to 72 hours .It involves 60 expert team from expert forum from diverse areas of expertise.

2) **Fisher friend-** M.S. Swaminathan Research Foundation's Fisher friend project work in Tamilnadu and Puducheery by using mobile technology to provide important information to fisher flok.

   This Fisher friend mobile application is developed by MSSRF partnered with Qualcomm Tata Teleservices and Astute Technology system .These application is designed after making assessment of the needs of the fisher communities and feed back From central users .Fisherman gain important information relating to wave height, wind, speed and direction ,potential fishing zones ,news, government schemes and market price .All content of information is displayed in the local language in Tamil by sending a single button click request from mobile .

3) **M-krishi–** These Mobile Agro Advisory System developed by Tata Consultancy Service for empowerment of farmers by connects them with an eco system to take efficient decisions about agriculture.

This systems allowed to farmers to make a query and receive advice or relevant information on the same in local language .(Robert Horvath,2008). This project working on private partnership based revenue generating business model in Maharashtra and Uttar Pradesh ,for testing its sustainability with Indian farmers needs . This service is available on CDMA network only for providing crop disease diagnosis, sensors based remote land ,crop property recording and micro weather information

4) **Reuters Market Light (RML)-** The project is working on public –private partnership based revenue generating business model in Maharashtra and Punjab states .RML was launched in India in the State of Maharashtra in oct 2007 and oct 2008 in the Punjab state. **T**his project offers up to date localized commodity pricing ,weather updates ,agriculture and general news on GSM network only . In India RML operates in 13 states and covers over 250 crops and more than 1000 markets and 2800 weather locations across these states .RML is a very professional and personalized based service to nsupport the farmers community.

5) **IFFCO Kisan Sanchar (IKSL**) – The project is working on public ,private ,NGO ,partnership based revenue generating business model covering in major states in two stages .The idea of to make use of farmer fertilizer co-operatives for extensive reach and establish a low cost telecom distribution channel through the network of co-operative societies for this IFFCO tied up with airtel for offer platform for the farmers through the network of co-operative of society and provide free daily voice updates on VAS platform (Mandi prices ,farming techniques, weather forecasts and fertilizer availability and provide help line for farmers to question and answers.)

6) **Life Tools–** This project works on private partnership based revenue generating business model in India . The service provide information on seeds fertilizers, pesticides, weather and prices and language options are available in Marathi ,English , Hindi. This services designed especially for the consumers in small towns and rural areas of the emerging market .(Nokia Report:2008)

7) **CERES** – This is the project working on private partnership based revenue generating business model in Gujarat state in Vadodara district covering 78 villages . This services provided information on seeds , fertilizers ,pesticides ,disease ,market price, and weather on weekly and monthly basis to farmers .

8) KISSAN Kerala– It is multi component multimodal delivery of agriculture . Information service system that is accessible any where anytime across the state kerala. The project provide right information to the right people in right format for better decision making and empowering the farmers Project deliver information through the Television ,Internet , Telephone and mobile farmers may choose medium to seek the information . The projects offers following ICT based services .

The projects offers following ICT based service .

a) Online Agri Advisory service – www.kissankerala.net is the portal based online advisory services for the farmers .From this portal farmers can seek expert scientist advice through online.

b) Online Agri Video Channel- It is the country's first online video channel in agriculture with collaboration with google/you tube having more than 150 quality videos.

c) The Mobile Based AgriAdvisory Services- Through mobile phone the project offer text ,voice and video based information service to the farmers .

d) Tele Advisory Service – The project offers telephone based agriadvisory service through the dedicated telephone number to provide real time information.

e) KissanKrishideepam – This television channel produced and telecast of agriculture based weekly television programme in local language.

9)AGROPEDIA - ICAR imitative –agropedia is an attempt to infuse semantic and social networking technologies into the agriculture information management for solving the agricultural problems To making agropedia as main ICT as enabler for agricultural in India ,open agri a knowledge repository . Across the country at district level established total 631 krishivigyankedras with multi-disciplinary express team. The main aim of KVK is the assessment refinement of technology and work as knowledge center in the district. Some experimentation on mobile applications have been worked out in collaboration with technology and its delivery in the form of text and voice messages using mobile phones. VKVK – Voice KrishiVigyan KendraVKVK is a set of experts and farmers connected through mobile and internet only electronically interaction is available between two parties and agropedia is a middle man for this interaction.

CONCLUSION:

Now-a-days mobile application can revolutionize the information on right time in right format. In India mobile phone uses is increasing amongst farmers but still there is a gap between other business industries and farming.

The appropriate development of software, authentication of content, farmer's friendliness, reducing cost of message delivery, text message and voice message in local language, video calling facility may bring efficient use of mobile service in agriculture. But on the other hand it has some challenges such as Literacy level of the farmers, Social acceptance, Poverty, Life style of Farmers in various states.

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EVOLVING ROLE OF LIBRARY AND INFORMATION CENTRE'S IN AN ICT ENVIRONMENT : CURRENT ISSUES AND CHALLENGES

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ABSTRACT: *The information environment is greatly changing throughout the world. The rapid development in Communication and Information Technology and recent innovation in technology have witnessed as challenges and changing emphasis in the role of information and its management. Effectiveness of a library service is now largely depends upon the Information and Communication Technology (ICT). This study attempts to changes in library and its services distinguishing old and new technologies. The study endeavors to identify various components of ICT which are used or being used in libraries and information centre's. It also highlights the problem faced by the library and information professionals and role of libraries in information age.*

KEYWORDS: *ICT, Information Technology, LIC, Library Services, E-Resources.*

INTRODUCTION:

Information and Communication Technology (ICT) is a generic term that covers the acquisition, processing, storage and dissemination of information. It is the boon for mankind. It gives accessibility to information at finger tips. It has reduced the space and time between the people, country and continent and ultimately has led to the emerging concept of "global society" and "global village". Information and Communication Technology (ICT) is a comprehensive and parallel concept with Information Technology (IT), that denotes not only a single unit of technology but and assemble of technologies like telecommunication equipments, semi conductors, consumer electronics etc.[1]

Using ICT, library and information Centre's (LIC's) are playing a very important role in facilitating access to global information and knowledge resources[2] Library professional in the current generation have to act as specialist in the information handling, managing and organizing the library in the digital environment. Observing the present situation the computer and communication technologies have drastically and directly affected the human activities including library and information science practices. Currently the concept of librarianship has typically changed for its practices especially in the service to the end users. The library services are changing to suit the new technologies and modernize the operations. The advanced information processing, storage and retrieval are made simple using the cloud computing technology. Information technology application and the techniques are being used by the libraries for information processing, storage, communication, dissemination of information, automation etc. Further, origin of internet and the development of World Wide Web revolutionized the information and communication technology (ICT) [3]

OBJECTIVES OF THE STUDY

This study is designed and carried out with the view to determine the following objectives :-

a) to identify the reasons for introducing ICT in libraries.

b) to explore various components of ICT used in libraries.

c) to trace the advancement of ICT.

d) to explain the changes in library.

e) to explain functions, benefit and challenges of ICT based library services.

f) to know the role of LIC's in an ICT environment.

3.RESEARCH METHODOLOGY

This study is based on the analysis of the secondary data published in the magazines, journals, books and variousebsites.

4.DEFINITIONAL ANALYSIS

Te present world is controlled by the information and communication technology (ICT). The term ICT is made of the three separate term information + communication + technology. Thus ICT means a variety of technological applications in the process of communication of information. The term has been used as a collective term for the whole spectrum of technologies providing the ways and means to acquire, store, transmit, retrieve and process of information. So some important definitions are given below :-

4.1 Information

According to shanon and Weaver, "Information is any stimulus the reduces uncertainty."[4]

Another definition by Bacon, "Information is that which has the power of changing the size of a thing."[5]

4.2 Information and Communication Technology

"Information and Communication Technology (ICT) is a diverse set of technological tools and resources used to communicate and to create, disseminate, store and manage information."

Hamelink describes, "ICT are those technologies that enable the handling of information and facilitate different forms of communication. These includes capturing technologies (e.g. camcorders), storage technologies (e.g. CD-ROMs), processing technologies (e.g. application software), Communication technologies (e.g. Local Area Network) and display technologies (e.g. Computer monitors)"[7]

5. COMPONENTS OF ICT IN LIBRARIES

ICT is a broad term that covers wide range of technologies. It is the convergence of computers, Communication and microelectronic-based techniques, The technologies and divices like Radio, Telephone, Telegraph, Fax, TV, Mobile phone, Internet, www, Email, LAN, ISDN, Videoconference, Data, Information, Computers, Software, Networking and Satellite communication techniques are major part of the ICT.[8]

Patil, Kumbarand and Krishnananda categorized the component of ICT, which frequently used in library and information center are as follows :-

* Computer Technology
* Communication Technology
* Reprographic; micrographic and printing technology.[9]

The library is the main information centre which can make use of the fat development ICT for the benefits of mankind as whole.

6. ICT IN LIBRARIES : CHANGES AND IMPACT

Information and communication technology (ICT) has wide ranging impact and changes on library and information work. Information activities have undergone rapid transformations from conventional methods, consequent upon introduction of new technologies. This summarized with the help of a table.

6.1 Table :- Comparison between old and new technologies in LIS sector.

Sr.No	Information Activity	Conventional Method	New Technology
	Tex Entry, Editing and Composing	Writing, Typing and Type Setting	Text editing, Word processing, OCR scan and Voice recognition.
	Storage, Preserve	Paper Print media, Shelving, Cataloguing, Manuscript	E-publishing, ROM, Videotext, Digital Mass Storage, Videodisc
	Searching	Catalogue search	Computer Database
	Communication / Dissemination	Bibliographies, Freight, Personal travel lists, Abstracts, Hard copies	E-mail, E-document delivery, Computer network, Tele text, CATV, Satellite, Videodisc, View data, Tele facsimile
	Retrieval	Catalogue, Indexes	Database management system, information retrieval, off-line
	Process	Classification, Cataloguing, Indexing	Electronic data processing, Artificial intelligence/Expert system
	Destroy	Physical Weeding	Magnetic erasers, Optical erasers, re-use the medium

Source :- Cited from Nasir Uddin, 2002[10]

6.2 Changes in Metamorphosis of Libraries

Modern ICT is impacting on various aspects of libraries and information centres. Advancement in ICT and the wide spread use of ICT is resulting in digital information sources and digital media replacing and becoming the dominant form of information storage and retrieval[11]. Today library and information centers develops in following stages :-

Traditional Library

Automated Library

Electronic Library

Digital Library

Virtual Library
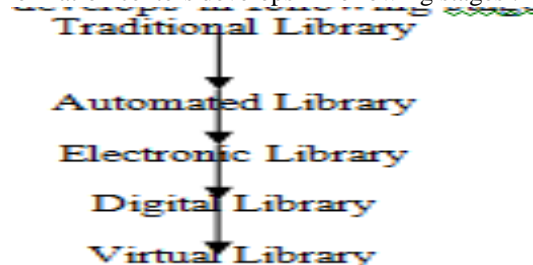
6.3 Changes in Library Services

Various institutions are accepting the changing trend of ICT users. Some library users are adopting electronic habits, making increasing use of the new ICT including computers, theInternet, the

web, Intranet, Extranet and other technologies. Effectively; Library and Information Centres (LIC's) can provide following ICT- based major and useful services to their users, briefly including :-

- Online inter library loan
- Electronic document delivery (i.e. via email)
- Networked information resources
- Provision of web access to DPAC
- Delivery of information to users desktops (i.e. online access to e-book etc.)
- Online instructions (i.e. SMS)
- Online readers advisory services
- Library management (i.e. classification, cataloguing, database creation, database indexing)
- Digitization works and services
- Library automation
- Audio-Video technology (i.e. photography, optical discs, reprography)
- Technical communication (i.e. technical writing, editing, publishing)
- Collection (i.e. online access to subscribed database)
- Online accessible electronic reservation
- Reference (i.e. online reference including simple email reference and real-time virtual reference)12

7. FUNCTIONS AND ADVANTAGES OF ICT IN LIC's

Basically, computers in libraries have been used and in most cases are still being used to automate the following functions :-

- ❖ Acquistion and budget
- ❖ Cataloguing and short loans
- ❖ Circulation
- ❖ Serial control (Periodicals)
- ❖ Provision of access to online catalogue[12]

All computer based systems should be user friendly and should satisfy as many of the following factors as possible some of the advantages and importance of ICT include :-

a] Speedy and easy access of information.
b] Improves the quality of library services.
c] Easy to gather different library activities.
e] Avoid repetition of efforts within a library.
f] Save the time of the users.
g] Increases efficiency.
h] Improve the stasus of the library.
i] Improve the communication facilities.
j] Remote access to users.
k] More up to date imformation.

l] Access to unlimited information from different sources.
m] Reforming and combining of data from different sources.
n] Reduce the workload of the library staff.
o] Enhance the knowledge and experience[13].

8. CHALLENGES AND DISADVANTAGES OF ICT

Impact of ICT made various challenges and problems in online publishing. In case of e-journals and online databases, the library looses its access after stopping the subscription. The publishers do not give access to the issues which were subscribed. Besides these ICT has following general disadvantages :-

a] More technology dependence.
b] Inadequate trained staff.
c] Insufficient fund and budget challenges.
d] Operational cost are exceeding year by year.
e] Unemployment.
f] Less use of human brain.
g] Socio-technical issues.
h] Preservation and copyright problems for digitization.
i] Lack of sufficient sanctioned post.
j] Lack of national policies promoting (ICT)[13].

9. ROLE OF LIBRARIES

In this changing scenario, libraries and librarians will continue to play an important role in handling conventional and electronic resources. Libraries must be quick to recognize and realize the advantages of ICT and must try to adopt and adopt it for their operation.

Atkinson[14], however, believes that the role of the library in an ICT-based environment would be :-

a] To identify resources that are likely to be of greatest interest locally and downloading these to a local database – a kind of deferred collection development operation (locating information sources as they are neede rather than to predict the needs in advance).

b] To become a publisher and disseminator of information by uploading rather than downloading.

In modern society, where the use of electronic services and web based information sources constantly increases, libraries are managed in a more democratic way, have more flexible communication system and work organization and their service development is based on the quality and user – orientation of services. In the modern knowledge society libraries have a new role and there are various type of library models. These are as follows :-

- ❖ traditional library as a memory institution.
- ❖ library as a learning and research centre.
- ❖ library as a cultural and communication centre.
- ❖ electronic library.

❖ virtual library as library without walls.

In this age of information and knowledge libraries should be repositories of all of the knowledge and information accumulated by human kind. Today's advanced information technology is enabling libraries to accomplish this immense task. Libraries should upgrade their services by digitizing their resources for online use. These services should be accessible to anyone, regardless of time or location, through digital communication devices. Libraries can play significant role in providing a good education and knowledge of high quality[15].

10. NEW SKILLS AND KNOWLEDGE REQUIRED FOR LIBRARY AND INFORMATION PROFESSIONALS

The librarianship concept of has changed by change of time. In earlier stages, the librarian as a custodian and caretaker of books. But today's library and information professionals are having new technologies handling skills like physical form of books and journals is replaced by ICT and electronic media such as CD-ROMs, DVD and Floppy Disc etc. So the librarians and library professionals are automatically undergoing a change due to necessity of information literacy. The library professionals are need balance combination knowledge, skills to maintain ICT and electronic environment.[16]

In addition to the traditional library and information management skill, librarians now need to process additional skills and expertise, more so in the use of modern information and communication technologies, automated information service, electronic publishing, digital information management and knowledge management[2]. New information professional should acquire technological systems thinking, commitment to continuous improvement of skills, techniques and strategies and sensitivity to network environment.[17]

In modern ICT based library services, the library and information professionals handle various types of activities in relation to the use of computers and other new information technologies. Some of these are :- handling and developing information storage and retrieval systems of specialized / local data and materials, managing different types of housekeeping operations, carrying out online searches for information users using modern equipment, exchanging local databases and sharing of resources through networking.[18] The new trends using the free open source software are for developing digital library and institutional repositories locally. Freely available many tools are over the internet. The library professionals must have update their knowledge technically and technologically by the way of workshops, tutorials and seminars organized the subject experts.[16]

CONCLUSION:

Now a days, various libraries are operating in a quickly changing situation, they should be aware of latest technologies to continue and maintain the importance of the service offerings. In the modern world the library and information professions have been changed and opted itself to the developments of ICT. These technologies have acquired the do or die prominence, those who go with the advance will survive and other will become obsolete. A well equipped library with the facilities of modern infrastructures and technologies could satisfy the maximum demand of the present technology conscious users.

Utilization of ICT in present libraries is optimistic to gain right information at the right time in the right place and at the right cost. ICT helps to progress the rank of the library and it condense the work stack of the library profession. Developing countries and developing individuals, users can create wealth through active contacts and use of knowledge and information. They are getting opportunity to enhance their wealth through the creation and use of knowledge. And libraries are taking a central role in this information Age.

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DECISION SUPPORT SYSTEM FOR URBAN GREENERY SPACE PLANNING USING GIS AND DM TECHNIQUES: ARCHITECTURAL OUTLINE

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ABSTRACT: *The primary objective of this study is to design a GIS based spatial data mining model and apply it for urban open space areas for the preservation. One of the decisive tasks for urban policy makers is the decision of proper tree selection by taking into consideration with various factors. To overcome this state, a decision support system is proposed by using GIS and Data Mining techniques. The key principle of this study is the effective and efficient methodology. The objective of this research work is to introduce data mining over geographically collected data .One key to a sustainable future within the changing world is access to spatial information and to reach information by data mining that leads to better decision-making.*

KEYWORDS: GIS, Framework, Decision support system, open green space planning, SDM

INTRODUCTION:

Today's world is facing global issues caused by urbanization, global climate change, increasing population and developmental activities, which puts the pressures on environment & ecosystem. To address such kind of issue we need collaborative, long-term, strategic urban green space management planning, which support proactive management approaches. The emerging experience and ongoing action research in the world on climate change, agro-forestry and rewards for environmental services can become a cornerstone. This leads us to get the results in the form of increased operational efficiency, risk reduction, increased urban forest canopy and leaf area. This has enforced to create greenery spaces with urbanization and developmental activities which will enable us to accept the complex problems related to above mentioned problems [1][2][9].

Problems regarding with decision making and resources allocation are handled by planning through the world which needs suitable information for development activities. The use of technical development plan can improve the environmental debasements of urban area with appropriate maintenance. The Technology can serve competently by plural ways while dealing with these issues. The creation of greenery space involves complex decision making process regarding planning, selection, plantation, culturing of plants. It demands several inputs about soil, air, water, fertilizers, diseases, preventive measures etc. Various planning processes have been introduced with a synergistic planning approach act as a key factor for reducing urban heat and its associated effects. While planning the urban environment, we need to understand the fundamental requirements of urban area. While understanding this issue some questions need to be answered such as how to preserve the green infrastructure? How long it required the planning? How to implement such plans such questions should be focused while developing any plan for urban green space? There is always a logical relation between development and policies which maintain the balance in between urban development and green infrastructure.

Geographical Information Systems based planning support tools and Data mining techniques have been widely used in recent years for dealing with the decision making process and planning support. Basically these techniques are more useful to discover the relationship between urban attributes. While discovering relationships between urban attributes, data mining can constitute a methodology for the analysis of multi-dimensional relational complexity of urban environments. The decision making for Greenery Space Planning may be supported by applying Geographical Information

System (GIS) along with data mining techniques. Geographic Information Systems (GIS) uses location based data normally known as geo-referenced data which visually represent the dataset and allows users to better understand and solve problems. Various numbers of GIS applications are available for the data analysis, spatial distribution of data which has improved the data analysis technique. Multiple sources are used for the data collection which increases the accuracy of results. Various studies have been introduced in the GIS research area which has shown how a GIS based analysis can support integrated distribution of population, manpower, material resources and financial resources, city greening planning design, construction, transportation cost and the maintenance management and other comprehensive factors which explores the importance of urban green space [3][4][5][9].

With the help of technological tool like GIS and Data mining it become easy to make intelligent decision to perform sophisticated calculation for analysis purpose. Using such integrated techniques one can rapidly produce new possibilities for gathering, analyzing and presenting geographical data by extending their capabilities to discover hidden patterns in databases. By applying these techniques on spatial information we can built and maintain spatial database which had number of critical application domain including spatial and environmental planning, public health and safety, climatology, transportation, and mobile-commerce. Considering the present scenario of urban environmental pollution, there is a growing need for changing the approach of planting trees and other plant species. The aim of this study is to find out the conceptual framework for urban greenery planning. The present investigation proposes a GIS based model along with data mining techniques which will summarizes a strategy for supplying the ecosystem services for urban area through the required planning process. The model will also allow easier adaptation for Local Government and for other similar communities wishing to implement standard policies for Green City / Green India programs.

SYSTEM OUTLINE

Previous studies had suggests that one of the major causes of the loss of urban greenery is urbanization. While other studies have introduced that deficiency of coordination in between spatial planning and environmental management results in conflicting objectives. One of the desirable tasks in the context of degenerating environment is to develop and maintain the healthy atmosphere, in such worst case plants play an important role.It is hypothesized that selection of proper tree in urban areas by using decision support system can bring improve ground water quality, maintain healthy watersheds, streams by holding soil in place. The study consists of the following objectives like to

explore in brief GIS technology with its Spatial Analyst, and it's potential to be an effective tool for urban tree and green spaces Secondly the utilization of computer based inventory systems as a valuable resource in managing and maintaining the trees.

During the investigation we found that, In [6] Author designed SDSS to determine optimum sites for physical developments within the built environment. The formulated SDSS took into consideration for existing and future planning scenarios with the aim of creating a sustainable built environment. The use of this application system has shown that that planning related to the urban environment can be made more flexible, dynamic and responsive to timely decisions on geographic space. The results of this study also stated that other things need to refocus development in the urban built outside the core areas for efficiency and sustainability of the near balance between physical development and the natural environment.

In [7] As per authors opinion Small green areas, including school green areas (SGAs), are an important component of urban green infrastructure which play a key role in supplying cities with educational services. In the present study author described how SGAs can amplify an urban green area's connectivity and multifunctionality. With the help of parametric and nonparametric statistical analysis, variables were identified which determine an SGA's presence and size. Potential connectivity assessment results showed that most of the schools that lack or have small-sized SGAs have the possibility to cover their green space deficit by developing activities within nearby public green spaces. The increased connectivity and multifunctionality of urban green infrastructure through small, specialized green areas, such as SGAs, is an indicator of the fact that such areas can be used to ameliorate the deficit of green space in major urban areas

In [8] for the identification of locations that are spatially available for potential tree planting based on land cover, sufficient distance from impervious surfaces, a minimum amount of pervious surface, and no crown overlap with other trees GIS-based method for locating potential tree-planting sites based on land cover data is introduced by Chunxia Wu . In an Arc GIS environment, a computer program was designed to iteratively search, test, and locate potential tree planting sites by virtually planting large, medium and small trees on plantable areas, with large trees given priority as more benefits are expected to accrue to them. The result of this study has found that smaller trees are more susceptible to land cover classification errors. This can be improved in the future by setting more strict rules for selecting planting sites.

ARCHITECTURAL PLANNING COMPONENTS:

In order to bring forth the decision support system for urban greenery space planning we have designed following method.
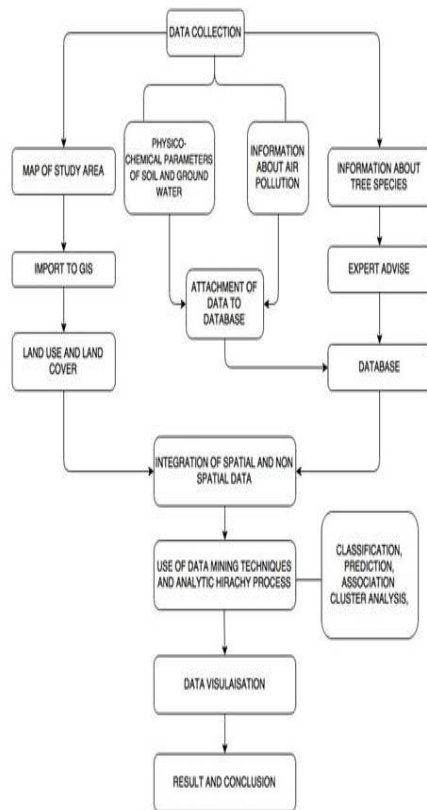
Fig 2: Proposed methodology

1. **Data Collection:** For strong knowledge based research, it is necessary to carry out the efficacious analysis with meaningful conclusion. The data collection for this study is straightforward .various physico-chemical parameters of soil and ground water has been tested. Air pollution records were collected from official government websites. This information was entered into geo database. Information about tree species is based on their geographical nature and expert advice.
2. **Map of the study area**: Basic need for suitability analysis is thematic maps, and then the first step is to draw the topographic guide map of the survey region. Numbers of GIS applications were used for overlaying thematic layers to demonstrate databases.
3. **Import to GIS** The strength of a GIS is to handle the sophisticated functions which consist of numerous tasks for utilizing both spatial and attribute information stored within them. The study area map was imported in GIS environment with various operations like Geo-referencing, assigning coordinates to the map, spatial data points, lines or polygons.
4. **Land use and Land cover**: due to availability of large land resources land utilization process become an important predicament for planning process. In this section we have examine the change detection process in between a decade.
5. **Integration of spatial and non-spatial data:** This process is commonly known as joining the geo-database to the respective map.
6. **Information about tree species and Expert's advice**: To deal with tree species information expert advice has been taken into consideration. Information about tree species is based on their geographical nature and expert advice.
7. **Use of data mining techniques and AHP process:** In spatial data mining, we primarily use existing data mining algorithms over urban databases to give good insights in terms of patterns. The discovered patterns can be used for characterizations of models for prediction, association, grouping, classification and better resource management. The ultimate goal of use of DM techniques is in terms of prognostication actions to improve environmental performance in urban area. AHP process is used to select appropriate criteria for tree species .
8. **Result and analysis:** The designed model for this study provides the foundation for researcher to improve necessary modification with improved data. The invested results which are analysed in GIS environment along with various data mining techniques are presented in the form of maps.

CONCLUSION:

The main intention of this paper is to design a decision support system model for urban greenery space management .Throughout the experiment we found that the GIS integrated with DM technique has offered broad and easy to use tools for analysis and to be used for decision making process. We made an attempt to represents the systematic spatial analysis of urban green space planning.The designed model for this study provides the foundation for researcher to improve necessary modification with improved data. The proposed methodology will become successful contribution for ecological planning. To manage the urban tree environment it is very important to promote the proper guideline and implementation of methodology. In this study we suggest approaches for finding patterns in urban environment.

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PERSPECTIVE ON DATA MINING IN PAST, PRESENT AND FUTURE

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ABSTRACT: *Since last many years, data mining techniques have been emerged as a tool to analyze, manage and make decisions from large data. They also help in classifying, segmenting data and in hypothesis formation. Their output is new information in terms of interesting patterns or business rules which can enhance existing decision making process. The sole purpose of this paper is to discuss the variety of improvements in the field of data mining from past to the present and explores the future trends.*

KEYWORDS: *Data mining, knowledge, hypothesis, past, present, future trends.*

INTRODUCTION:

Data mining is about explaining the past and predicting future by means of data analysis. Broadly, data mining is process of finding of relevant and useful information from Database. It is a subject of interest for three major streams including statistics, computer science and business management. Statistics is the first approach broadly deals with theoretical concepts of data mining techniques. The theoretical background of the decision tree, clustering, fuzzy sets, and other statistical techniques belongs into this category of study.

Just developing the theoretical foundation for data mining and data warehouse will not be sufficient. One has to also develop the appropriate algorithm to handle large database. For example, the theory of the decision tree has been known to statisticians is to be used by machine learning community. But in order to make the decision tree construction process suitable for data mining, it is necessary to design new algorithm that can handle large database which are stored in memory. So need to work on details of integrating the algorithm with dataflow either through a DBMS or Data Warehouse. These aspects are more relevant to computer scientists. Third one is to identify new area of data mining application for effective business process. Different case studies are to be analyzes in detail in

this approach to training. A Management Science students will find such a approach useful[1].

EVOLUTION OF DATA MINING:

During the initial years, development of computer techniques is concerned with business data processing and scientific computing. Computer professionals were concerned with designing files to store the data so that information could be efficiently retrieved. There were restrictions on storage size for storing data and on the speed of accessing data. These problems were solved by DBMS. Database administrator maintained simple query languages so that user can access almost any business- small medium or large scale began using computers or day-to-day activities. Due to wide speed of computerization, every organization is now accumulating a large volume of daily transaction data and storing as archives. As a result gigabytes/terabytes/ petabytes of data are store up in companies, governments and research institutions. What use are all these data? Up to the early 1960's the answer to this question was not much. Not one was really interested in utilizing data which was accumulated during the processes of daily activities. Data mining is a component of a wider process called knowledge discovery from database. It involves scientists, and statisticians as well as people working in fields such as machine learning, artificial intelligence, information retrieval and pattern reorganizations.

In a universal DBMS, data are integrated from different sources to a new database in Object Oriented-DBMS or Object Relation- DBMS. The data warehouse collects data from different sources for (OLAP) (On Line Analytical Processing) and data mining applications. Among all these nodes of integration, data warehousing is considered to be the most efficient for decision support application. Data warehouse is particularly relevant in the contexts of data mining and OLAP. Such collections of data whether their origin is business enterprise or

scientific experiment, have remarkable interest in the areas of knowledge discovery and data mining. Data mining refers to extracting or mining knowledge from large amount of data.[2] It is the computational process of discovering patterns in large datasets, i.e. intersection of artificial intelligence, machine learning, statics and database system. The goal of data mining process is to extract information from dataset and transfer it into an understandable structure for further use. The phrase Knowledge Discovery in Databases (KDD) and data mining are frequently used interchangeably. Data Mining is the use of algorithms to extract the information and patterns derived by the KDD process. The KDD process consists of following steps: Selection (The desired data for the data mining process is collected from different and heterogeneous data sources), Preprocessing(selected data is the raw data from multiple sources which includes cleaning data remove noise and duplicate observations etc), Transformation (Data from different sources have to be converted into particular format for processing), Data mining(Based on data mining task being performed, this step applies different algorithms to transformed data to generate the desired results.), Interpretation/Evaluation (Present the data in a useful format, such as a graph or table).
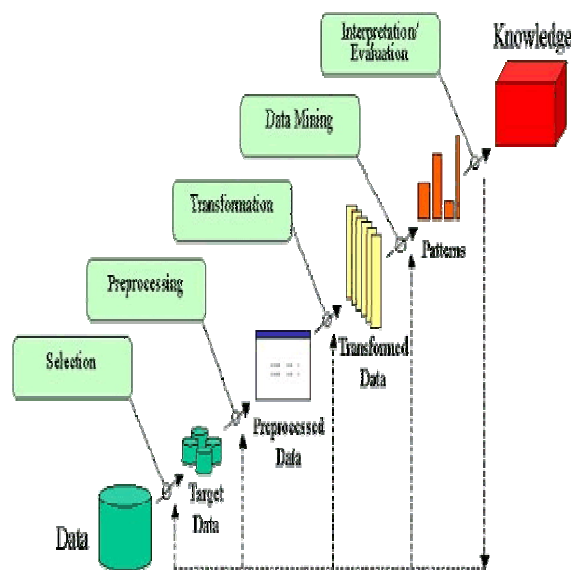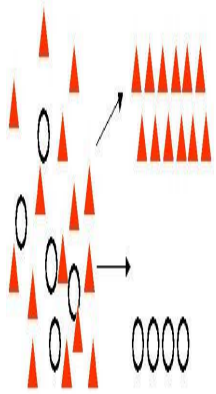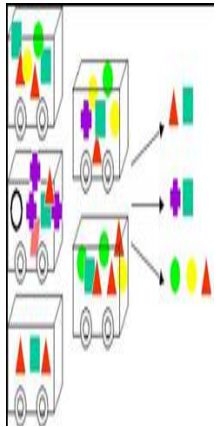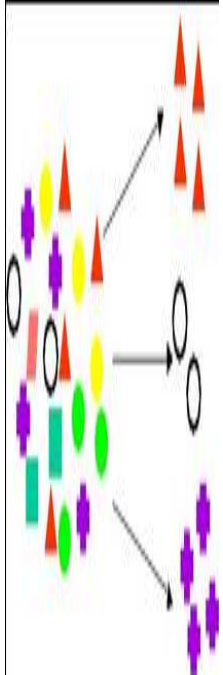
Figure 1: Knowledge Discovery Database Process.[4]

DATA MINING TECHNIQUES:

There are several major data mining techniques have been developing and using in data mining projects recently including association, classification, clustering and regression. We will briefly examine those data mining techniques in the following table. Techniques have some specific algorithms to implementations of the data mining

operations. However, each operation has its own strengths and weaknesses. With this in mind, data mining tools sometimes offer a choice of operations to implement a technique.

Data mining techniques	Applicability	Algorithms
Classification:	A systematic approach to build classification models from an input data sets	Classification have more than one algorithms include: Classification by back propagation, Decision tree (Decision tree induction and tree pruning), Bayesian classification and Bayesian belief other classification methods(k-nearest neighbor classifiers, Genetic algorithm and Rough set theory.
Association:	Finds rules associated with frequently co-occurring items, used for market basket analysis, cross-sell. Useful for product bundling, in-store placement, and defect analysis.	A priori algorithm, Partition algorithm, Pincer-search algorithm, Dynamic Item set Counting Algorithm, FP-tree Growth Algorithm, Incremental Algorithm, Border Algorithm.

Clustering:	Cluster is a group of objects that belongs to the same class. In other words, similar objects are grouped in one cluster and dissimilar objects are grouped in another cluster. Common examples include finding new customer segments, and life sciences discovery	Enhanced K-Means— Supports text mining, hierarchical clustering, distance based Orthogonal Partitioning Clustering— Hierarchical clustering, density based Partitioning Algorithms, K means & K-Mediod algorithms, CLARA, CLARANS, Hierarchical clustering, DBSCAN, BIRCH, Categorical Clustering algorithms, STIRR, ROCK, CACTUS.

APPLICATIONS AND FUTURE TRENDS:

The commercial, educational and scientific applications are increasingly dependent on data mining techniques. Due to the importance of extracting knowledge/information from the large data repositories data mining has become an necessary component in various fields of human life including business, education, medical, scientific etc. Here is the list of areas where data mining is widely used for Financial Data Analysis, Retail Industry, Telecommunication Industry, Biological Data Analysis, etc. Other Scientific Applications like Data Warehouses and data preprocessing, Graph-based mining, Visualization and domain specific knowledge. Data mining concepts are still developing and here are some of the newest trends that we get to see in the field of Application exploration, Scalable and interactive data mining methods, Integration of data mining with database systems, data warehouse systems and web database systems, Standardization of data mining query language, Visual data mining, New methods for mining complex types of data, Biological data mining, Data mining and software engineering, Web mining, Distributed data mining, Real time data mining, Multi database data mining, Privacy protection and information security in data mining,

etc. Numbers of computer programs (software) are used for data mining processes. Many IT companies like IBM, Oracle and Microsoft, are providing data mining packages. Some are open source and some costs money. While WEKA, Rapid Miner, Pentaho, Orange, Scriptella ETL (Extract-Transform-Load), KNIME, ELKI (Environment for Developing KDD-Applications Supported by Index-Structures) programs are open source, SPSS Clementine, SQL-Server Business Intelligent Studio, SAS Data Mining Software, ODM(Oracle Data Mining) Software's cost money.

CONCLUSION:

In this paper we tried to briefly describe the various data mining trends from its origin to the future. This analysis would be helpful to researchers to focus on the various issues of data mining. We found that data mining is becoming increasingly common in both the private and public sectors. Industries such as banking, insurance, medicine, and retailing commonly use data mining to reduce costs, improve research, and enhance sales. So, data mining will be more and more useful in future. However, further study should be performed on the auto generated selection of data mining techniques for particular applications.

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SYMPATHETIC OF STATISTICAL ANALYSIS VIS-A-VIS DATA MINING USING EDUCATIONAL DATASET

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ABSTRACT: *This paper focuses on easy understanding of data mining approach as compared to statistics. Elementary researchers always get confused between statistics with data mining. We have devised out our own dataset of students and some variables like student's background area, gender, scholarship, career dreams, etc were used for analysis as well as discovery of basic patterns. Further, analysis is extended to study behavior patterns with respect to utilization of free time, expenditure and their awareness about earning money in free time.*

KEYWORDS: *Data Mining, Analysis of Patterns, Statistical Analysis.*

INTRODUCTION:

In real life situation, basic data as well as hidden patterns in the data are key resources of intelligence for every organization including business and educational. Dunham (2002), Gordon and Michael (2011), discussed the advances in data sciences primarily came to cater demands for better and faster decisions based on this intelligence. That's why data driven intelligence is now core area of every organizations. Statistical analysis and Data mining are common tools for data driven intelligence. There are some marginal differences between these two and are not visible by naked eye. This is common cause of confusion. It is openly understood that Data Mining and Statistics are mutual fertilization with convergence. The Statistical analysis is designed to deal with structured data in order to solve structured problems such that Results are software and researcher independent. Similarly, inference reflects statistical hypothesis testing. On the contrarily, Data mining is designed to deal with structured data in order to solve unstructured business problems such that results are software and researcher dependent assuming absence of implementation standards. Similarly, inference reflects computational properties of data mining algorithm at hand. Statistical analysis examines a variety of relationships in data, but they share some common elements. The data mining gives deep insight into data.

In this study, we have selected our educational organization as domain due to easy availability data. Statistical Analysis and Data mining finds applications in educational organizational data as they strive for predicting knowledge from databases (Gordon and Michael, 2011; Eko, 2005) including student support services, reforms, course enactment, course modifications, registration processes, alumina associations, etc. such practices can be treated as Academic Analytics (Han and Kamber, 2006; Behrowz et. al., 2003; Gordon and Michael,2011). The Academic analytics will help in extracting high level knowledge from raw data and hence offer an interesting automated tool that can aid the educational domain (Dunham, 2002; Behrowz et. al, 2003). This will also enable Central Government of India, Human Resource Development Ministry, and University Grants Commission of India to catalyze over all educational activities better than the naive approach.

Over the years, University like Swami Ramanand Teerth Marathwada University, Nanded has accumulated a vast amount of data in their databases- information systems. These data typically represent daily operations and transactions within education, administration contexts. It is easy to see that all the business intelligence and rules are, in some way, can be embedded in these data. This work is an example of a joint interdisciplinary work undertaken by three Schools of our University, viz, School of Computational Sciences, School of Mathematical Sciences and School of Educational Sciences. The School of Educational Sciences helped for student's psych analysis. The School of Mathematical sciences helped for actual statistical analysis. The School of Computational Sciences helped for actual experimentations. A student's dataset was created with 360 records and 46 fields by closed questionnaire method. Analysis was carried out using IBM SPSS software.

In future, this work may be a role model for other institutions and one may realize that, which kind of variables and what kind of information has to be captured and perform academic analytics for accurate insight.

RESEARCH METHODOLOGY

A questionnaire is designed by way of predefined options (Paulo and Silva, 2008). The questions were primarily reflecting social, economical, performance related and behavioral background of students, as defined in Pritchard and Wilson(2003), Paulo and Silva (2008). After revisions and primary discussions with experts, the final version of questionnaire contained 43 questions in a single one sided paper sheet and it was answered by all students in the School of Computational Sciences.

Finally, the data was integrated into a dataset with 360 student records and each record consists of 46 fields (three additional fields than the total number of questions for seeking information of students). Microsoft Excel 2007 software is used to record the dataset. Data set values like Yes / No were converted in to numeric values like 1 or 0. Other numerical codes in the range 0,1,2,3,4 …6 were also given depending upon the number of possible answers a question can have. Likewise other answers are also converted into numeric values.

During the pre-processing stage, we got around 18% confusing data or falsely filled data or partly filled questionnaire in first step. In order to correct them, the students were called on one to one basis and convinced to fill the missing data. There were some confidential issues discovered after going through the filled questionnaire. Appropriate actions were taken time to time for example, girl students shied to disclose their personal mobile numbers. Significant number of students got convinced and for remaining students, our departmental number kept as their contact number.

EXPERIMENTATIONS AND DISCUSSIONS

The examination of cross-classified category data is common in evaluation and research. The with Karl Pearson's family of chi-square tests representing one of the most utilized statistical analyses for answering questions about the association or difference between categorical variables through IBM SPSS 22v software. An attempt has been made by using Chi-square tests developed by Pearson; primarily it focuses on the Chi-square tests of independence and homogeneity of variance. Some of the significant hypotheses are narrated in below sections.

Statistical Analysis

Statistical analysis is a component of data analytics. In the context of business intelligence (BI), it involves collecting and scrutinizing every data sample in a set of items from which samples can be drawn. A sample, in Statistics, is a representative selection drawn from a total population. Statistical analysis can be broken down into five discrete steps as follows:

a. Describe the nature of the data to be analyzed.
b. Explore the relation of the data to the underlying population.
c. Create a model to summarize understanding of how the data relates to the underlying population.
d. Prove (or disprove) the validity of the model.
e. Employ predictive analytics to run scenarios that will help guide future actions.

In the first part of this paper, the primary objective of this work is to introduce statistical analysis over collected data sets. Statistical analysis examines a variety of relationships in data, but they share some common elements. We have made analysis using Chi-Square Tests with the help of IBM SPSS 22.0 Software and found some significant results. The Chi-square test is applied to test the homogeneity among the variables under study with the selected variables which shows significance of the study. Regional study with respect to variables like place of living (P-value: 0.001); Do they use internet? (P-value: 0.000); How much free time they have for study? (P-value: 0.045). According to gender wise study with a variable how much scholarship they get? (P-value: 0.000). It is observed that, there is significance difference i.e. Male students get more scholarship than female students. Also, there is a significance difference among gender wise difference in their place of living. We have also found significance among student's fatherhood (P-value: 0.006), education and job nature (P-value: 0.000). There is significance among diversity i.e. regional diversity among fatherhood working/earning sources; significance among the part time job performing students and their study time. There is significance among those students who are doing part time job and unable to complete the tutorial as compared to those who was not doing part time job but not completing the tutorials.

DATA MINING ANALYSIS

Generally, data mining, sometimes called data or knowledge discovery, is the process of analyzing data from different perspectives and summarizing it into useful information that is the information that can be used to increase revenue, cuts costs, or both. Data mining software is one of a number of analytical tools for analyzing data. It allows users to analyze data from many different dimensions or angles, categorize it, and summarize the relationships identified. Technically, data mining is the process of finding correlations or patterns among dozens of fields in large relational databases.

The secondary objective of this study is to some invisible co relationship between considered

variables, which otherwise invisible in statistical analysis. To do this, we need to have a hypothesis. We hypothesized to investigate whether studious nature alone contributes to performance of students? If no, what other variables are related to increase or decrease in performance? It was clear that the statistical analysis did not give answers to such questions. Hence we go further with data mining approach to dig the hidden relationship between the variables. To do this, we carried out some set of experiments. The core objective is to find relationship between personal details with family background. The purpose of the first experiment was to examine the relationship between student's details and his/her family background. We made two groups for proper analysis. The first group is student's details containing three parameters, viz, Gender, Age and UG Percentage. The second group is his/her family background and the parameters chosen are Father's Education, Father's Job, Father's Income, Mother's Education, Mother's Job, Mother's Income, Family Size and whether student do any Part time Job? Here, we used Canonical correlation analysis to find the significant relationship between student's details and his family background. The analysis is carried out using the manova command through IBM SPSS22.0v software where the point-and-click analysis menu is not available. The manova command is one of the SPSS's hidden gems and used with the discrim option, manova computes the canonical correlation analysis.

After analyzing all above contemporary results, we understood that it is essential to discover important variables from our dataset / questionnaire. In routine sense, their interrelationship can give us an idea for prognostication interventions. We are aware that many variables and their interrelations need to be analyzed for characterization of an object. It is always true for questionnaires as they consist of many questions, such that each question contributes for one variable. Studying all variables and their interrelation may be complicated as they may divert us from the original research focus. For such exploratory analysis, we can use factor analysis (Rieveld and Van Hout, 1993;Habing, 2003). Here, inter correlations between the variables under study is shown. If the correlation is strong enough, we call it as factors (Field, 2000). We have made an attempt for discovering more factors and use them subsequently to get new dimensions. Keeping all these contemporary research updates, we use Univariate, Multivariate and Co-relational analysis over student's dataset. The ultimate goal is to find personal behavioral and family background related variables that have inter-relation together which severely affect the student's performance. Our observations gave us significant outcomes. The number of possible canonical variates also known as canonical dimensions, is equal to the number of variables in the smaller set. In this study, the first set

has three variables and the second set has eight. This leads to three possible canonical variates for each set, which corresponds to the three columns for each set and three canonical correlation coefficients in the output. The Canonical dimensions are latent variables that are analogous to factors obtained in factor analysis, except that canonical variates also maximize the correlation between the two sets of variables. In general, not all the canonical dimensions will be statistically significant. A significant dimension corresponds to a significant canonical correlation and vice versa. Based on these results, the correlations between Gender and Age variable in a group and the group's canonical variates shows 0.86106 and 0.75778 respectively shows strong positive correlation. The variance in dependent variables explained by canonical variables 45.50%, 28.62 % and 25.86% respectively. The variance in dependent variables is accounted by canonical variates 4.13%, 1.30% and 0.32% respectively. While computing correlations between covariates and canonical variables we observe that, Father's job (.85855), Family size (.30136), Part time job (.23043), Mother's job (.23008) and Father's income (.01272) are positively correlated. Only Father's job (.85855) shows strong positive linear relationship with Gender. Mother's job (.16560), Mother's income (.06192) are positively correlated, it shows weak linear relationship with Age. Mother's income (.79032), Mother's education (.50074), Father's income (.36933) and Father's job (.05517) are positively correlated; it shows that mother's income and her education are positively correlated with UG Percentage of the student. Further, after performing Regression analysis for within cells error term by individual Univariate 95% confidence intervals with dependent variables we observed that, Father's Education, Father's Job shows the significance difference among all canonical variates. Similarly, Father's Education, Father's Job shows significance difference among all canonical variates.

The output above shows an overall multivariate test of the entire model using multivariate criteria. This is followed by the three canonical correlations and the multivariate tests of each of the dimensions. These results show that the first two of the three canonical correlations are statistically significant at the .05 level. It is observed that Age and UG percentage variables are showing significance difference among the dependent variables.

CONCLUSION:

The main focus of this study is to experimentally highlight the thin line difference between statistics and data mining. It was openly understood that Data Mining and Statistics are mutual fertilization with convergence. Our paper has experimentally proved this over educational data. Finally concluded that, statistical analysis examines a

variety of relationships in data, but they share some common elements and data mining is for gaining deep insights into data.

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UNDERSTANDING EMPLOYABILITY-AN OVEREVIEW

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ABSTRACT:*This research paper is nothing but the attempt of the authors to provide a brief idea about the work Employability which is the issue of red hot stove today. This concept has become a matter of concern for many scholars, industrialists, experts and even for the state administrators. The increasing number of graduates or literate youngsters in India is starving without employments. But paradoxically many jobs are vacant waiting for right and employable personnel. Many of them are unaware of this need of competencies essential to perform those jobs i.e. Employability Skills. This paper is one of such efforts to make them understood this term- Employability in brief. The paper is comprised with concept of Employability, definitions, journey of Employability and components of Employability.*

KEYWORDS: Competencies, Employment, Generic Skills, Excellence, Labor Force etc.

INTRODUCTION:

Today everybody is talking about the skill development and every institute preferring this issue. But what does it really mean? Which sort of skills are to be developed? Jobs today demand more functions to be carried down at a time which ultimately creates need of such multi-skilled, multitasking people with variety of knowledge, abilities and skills to handle them. All this, gives rise to the concept of 'Employability' i.e. an ability of an individual to perform a certain task in effective and efficient manner. Now, the individuals have to be quick and adaptive learners to become more marketable in light of varying career opportunities (Fugate, Karevli& Hall, 2006).

1. OBJECTIVES OF RESEARCH PAPER-

For every research, the pre-decided objectives are seemed to be the base. On that base the whole research has to be built. Authors of this research paper have further objectives behind it-

a. To portray a need of Employability among labor force.

b. To describe the concept of Employability along with its journey over the time.

c. To determine the components of Employability for better understanding to this concept of Employability.

d. To make an attempt to create awareness and understanding of this concept among stake holders in the field of employment.

2. RESEARCH APPROACH:

As this research paper is majorly based on conceptual ideas attained through the secondary data, the research approach applied to this paper is Descriptive and Qualitative. The concept of Employability, its journey, components is described in brief by the authors. This part is very important part of all such efforts.

3. EMPLOYABILITY CONCEPT:

It is estimated that in recent future, in India, about 90% of the GDP and 75% of the employments will be provided by the services & manufacturing sector. Also, due to the era of globalization the world is shrinking day by day and the whole world is seemed to be a single labor market place. This shift in the structure of employment in India & world will temporary the demand of such multitalented, innovative thinkers who can lead the corporate in this dynamic economy which is linked globally. The India is having the biggest labor force, but according to the British Council the 'Excellence' of this labor force is the crucial issue of concern. This required 'Excellence' lies in some kind of essential skills and abilities an individual should possess to get absorbed in any of the employment he/she has selected. These skills are generally known as Employability Skills. The importance of employability in the Indian labor market has now commonly discussed topic in almost every HR Forum (Shukla D., 2012). The employability is not only needed in one or some few sectors of employment. It is also crucial in all professions as well as in education (Overtoom, 2000).

4. DEFINITIONS OF EMPLOYABILITY:

With the passing time the concept of Employability is getting new shades. Here, researcher

Sr.	Name of Country	Terms used for Employability Skills
	United Kingdom	Core Skills, Key Skills, Common Skills
	New Zealand	Essential Skills
	Australia	Key Competencies, Employability/Generic Skills
	Canada	Employability Skills
	United States	Basic/Necessary Skills, Workplace know how
	Singapore	Critical Enabling Skills
	France	Transferable Skills
	Germany	Key Qualifications

has put following definitions of the term 'Employability Skills'.

1. Fugate, Kinicki&Ashforth (2004) defined employability as a form of an active adjustment of individuals towards certain occupations until they could identify and recognize existing career opportunities in the work place.
2. Individual's ability to gain initial employment, maintain employment, move between roles within the same organisation, obtain new employment if required and (ideally) secure suitable and sufficiently fulfilling work (Hillage& Pollard, 1998). This is very popular definition and widely cited.
3. The skills almost everyone needs to do almost any job' (UK Commission, 2009b, p.10).
4. Employability are the potential a graduate has for obtaining and succeeding in graduate level (Yorke& Knight, 2006).
5. The ability to use networking skills to gain access to the labor market (Bernston, 2006).

Along with these definitions and opinions the term is being used with different names in different countries. In some countries it is known as Generic Skills, in some it is being called Survival Skills. Following table shows the terms used for Employability Skills in various countries-

Table 1.-Terms used for Employability Skills in various countries

(Source: National Center for Vocational Education Research-defining generic skill report)

6. **A JOURNEY OF THE EMPLOYABILITY CONCEPT-**The concept of Employability now has multiple names and dimensions, as mentioned above. In spite of widespread assumptions that employability is a concept of the current period, scholars of employability note that the notion did not simply emerge as a way of explaining necessary responses to a radically changed economic and public policy environment since 1990 (Simon McGrath, Unknown). But before it, this concept was firstly

been discussed by the British Architect, Beveridge William through his book- Unemployment-A Problem of Industry (1909). Since then the concepts have been developed in manifolds towards the greater and wider scope. According to one of the popular theorists and experts of this field of Employability i.e. Gazier (1998); this concept of Employability has passed its journey over the last century through seven different stages which are discussed further.

Figure 1. Stages of Employability Concept

Stage 1 • Stage of Dichotomy
Stage 2 • Stage of Socio-Medical Employability
Stage 3 • Stage of Manpower Policy
Stage 4 • Stage of Flow Employability
Stage 5 • Stage of Labor Market Performance
Stage 6 • Stage of Initiative Employability
Stage 7 • Stage of Interactive Employability

Stage 1: Stage of Dichotomy- This was the era at the starting of the twentieth century; where the difference had been determined between persons those to be employed and those not to be. This was mainly used in America and Britain. This was just the reformulation of the old Anglo-Saxon Dichotomy in these two countries. This dichotomy was held between those hard working and people with high moral values but suffered in poverty due to illness or misfortune happening in their life called-'Deserving Poor' on one side and people with low moral values and those who are lazy in nature i.e. 'Undeserving Poor'.

Stage 2: Stage of Socio-Medical Employability- During the Second World War, in the countries specifically Germany, America and Britain, this term had been come into practice. In this context the people who were not found fit on the ground of Social, Mental & Physical deficits had been separated from the employments.

Stage 3: Stage of Manpower Policy-In the 1960s the previous phenomenon of Social, Mental & Physical deficits had been extended to the Societal Groups particularly in the country like USA. The main emphasis was given on the gap between required knowledge, skills and attitudes in Labor

Market and that the individual possesses. The organizations started to frame their Manpower Policy according to this gap analysis. We can say that the actual base of Employability Skills had been used for the first time here.

Stage 4: Stage of Flow Employability-This approach is exclusively derived by French in late 1960s. Differ to the earlier stages; this had its emphasis mainly on the demand of right and able candidates and the easy access to the employment in the domestic and national economies.

Stage 5: Stage of Labor Market Performance-This stage had been come into practice in 1970s. It had emerged internationally. This concept focuses on the measurable labour market outcomes that result from specific policy interventions (Simon McGrath, unknown). The important aspects taken into consideration in this context are period of employment, hours worked and rates of wages paid.

Stage 6: Stage of Initiative Employability-This approach is derived in 1980s in the literature of North American and European Human Resource Development. This started to discuss the end of Salaryman i.e. the salaried employees who worked in the same organization from their school leaving to the superannuation. According to this discussion, to make the career successful, one should primarily develop his skills and attitudes required to perform on their current job and to get another in different organization. Here the person's initiative and the agency are prominently stressed.

Stage 7: Stage of Interactive Employability-The Interactive Employability refers to admit the prominence of individual agency sought to balance the development of structural factors in the stage of French Flow Employability. The individual's employability is observe related to the employability of others in the labor market both for the competitors and this high level of dispersed employability market could attract some new avenues in employment. The employability here, become interactive between individual's skills and attitudes with the demand of skills at local and national labor markets.

7. COMPONENTS OF EMPLOYABILITY SKILLS-

These Employability Skills are closely associated with nature of job and job position of an employee. As different people have different opinions, for Employability Skills also there are various views of experts and they have classified these skills into variety of factors and components. These components or factors are nothing but the important and essential skill sets one must adapt at workplace for smooth execution of work activities and to enhance the productivity. Every employer is desired to have such employees who are equipped with such skills sets/components mentioned above.

According to Dr. Vicki Belt these skills comprise three important factors such as Individual Factors, Personal Circumstances and Demand Factors. Where according to Robinson (2000), the Employability Skills are comprised of three key areas i.e. Basic Academic Skills, Higher-order Thinking Skills and lastly Personal Qualities. These above said skill sets include various skills into themselves which is explained as under-

Table 2.- Key Skill Areas

Basic Academic Skills	Higher-order Thinking Skills	Personal Qualities
Reading, Writing, Science, Maths, Oral Communication	Learning, Reasoning, Thinking Creatively, Decision Making, Problem Solving	Responsible, Self Confidence, Self Control, Social Skills, Honest, Integrity, Adaptable, Team Spirit, Punctual, Self Directed, Well Groomed, Good Work Attitude, Cooperative, Self Motivated, Self Management Skills

(Source: Robinson, 2000)

The reflection of efforts taken by the unit formed as a part of Center for Employability in the University of Central Lancashire (UCLan) in United Kingdom whose main role was to provide practical solutions to improve the qualities of students and graduates over ten years can be seen into development of practical model known as DOTS Model (Law & Watts, 1977). This model is comprised of skill sets shown in following table-

Table 3.-DOTS Model

	Decision Learning	Decision Making Skills
	Opportunity Awareness	Knowing what opportunities exist and what their requirements are
	Transition Learning	Including Job Searching and Self Presenting Skills
	Self Awareness	In terms of Interests, Abilities, Values etc.

(Source: Watts, 2006)

Whereas, Pool L D & Sewell P. (2007) has developed a practical model for Employability called 'CareerEDGE Model' which consists the components shown in following figure. There are five key components of Employability have been discussed. These five components are Career, E-

Experience, D-Degree Subject knowledge, G-Generic Skills, E-Emotional Intelligence. Also some other important components like Self Esteem, Self-Confidence and Self-Efficacy are discussed in depth. This model clearly shows all the related components and it suggests proposed direction for interaction. This pictorial version of the model is a useful, practical way of explaining the concept of employability and indicates that it is the "key" to choosing and securing occupations in which the graduate has the opportunity to achieve satisfaction and success (Pool L D & Sewell P., 2007).
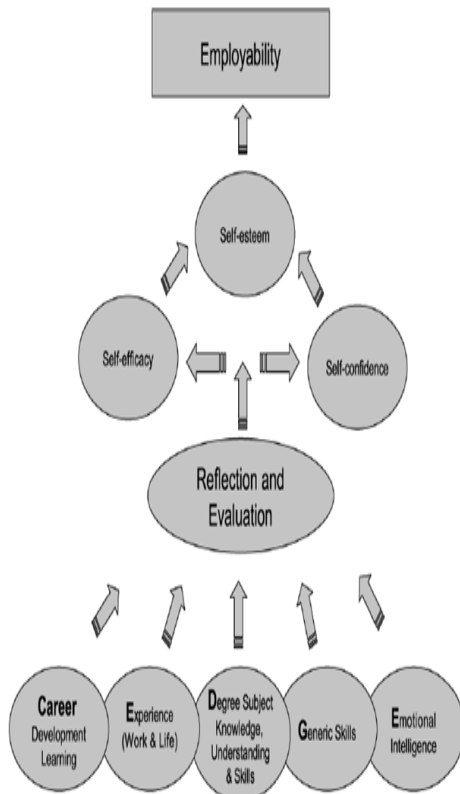
Figure 2.-CareerEDGE Model of Employability Components *(Source: Pool L D & Sewell P., 2007)*

CONCLUSION:

Today's world is a dynamic world. The only thing which is constant here is change. Those who do not change according to the surrounding, get exhaust with time. The labor market is not even exception for this. The stake holders in this labor market i.e. job aspirants, existing employees, employers and policy reformers all must be aware about changing needs of the market i.e. Employability. Now the condition is of 'do or die'. Everybody should be equipped with multiple skills so that they can attain, retain and grow in their jobs in their career path and the understanding of the concept like Employability is the key for it.

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EMERGING TRENDSIN COMPUTER & INFORMATION TECHNOLOGY
E-COMMERCE PAYMENT SYSTEM AND SERVICES

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ABSTRACT: *E-commerce is the future of retail and it will play a big role in India. As online transactions continue to increase and become a significant part of the global economy, the ability to accept payments online becomes more important for businesses.India had an internet user base of about 354 million as of June 2015 and cross 500 million in 2016.Despite being the second-largest userbase in world.The penetration of e-commerce is low compared to markets like the United States, or France, but is growing at an unprecedented rate, adding around 6 million new entrants every month. The industry consensus is that growth is at an inflection point.In India, cash on delivery is the most preferredpayment method. E-Business initiative has to be tied to the overall business strategy of the organization and has to be driven by distinct set of objectives and measurement criteria. Marketing teams at e-commerce organizations are under enormous pressure these days. They know that expanding their marketing efforts beyond the web to mobile and social channels means increasing opportunities to reach buyers.*

KEYWORDS: PayPal, PaymentWall,Google wallet, Mobile Money wallet, EFT, GDS

INTRODUCTION :

E-commerce – It is involved with buying and selling a product. It may take different forms. Three different types of people are involved with commerce. These are –

1. Producer 2. Seller 3. Buyers

Commerce revolves around these categories of people.

Producer – Producer are the people who produce different kind of products or items and provide services.

Sellers – sellers are the people who sell items or goods and give services to people

Buyer – buyers are the people who porches items and services

Electronic-commerce or e-commerce means buying and selling any product online using the internet technologies. There are four basic modes of e-commerce available.

- **Business-to-business (B2B)**-company selling or buying product or services from/to other companies.
- **Business-to-consumer(B2C)**-company which establishes website for its products and services. Thecustomer can order any products or services and also gather information about them.
- **Consumer-to-consumer (C2C)**-classifieds, auctions where individuals can buy and sell.
- **Digital middleman**-Company provides information about several companies on single website and commission is charge for every sale or purchase by the company hosting the website.

Objectives –

- To study E-Commerce Payment System
- To study different methods of online payment
- To study E-commerce services
- To study the advantages and disadvantages of e-commerce.

II) E-COMMERCE PAYMENT SYSTEM

An e-commerce payment system accepts electronic payment for online transactions this is also known as Electronic Data Interchange (EDI).These online payment system are used with online shopping and banking.

There is different payment system like traditional credit, debit and charge card. Over the years, credit cards have become one of the most common forms of payment for e-commerce transactions. But increased security measures such as the use of the Card Verification Number (CVN) are required to detect any kind of fraud.

A smart card is similar to a credit card that can transfer electronic cash to your card from your bank account, and you can then use your card at various retailers and on the Internet. A popular smart card initiative is the VISA Smart card.

During the dawn of e-commerce industry in India, people were not comfortable using their credit/debit card data online for payments and were often shying away from purchasing online. However, with better security measures and multiple online

payment channels today, cashless transactions have seen an ultimate leap surpassing the paper-based transactions in India in FY 2015.

THE ROAD AHEAD…

All the major Banks in India are trying to promote online transactions in the country including the rural parts of the country. Being a huge fan of e-Governance, Indian Prime Minister – Mr. Narendra Modi has initiated a project estimated at INR 20,000 crores to build a broadband highway connecting 2.5 lakh panchayats across the country.

To offer better and faster internet access to a larger audience in the country, Reliance is also launched its 4G services across 800 major cities in India. As the majority of Smartphone users are equipped with better and faster internet connection, cashless transactions in India will surely experience a tremendous leap in the coming years.

III) METHODS OF ONLINE PAYMENT

Credit cards constitute a popular method of online payment but can be expensive for the merchant to accept because of transaction fees primarily. Debit cards constitute an excellent alternative with similar security but usually much cheaper charges. Besides card-based payments, other forms of payment have emerged and sometimes even claimed market leadership.

1) Net banking

This is a system, well known in India, that does not involve any sort of physical card. It is used by customers who have accounts enabled with Internet banking. Instead of entering card details on the purchaser's site, in this system the payment gateway allows one to specify which bank they wish to pay from. Then the user is redirected to the bank's website, where one can authenticate oneself and then approve the payment.

2) PayPal

PayPal is a global e-commerce business allowing payments and money transfers to be made through the Internet. Online money transfers serve as electronic alternatives to paying with traditional paper methods, such as cheques and money orders. PayPal is an acquirer, a performing payment processing for online vendors, auction sites, and other commercial users, for which it charges a fee. It may also charge a fee for receiving money, proportional to the amount received. The fees depend on the currency used, the payment option used, the country of the sender, the country of the recipient, the amount sent and the recipient's account type. In addition, eBay purchases made by credit card through PayPal may incur extra fees if the buyer and seller use different currencies.

3) Paymentwall

Paymentwall, an e-commerce solutions providing company launched in 2010, offers a wide range of online payment methods that its clients can integrate on their website.

4) Google Wallet

Google Wallet was launched in 2011, serving a similar function as PayPal to facilitate payments and transfer money online. It also features a security that has not been cracked to date, and the ability to send payments as attachments via email.

5) Mobile Money Wallets

In undeveloped countries the banked population is very less, especially in tier II and tier III cities. Taking the example of India, there are more mobile phone users than there are people with active bank accounts. Telecom operators, in such geographies, have started offering mobile money wallets which allows adding funds easily through their existing mobile subscription number, by visiting physical recharge points close to their homes and offices and converting their cash into mobile wallet currency. This can be used for online transaction and e-commerce purchases. Many payment options such as Airtel Money and M-Pesa in Kenya , ATW are being accepted as alternate payment options on various e-commerce websites.

6) Electronic Funds Transfer

Electronic funds transfer is one of the oldest electronic payment systems. EFT is the groundwork of the cash-less and check-less culture where and paper bills, checks, envelopes, stamps are eliminated. EFT is used for transferring money from one bank account directly to another without any paper money changing hands. The most popular application of EFT is that instead of getting a paycheck and putting it into a bank account, the money is deposited to an account electronically. EFT is considered to be a safe, reliable, and convenient way to conduct business.

The advantages of EFT contain the following:
• Simplified accounting
• Improved efficiency
• Reduced administrative costs
• Improved security

These companies are called Payment Service Providers (PSP).

The main reason behind this spike in cashless transactions is the growth of e-commerce industry in India, which allowed consumers to purchase products at discounted rates at the realm of their homes. Also, the new generation is shifting towards hi-tech gadgets and technology to make funds transfer as it's easier, hassle-free and instant transaction compared to paying by cash or cheque. With online funds transfer or virtual payment system, people can send or receive payments instantly at the touch of a button rather than visiting banks to withdraw or deposit money.

IV) E-commerce services

1. Online Banking –

Online banking, also known as internet banking, e-banking or virtual banking, is

an electronic payment system that enables customers of a bank or other financial institution to conduct a range of financial transactions through the financial institution's website.

2. OLA cap

ANI Technologies Pvt. Ltd., operating under the trade name Ola, is an Indian online transportation network company. Ola was founded as an online cab aggregator in Mumbai, but is now based out of Bangalore.

3.Online ticketing

It is known for changing the face of railway ticketing in India. It pioneered internet-based rail ticket booking through its website, as well as from the mobile phones via GPRS or SMS. In addition to e-tickets, Indian Railways and Catering Tourism Corporation also offers I-tickets that are basically like regular tickets except that they are booked online and delivered by post. The tickets PNR status is also made available

4.Tourism

Indian Railways Catering and Tourism Corporation also organizes budget and deluxe package tours for domestic and foreign tourists. A popular tourism package for budget tourists covering important tourist destinations across India is "Bharat Darshan". Luxury tourism packages are also available, that involve special luxury trains such as Buddhist Circuit Train and Maharajas' Express operation.

Apart from conventional tourism, it also offers adventure tourism packages that include water sports, adventure and wildlife treks, etc. A provision for customizing tours as per specific requirements is also an added attraction. Recently a new venture of Indian Railways, named as Rail Tourism India has been launched to provide direct catering and tourism packages to users.

5.Tatkal Booking

Under the Tatkal scheme, passengers who plan their journey at short notice can book their tickets in almost all Mail/Express trains through the Indian railways internet portal. The booking starts at 10:00 AM daily for AC coach reservation and for NON-AC timing is residual to 11.00 AM, one day prior to the departure of the train from source station. Passengers travelling on Tatkal tickets should carry a photo ID proof along with them to be shown to the ticket checker. Earlier this year, the website has launched Lite version which doesn't include ads, pop ups, etc. and check PNR status.

6.Global Distribution System (GDS)

A Global Distribution System (GDS) is a network operated by a company that enables automated transactions between travel service providers (mainly airlines, hotels and car rental companies) and travel agencies. Travel agencies traditionally relied on GDS for services, products & rates in order to provision travel-related services to the end consumers. A GDS can link services, rates and bookings consolidating products and services across all three travel sectors: i.e., airline reservations, hotel reservations, car rentals.

7.Electronic billing

Electronic billing or electronic bill payment and presentment, is when a company, organization, or group sends its bills over the internet, and customers pay the bills electronically Electronic bill payment is a feature of online, mobile and telephone banking, allowing a customer of a financial institution to transfer money from their transaction or credit card account to a creditor or vendor such as a public utility, department store or an individual to be credited against a specific account. These payments are typically executed electronically as a direct deposit through a national payment system, operated by the banks or in conjunction with the government. Payment is typically initiated by the payer but can also be set up as a direct debit.

V) ADVANTAGES AND DISADVANTAGES OF ECOMMERCE

The invention of faster internet connectivity and powerful online tools has resulted in a new commerce arena – Ecommerce. Ecommerce offered many advantages to companies and customers but it also caused many problems.

Advantages of E-commerce

- Faster buying/selling procedure, as well as easy to find products.
- Buying/selling 24/7.
- More reach to customers, there is no theoretical geographic limitations.
- Low operational costs and better quality of services.
- No need of physical company set-ups.
- Easy to start and manage a business.
- Customers can easily select products from different providers without moving around physically.

Customers can easily select products from different providers without moving around physically

Disadvantages of E-commerce

- Any one, good or bad, can easily start a business. And there are many bad sites which eat up customers' money.
- There is no guarantee of product quality.
- Mechanical failures can cause unpredictable effects on the total processes.
- As there is minimum chance of direct customer to company interactions, customer loyalty is always on a check.
- There are many hackers who look for opportunities, and thus an ecommerce site, service, payment gateways, all are always prone to attack.

VI)CONCLUSION:

In this paper, we discussed current online payment systems, like Net banking, PayPal, Google Wallet etc...E-commerce is an evolution- By using electronic technology through the internet, it achieved more competitions, more marketplaces, faster transactions, and more advanced technologies to make activities between customers and producers more active, where a customer's payment information is directly provided to a payment gateway rather than sent through a merchant.

The concept of e-services represents one prominent application of utilizing the use of information and communication technologies (ICTs) in different areas which leads to the following benefits for e-services, such as - Accessing a greater customer base, Broadening market reach, Lowering of entry barrier to new markets and cost of acquiring new customers, Alternative communication channel to customers, Increasing services to customers, Enhancing perceived company image.

After careful observation, it has come to our conclusion that e-commerce has undeniably become an important part of our society.

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IMPACT OF KAIZEN TECHNIQUES ON REDUCES WASTES IN DURING PROCESS OF MANUFACTURING

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ABSTRACT: *The manufacturing industries are commonly facing one of the problem is Wastes in during the process of production. The kaizen techniques are one of the best techniques for reducing the wastes in manufacturing process. The Japanese kaizen techniques is an effective techniques for lead to success with reducing the wastes in manufacturing process. The kaizen techniques are a culture in which all employees continuously look for ways to improve processes. The present paper are explain the kaizen techniques tools,5s, poka yoke.5w1h. The Ropes manufacturing company can use kaizen techniques for to reduce the waste(muda) during a process of productivity. The paper explains the common seven production wastes in manufacturing process.*

KEYWORDS: 5s,muda, muri, poka yoke, kaizen ,JIT,5w &1H.

1)KAIZEN: CONCEPTUAL FRAMEWORK

- **Meaning-** KAI = change, ZEN= Good. Kaizen means change for better. It means small, simple & incremental improvement on continuous basis. It is It can also be spelled as **Kyzan or Kyzan**. It is the sub-system of JIT (just in time). It implies improvement in every aspect of activity. It is Japanese management system. Kaizen is a way of life assuming that every aspect of our life deserves continuous improvement. There is one more term Gemba Kaizen, Gemba means workplace. The idea here is that improvement begins at workplace.

- **Basic Philosophy**- Kaizen is based on the principle that the knowledge of how to improve the work place should come from the workplace itself & should not be imposed from outside. Kaizen is basically small improvement carried out by an employee in the course of daily work. It is a continuous& gradual improvement carried out in small steps, with minimum disruption to the organization by encouraging the creative participation of each person in the company or organization.

- Masaki Imai has clearly distinguished Kaizen from innovation. Kaizen begins with small steps where as innovation need big steps.

- Kaizen's effects are long term and long lasting where as innovation's effect dramatic.Kaizen brings out gradual & constant chain where as innovation can bring abrupt & volatile changes. In Kaizen every body is involved where as in innovation selected people are involved. It is a core principle of quality management specifically within the method of Total Quality Management. It is a way of thinking & behaving.

- It is important to remember that people are truly involved only when they make a creative contribution to their work & find ways to do it better. Involved employees can do miracle using commonsense & the tools of quality control along with creative thinking and brainstorming.Kaizen is not just doing improvement once only, it is about making continuous improvement by doing small improvements

- 2)**Literacture Review**-

Imai (1986) Kaizen is a continuous improvement process involving everyone, managers and workers alike. Broadly defined, Kaizen is a strategy to include

concepts, systems and tools within the bigger picture of leadership involving and people culture, all driven by the customer.**Thessaloniki(2006),** he is the explain the kaizen concept briefly. He also kaizen Umbrella in kaizen umbrella customer orientation, Total Quality control, robotics, QC circles ,suggestion system , automation, discipline in the workplace, TPM, Kaman, Quality improment,just in time, zero defects, small group, activity, productivity improvements.Kaizen is not only an approach to manufacturing competitiveness but also everybody's business, because its premise is based on the concept that every person has an interest in improvement. he is also included the kaizen tools i.emuda(wastage),TQM etc.in the kaizen philosophy is leadership, cross functional, teams, 5s,

Productivity, Improvement, Process focus, Discipline in the workplace, team Improvement. the 5s Seiri-Sort what is not needed, Seiton- Straighten what must be kept. Seiso-Scrub everything that remains.Seiketsu-Spread the clean/check routine, Shitsuke -Standardization and self-discipline. **Teian (1992)**describes that kaizen is applicable for any area in need of improvement. Kaizen is more than just a means of improvement because it represent the daily struggles occurring in the workplace and the manner in which these struggles are overcome. **MihaiApreutesei(2010)** lean manufacturing approach provide for small medium scale industries for reducing the wastage with help of lean . the lean effective tools for the reducing the wastage. The lean tools are applicable for reducing the wastages so its benecifal for the reduces the wastages. In the lean approach the employee took forward for the continuous improment.**Suzaki (1987)** explains that kaizen is a philosophy widely practiced in manufacturing and quality circles. It is used for enhancing manufacturing processes, the philosophy has gained considerable popularity recently, and has been extended to

all aspects of Business including the software industry As the name implies, it relies on the idea that there is no end to make a process better.

- 3)What is Waste?

- In the Kaizen techniques the wastage is primary goal for it. Wastage is also called as the muda in the kaizen system. Waste or muda is anything that does not have value or does not add value. Waste is something the sculpting , he responded he was not sculpting but releasing the figure in side by removing the unnecessary waste. In kaizen approach eliminate all forms of waste in any process or product until only what is valuable remains. The key is to spot waste and stop waste. There are two types of waste obvious waste and hidden wastes. It is important to uncover and eliminate the latter sinces they are usually bigger. Wastes take the shape of an iceberg, th tip consists of the obvious wastes while the seen bulk under the water contain the hidden wastage. The waste is form of unnecessary output ,input, or processing. It can be in the form of material , stocks, equipment, facilities, man hours, utilities, documents, expenses, motion, and other activities that do not ass value

- The steps to effective waste elimination are:
- 1. Make waste visible.
- 2. Be conscious of the waste.
- 3. Be accountable for the waste.
- 4. Measure the waste.
- 5. Eliminate or reduce the waste
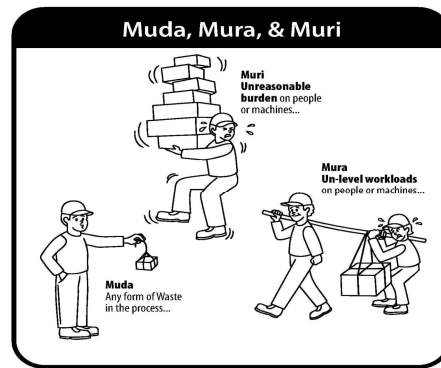
1.Fig- Muda,Mura, Muri.

there are three basic type waste , muda has to do with waste elimination and is done at the end of the production process. management oversees muda and uses what they learn to eliminate deeper problem in mura and muri. Muri has to do with overburden, which is unreasonable work that management to workers and machines because of poor organization and muri has to do with the planning and design phase of production. Volume and quality mura has to do with unevenness

and fluctuation in the implementation and operations phase of production waste occurs when there are fluctuation in volume and quality.

A Kaizen system declares on wastes or "muda". These wastes are classified into 7 types:

1. Over-production waste
2. Processing waste
3. Transport waste
4. Waiting-time waste
5. Inventory waste
6. Motion waste
7.Defect

2. Fig-7Wastes

1) Over- production waste- Over-production waste is the producing more than Actual needed. Producing faster than what is needed. The over production is causes because of maximum capacity of equipment, poor shifting of worker, improper planning of production, cost accounting that encourage buildup of inventory. Over-production waste is occurs when the more product are produced compared to sales.

Over prouduced goods are often hidden wastes since many think they are assests with value., in fact most of them may be obsolete or costing the company unnesaaryexpensen just to keep them until they can be sold if ever.the JIT is prevent the over-production wastes.

2) Processing waste- processing waste is non value added processing and also non- value added machine processing. the processing waste is Causes because of no clear vision of customer specification ,work instructions, high quality ,engineering changes. The processing waste produced from unnessary processing that are the non valueadd worked on. Unwanted documentation is also produced the processing waste. The solvation is the identify the value adding and non- value adding activities in during the processing with help of value stream analysis and waterfall diagram.

3) Transport waste-the transport waste is unwanted material movement and unwanted tools or euipments movement. The transport waste is produced due to the poor route planning , complex material flows, distant suppliers and also non organized workplace. When the unnecessary movement form one place to another place of people, tools materials euipments then transport wastes are produced. When the wrong time materials send to wrong location. Served to customer from the nearby suppliers. Planning for Proper route for material or equipment transport.

4) Waiting time waste-waiting time waste means man idle or waiting time ,it also machine idle or waiting time. Waiting time waste is causes because of over staffing ,not flexible workforce .it is also causes of long set-up , material delay, manpower delay. When the recoursesare forced to wait unnecessarily due to the unavailability of other resources that is waiting time waste.waiting for late attendees in meeting, waiting for tools to start work is also the waiting time waste.

5) Inventory Waste- the inventory wasteis excessive raw material inventories and supplies .excessive process inventories is also the inventory waste.it is causes because of the over production ,large sizes of big, long lead times. The inventory waste occurs due to the storage of excessive supplies, materials and other resources.it is happened because of the lack of planning. The slow moving and obsolete stocks of tools and materials.

6) Motion Waste- the motion waste is unwanted movement and motions of worker. The motion waste is causes due to the poor lay out and housekeeping , non-standardized work instructions, the not clear process and materials flow. The disorganized workplace and storage locations are the motion waste. The motion waste happens when the body movements are unnecessary .when the workflow are disrupts then the motion waste are there.

7) Defects- the defects are processing due to the production of defects. The materials used due to defect and rework is the defects. The defects are causes due to the incapable processes and lack of process control .the unskilled personnel; incapable suppliers are also the defects. The quality is doing the right thing right time.it is the prevention and planning is solvation on the defects. The rework, repair, replace are the defective items. The continuous quality improvement is effective for to avoid the defects.

4)Process of KaizenManufacturing-

   Tools of Kaizen-Research defines that there are no standard technique/instruments are used for implementation of Kaizen.

1)5S- 5S is a productivity method whose name is derived from the five first letters of Japanese words: Seiri, Seiton, Seiso, Seiketsu and Shitsuke. The method was originally intended to organize a workspace for efficiency. Let's examine each 'S' and determine what it means.

- **Seiri** – Sorting. Keep the necessary in work area, dispose or keep in a distant storage area less frequently used items, discard unneeded items.

- **Seiton** – Systematic Arrangement for the most efficient and effective retrieval. There should be a place for everything and everything should be in its place. The place for each item should be clearly labeled or demarcated.

- **Seiso** – Shining. Clean the workspace and all equipment, and keep it clean, tidy and organized. After the first thorough cleaning when implementing 5S, daily follow-up cleaning is necessary in order to sustain this improvement

- **Seiketsu** – Standardizing. Work practices should be consistent and standardized. Work stations for a particular job should be identical. All employees doing the same job should be able to work in any station with the same tools that are in the same location in every station.

- **Shitsuke** – Sustaining. Once the previous 4 S's have been established, they become the new way to operate. Maintain focus on this new way and do not allow a gradual decline back to the old ways. The effect of continuous improvement (Kaizen) leads to less waste, better quality and faster leads times.

3.Fig-5s

2)PDCA= (plan , do , check, act)

4.Fig-PDCA

Plan: Define the problem to be addressed, collect relevant data, and ascertain the problem's root cause. **Do:** Develop and implement a solution; decide upon a measurement to gauge its effectiveness.**Check:** Confirm the results through before-and-after data comparison.**Act:** Document the results, inform others about process changes, and make recommendations for the problem to be addressed in the next PDCA cycle.

3) Poka yoke- Meaning**-**Poka means inadvertent &yokeru means to prevent Defects in production may be due to omitted operations, processing errors, missing parts or wrong parts & adjustment errors. PokaYoke is simple technique of avoiding human errors at the work place. Poka- Yoke is also called as mistake proofing, goof proofing & fall safe work method.It is used to prevent occurrence of defects, injuries, or losses of any kind at the place of work. It makes use of sensors, instruments & devices that can identify disorders, abnormalities, or missteps ,without workers having to be extra sensitive to the smallest details. This concept was developed by late Shigeo Shingo, a Japanese manufacturing engineer who developed the ' Toyota production system'. The idea of Poka Yoke is to avoid repetitive work that depends on vigilance or memory in order to free workers mind & time

4) The 5w and 1H of kaizen

Fig. 5 – 5Why and 1H Technique.

The 5Ws simply refers to the **W**hat, **W**hen, **W**here, **W**ho, and **W**hy of an incident and the 1**H** is the **H**ow of that event. If the answers to these questions are arrived at, the situation will be well understood enough to resolve the problem .the 5w1h is help for resolve problem in any organization also identify the rout causes of the problem.

5)Objective of the research study

The objective of present research is to study the how kaizen Techniques is impacts on Reduces Wastes in during process of manufacturing. The research study is conducted on managers and worker of Rope industries in Dhule .The researcher would study the impacts of kaizen Techniques for Reduces the Wastes of Ropes Industries in Dhule . The researcher would conduct the study on randomly selected respondents from supervisory cadre and also with discussions an interviews with management to know how kaizen is works on Reduces waste.

6)The methodology of Research Study:

The researcher would design the null hypothesis with regard to the objective of the research and would be tested under statistical study on the data collected from survey of Ropes industries in Dhule . The researcher would be analysis the levels of wastes inkaizen Techniques applied Ropes industries and non- applied ropes industries in Dhule. The researcher has designed set of questionnaire for managers and worker to know the impacts of kaizen Techniques on Reduces the Wastes. The primary resources of questionnaire sample study will be supplemented with secondary resources such as books, journals, national and international conference proceedings, web source to know in depth about kaizen Techniques and its importance and also to understand the previous research already done on the same subject of research to set a clear path for present research journey.

7)Findings of the research survey:

- In this survey ropes industries of Dhule where the kaizen techniques is implemented that industries Waste level is very low compare to non kaizen techniques implemented industries.
- The kaizen is helpful for to reduce wastes like the waitingtime ,over production ,defects, inventory..
- The kaizen techniques are important for reduces the cost of production.
- The kaizen techniques is also effects on quality of production.
- The kaizen Techniques is helpful for Ropes industries to avoid wastages and increase their financial profits.

RESEARCH SUGGESTIONS AND CONCLUSIONS:

The research survey suggests that the kaizen techniques are importance for to reduces the wastes in during the process and also improve the quality of the production. The kaizen techniques is improve the profitability of the ropes industries. In ropes industries production line are very tuff but the

kaizen techniques are make easy. The research survey suggests that the kaizen techniques are beneficial for ropes industries for reduces the wastes and improve quality of the production.

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PASSWORD BASED DIGITAL SECURITY SYSTEM

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ABSTRACT: *This paper presents the design and implementation of password based security system. This system is economical and effective for doors, parking, baking so as to prevent unauthorized access. The system has two main parts hardware and software. The hardware is divided in various stages like Power supply unit, micro controller unit, input unit, relays and alarm system and LCD. The microcontroller 89V51 contains the software code and controls all activates of systems. The IC 74C922 is used to decode the data from input unit. The keyboard is used to enter the data and to send the command to security system. Microcontroller receives the input and performed allow and prevent operation on comparing it.*

KEYWORDS: Security Lock System, Pass-code, Microcontroller, Interfacing.

1. INTRODUCTION

Now a day's security is prime concern in day to day life. The security of property is the cardinal needs of people. In many countries the traditional locks are used as the security systems to prevent from unauthorized access [1, 2].The locks are activated by keys. There are many reasons due to which the security system of locks may be affected such as key may be missing, unauthorized duplication of keys, Moreover, theft can creates a serious problem. It is often required to change door locks if keys may have fallen into illegal hands [3]. In the case of a danger like fire, when one needs to leave the building immediately, it is not advisable to spend time in searching for the key to unlock the door. To sort-out such type of issue, security devices have been introduced. Recently the smartcards, biometrics and voice automation have been introduced in high profile establishment, banks and offices [4-6]. But because of cost and maintenance issue it is not much popular in society. A password based security system forms an important link in a security code. Only the authorized person can access the restricted area with the help of security code. This system is economical and effective.

2. TOOLS FOR DEVELOPMENT
2.1 Software Tools

- KeilIDE (Integrated Development Environment)runs on computer for µC 89V51, (C-Language, Assembly Language)
- Flash Magic for load the hex file in to microcontroller
- PCB maker to design the Printed Circuit Board

2.2 Hardware Tools

- Testing kit of µC 89V51 with crystal 11 MHz
- 4×4 keyboard matrix with Decoder IC 74C933
- LCD Display, Alarm and Relays

3. SYSTEM DESIGN
3.1 Structure of theSystem
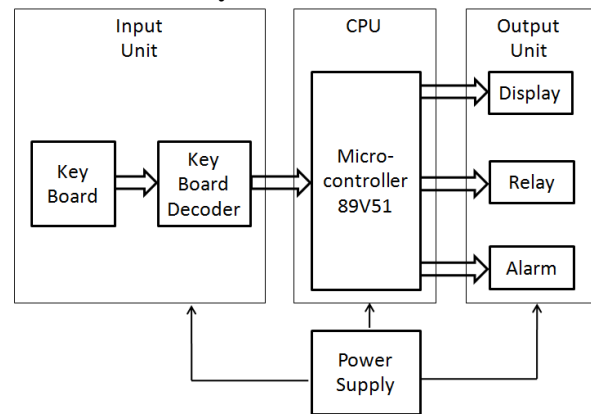
Figure 1: Block Diagram of Pass Code Based Security System

The system is based on hardware as well as on software also. The figure 1 shows the basic structure of the security system. The microcontroller contains the software code for controlling the operation sequence. When user enter the security string or password though the keyboard then the microcontroller matches the string with the security code which is already set by admin. If both string and code are matched then controller operates the relays and opens the door for few seconds and then after the particular time of interval controller automatically closed the door. In case string and code does not match then controller alarms after the three successive failures. In addition the display unit is

provided for messaging proposes also it displays the password in coded form (****)when user enters it.

3.2 Program Execution Flow

Figure 2 shows execution flows of program in pictorial form.
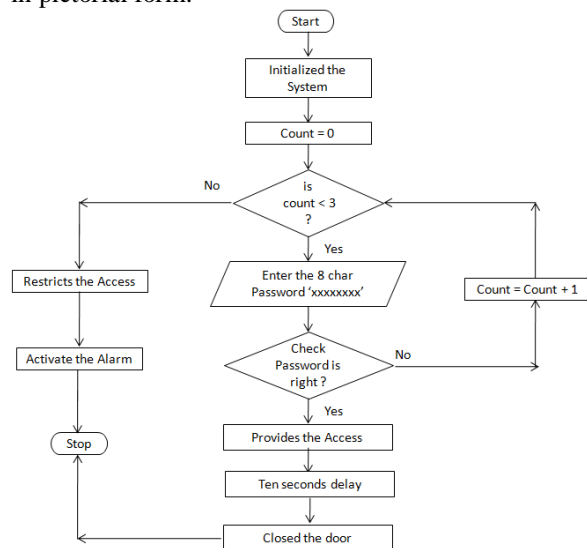
Figure 2: Flow Chart for Password Based Security System

One of the pseudo code modules for the microcontroller operation is shown bellow.

```
        while(user)
             {
  // Read input from keyboard
string = redString();

// Display string on LCD in coded form
disLcd ();
// match the string and security code
while (count<3)
{
   if(cod == string)
relay = 1;          // provide the access
      else
        count ++;
             }
        if(count ==3)
alarm = 1;          // make security alarm ON
             }
```

3.2 Circuit Diagram of the System
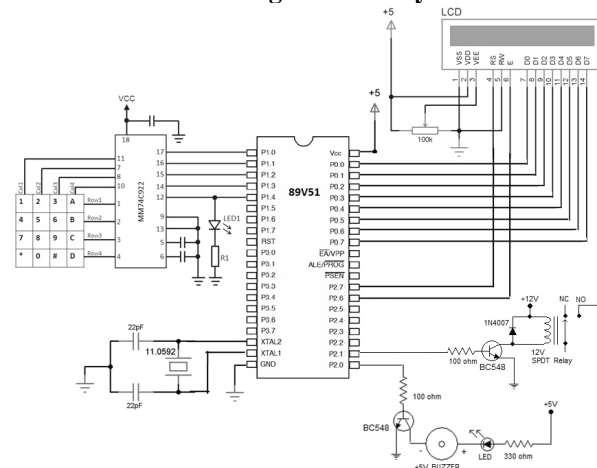
Figure 3: Circuit Diagram of Pass Code Based Security System

CONCLUSION

The password based security system has many industrial applications. The password based security system is easy to use, economical, consumes less power and highly reliable. In this security system keyboard, LCD, relays and alarm are interfaced with the micro controller. The numerical code is used for authentication. The correct code must be entered to unlock the property. This simple security system using microcontroller can be enhanced by introducing the more accurate authentications such as thumb/retina identification, voice recognition.

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THE STUDY OF IMPLEMENTING INTERNET THROUGH LIGHT FIDELITY (LI-FI)

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ABSTRACT: -*This paper focuses on study and developing of a Li-Fi based system and analyzes its performance with respect to existing technology.Li-Fi is a Visible Light Communication system proposed by the German physicist—Harald Haas, provides transmission of data through illumination by sending data through an LED light bulb that varies in intensity faster than the human eye can follow.It uses light instead of radio waves to transmit information. It is possible to encode data in the light to give different strings of 1s and 0s. The LED intensity is modulated so rapidly that human eyes cannot notice, so the output appears constant.Wi-Fi works well for general wireless coverage within buildings, and Li-Fi is ideal for high density wireless data coverage inside a confined area or room and for relieving radio interference issues.*

KEY WORDS: Li-Fi, VLC, Wi-Fi, High-brightness LED, Photodiode, Wireless communication.

I. INTRODUCTION

Transfer of data from one place to another is one of the most important day-to-day activities. The current wireless networks that connect us to the internet are very slow when multiple devices are connected. As the number of devices that access the internet increases, the fixed bandwidth available makes it more and more difficult to enjoy high data transfer rates and connect to a secure network. But, radio waves are just a small part of the spectrum available for data transfer. A solution to this problem is by the use of Li-Fi. Li-Fi stands for Light-Fidelity. Li-Fi is transmission of data through illumination by taking the fiber out of fiber optics by sending data through an LED light bulb (shown in Fig. 1) that varies in intensity faster than the human eye can follow. Li-Fi is the term some have used to label the fast and cheap wireless communication system, which is the optical version of Wi-Fi. Li-Fi uses visible light instead of Gigahertz radio waves for data transfer.

Li-Fi can play a major role in relieving the heavy loads which the current wireless systems face since it adds a new and unutilized bandwidth of visible light to the currently available radio waves for data transfer. Thus it offers much larger frequency band (300 THz) compared to that available in RF communications (300GHz). Also, more data coming through the visible spectrum could help alleviate concerns that the electromagnetic waves that come with Wi-Fi could adversely affect our health.

Li-Fi can be the technology for the future where data for laptops, smart phones, and tablets will be transmitted through the light in a room. Security would not be an issue because if you can't see the light, you can't access the data. As a result, it can be used in high security military areas where communication is prone to eavesdropping. [1]

Fig. 1 Li-Fi Bulb [8]

II. CONSTRUCTION OF LI-FI

Li-Fi is a Visible Light Communications (VLC) system for data transmission. A simple VLC system has two qualifying components:
1) At least one device with a photodiode able to receive light signals.
2) A light source equipped with a signal processing unit.

A VLC light source could comprise of a fluorescent or light emitting diode (LED) bulb. Since a robust Li-Fi system requires extremely high rates of light output, LED bulbs are most ideal for implementing Li-Fi. LED is a semiconductor light source, which implies that LED light bulbs can amplify light intensity and switch rapidly. Therefore, LED cells can modulate thousands of signals without

the human eye ever noticing. In turn, the changes in light intensity from the LED light source are interpreted and converted as electrical current by the receiving photodiode device. Once the electronic signal is demodulated, it is converted into a continuous stream of binary data comprising of audio, video, web, and application information to be consumed by any Internet-enabled device.

There is ample room for growing innovation in Li-Fi technology. Like conventional broadband and Wi-Fi, Li-Fi can also function as a bidirectional communication system. By interchanging visible light and infrared light from a photo detector, a mobile device connected to that photo detector can send data back to the light source for uplink. Also, multi-colored RGB (Red/Green/Blue) LED's at retina size could be engineered to send and receive a wider range of signals than single-colored phosphor-coated white LED's.

The Li-Fi emitter system consists of 4 primary subassemblies [3]:

    a) Bulb
    b) RF power amplifier circuit (PA)
    c) Printed circuit board (PCB)
    d) Enclosure

The PCB controls the electrical inputs and outputs of the lamp and houses the microcontroller used to manage different lamp functions. A RF (radio-frequency) signal is generated by the solid-state PA and is guided into an electric field about thebulb. The high concentration of energy in the electric field vaporizes the contents of the bulb to a plasma state at the bulb's center; this controlled plasma generates an intense source of light. All of these subassemblies (shown in Fig. 2) are contained in an aluminum enclosure.
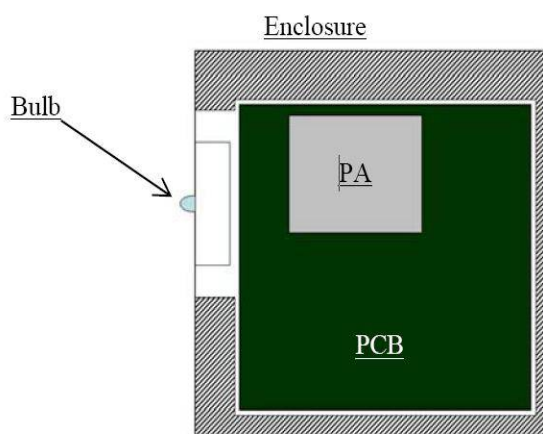
Fig. 2 Block diagram of Li-Fi sub-assemblies [11]

III. WORKING OF LI-FI

A new generation of high brightness light-emitting diodes forms the core part of light fidelity technology. The logic is very simple. If the LED is on, a digital 1 is transmitted. If the LED is off, a digital 0 is transmitted. These high brightness LEDs can be switched on and off very quickly which gives us a very nice opportunities for transmitting data through light. The working of Li-Fi is very simple.

There is a light emitter on one end, for example, an LED, and a photo detector (light sensor) on the other. The photo detector registers a binary one when the LED is on; and a binary zero if the LED is off. To build up a message, flash the LED numerous times or use an array of LEDs of perhaps a few different colors, to obtain data rates in the range of hundreds of megabits per second. The block diagram of Li-Fi system is shown in Fig. 3.
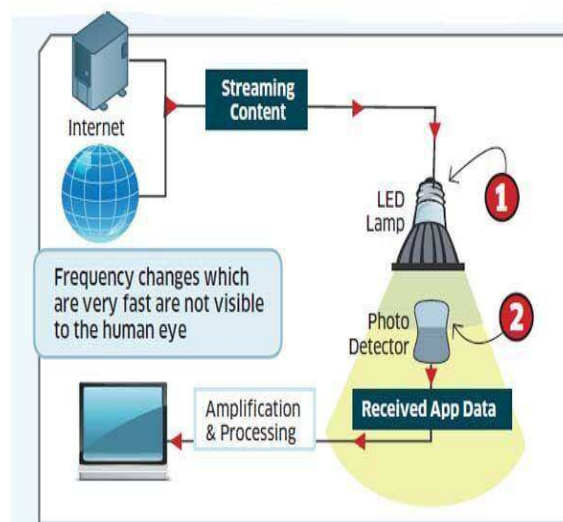
Fig. 3 Li- Fi System [10]

The data can be encoded in the light by varying the flickering rate at which the LEDs flicker on and off to generate different strings of 1s and 0s.The LED intensity is modulated so rapidly that human eye cannot notice, so the light of the LED appears constant to humans [4].

Light-emitting diodes (commonly referred to as LEDs and found in traffic and street lights, car brake lights, remote control units and countless other applications) can be switched on and off faster than the human eye can detect, causing the light source to appear to be on continuously, even though it isin fact 'flickering'. The on-off activity of the bulb which seems to be invisible enables data transmission using binary codes: switching on an LED is a logical '1', switching it off is a logical '0'. By varying the rate at which the LEDs flicker on and off, information can be encoded in the light to different combinations of 1s and 0s. This method of using rapid pulses of light to transmit information wirelessly is technically referred to as Visible Light Communication (VLC), though it is popularly called as Li-Fi because it can compete with its radio-based rival Wi-Fi. Figure 4 shows a Li-Fi system connecting devices in a room.
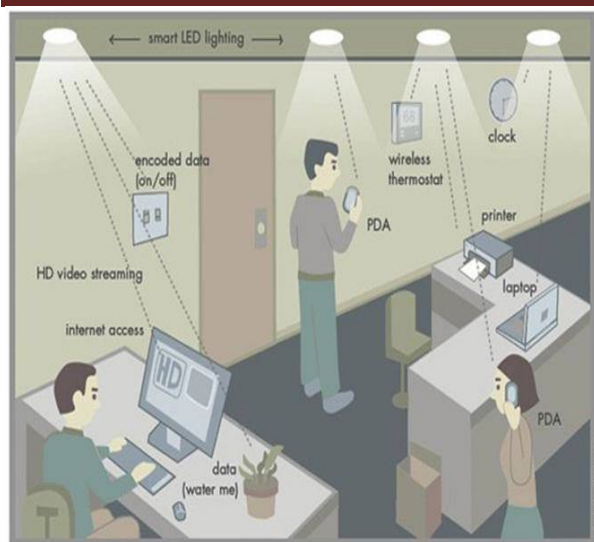
Fig. 4. Li-Fi system connecting devices in a room [9]

IV. COMPARISON BETWEEN LI-FI & WI-FI

Li-Fi is the name given to describe visible light communication technology applied to obtain high speed wireless communication. It derived this name by virtue of the similarity to Wi-Fi. Wi-Fi works well for general wireless coverage within buildings, and Li-Fi is ideal for high density wireless data coverage inside a confined area or room and for relieving radio interference issues. Table I shows a comparison of transfer speed of various wireless technologies. Table II shows a comparison of various technologies that are used for connecting to the end user. Wi-Fi currently offers high data rates. The IEEE 802.11.n in most implementations provides up to 150Mb/s although practically, very less speed is received.

COMPARISON OF SPEED OF VARIOUS WIRELESS TECHNOLOGIES [10]

Technology	Speed
Wi-Fi – IEEE 802.11n	150 Mbps
Bluetooth	3 Mbps
IrDA	4 Mbps
Li-Fi	>1 Gbps

V. APPLICATION AREAS OF LI-FI TECHNOLOGY

a) **Airways:** Whenever we travel through airways we face the problem in communication media, because the whole airways communications are performed on the basis of radio waves. To overcome this drawback on radio ways, li-**fi** is introduced.

b) **Education systems:** Li-Fi is the latest technology that can provide fastest speed internet access. So, it can replace Wi-Fi at educational institutions and atcompanies so that all the people can make use of Li-Fi

with the same speed intended in a particular area.

c) **Green information technology:** Green information technology means that unlike radio waves and other communication waves effects on the birds, human bodies etc. Li-Fi never gives such side effects on any living thing.

d) **Free From Frequency Bandwidth Problem:** Li-fi is a communication media in the form of light, so no matter about the frequency bandwidth problem. It does not require the any bandwidth spectrum i.e. we don't need to pay any amount for communication and license.

e) **Increase Communication Safety:** Due to visual light communication, the node or any terminal attach to our network is visible to the host of network.

f) **Multi User Communication:**Li-Fi supports the broadcasting of network; it helps to share multiple things at a single instance called broadcasting.

g) **Replacement for other technologies:** Li-Fi doesn't work using radio waves. So, it can be easily used in.

VI. CONCLUSION

The possibilities are numerous and can be explored further. If his technology can be put into practical use, every bulb can be used something like a Wi-Fi hotspot to transmit wireless data and we will proceed toward the cleaner, greener, safer and brighter future. The concept of Li-Fi is currently attracting a great deal of interest, not least because it may offer a genuine and very efficient alternative to radio-based wireless. As a growing number of people and their many devices access wireless internet, the airwaves are becoming increasingly clogged, making it more and more difficult to get a reliable, high-speed signal. This may solve issues such as the shortage of radio-frequency bandwidth and also allow internet where traditional radio based wireless isn't allowed such as aircraft or hospitals. One of the short coming shows ever is that it only works in direct line of sight. [7]

VII. ACKNOWLEDGEMENT

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Paper ID: 13

DIMENSION OF INDIAN RURAL MARKETING

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ABSTRACT-

Indian rural market is unique in many respects and more or so by the sheer dimension of its size unparallel in the world. The market is not only large but also scattered geographically. It exhibits linguistic, religious and cultural diversities and economic disparities. The 12% of world population and 68.84% of India's total population live in villages spread over 6.38 lacs villages (Census 2011) and more than 43% of national income is generated in rural India. The companies are looking for new opportunities and avenues, as they are witnessing a decline in their growth rates in urban markets due to market saturation and they do have a huge, untouched and untapped rural Indian market. The driving force for this is rural youth who are educated, have access to technology and have openness to change. Also rural markets have acquired significance, as the overall growth of economy has resulted into substantial increase in the purchasing power of the rural communities. This paper presented a dimension of rural markets, environment, rural demographic and literacy, spending priorities, challenges and provides the significant information on rural marketing process. This study even suggests marketing strategies / measures for success in rural markets.

KEY WORDS – Rural Market, Rural Mindset, Rural Market Potential and Opportunities.

INTRODUCTION –

Marketing is a dynamic and all pervasive subject in business that makes the whole organization ready to serve the customers. Marketing as a social activity directed towards satisfying customers needs and wants through an exchange process. It is a process of identifying consumer needs, developing products and services to satisfy consumer needs, making these products and services available to the consumer through an efficient distribution network and promoting these products and services to obtain greater competitive advantage in the market place.

A few years ago, the rural market in India was an unknown territory and many companies were not interested in entering the rural market of India. Communication, transportation and infrastructure were the main blocks for growth of rural market and penetration of urban products in rural markets. However, now everyone is looking at rural markets as the next growth driver in Indian market.

OBJECTIVES –

1. To understand the rural market.
2. To analyze the various parameters of potential rural market.
3. To suggest the effective marketing strategy.

RESEARCH METHODOLOGY–This present studies uses mainly secondary data. The sources of data are published and unpublished, like books, journals, reports, publications and concern websites.

RURAL MARKET–

"Rural Marketing is defined as a function that manages all activities involved in assessing, stimulating and converting the purchasing power of rural consumers into an effective demand for specific products & services and moving these products & services to the people in rural areas to create satisfaction and a better standard of living and thereby achieving organizational goals"

Even though, the above blocks and constrains, yet the rural market represents the largest potential market in the country. It encompasses over 70% of population. Its primary activities agriculture, animal husbandry, fisheries and forestry contribute half of the national income. Rural assets also amount to more than 50% of the country's tangible wealth. However, compare to the urban sector with 20% of the population and 50% of the gross national income money in rural market is spread thinly among the potential customers. It needs a complete set of alternative strategies to succeed in rural market in India.

Details of Indian rural market

Population	Number of villages	%of the total villages
Less than 200	1,14,267	17.9
200-499	1,55,123	24.3
500-999	1,59,400	25.0
1000-1999	1,25,758	19.7
2000-4999	69,135	10.8
5000-9999	11,618	1.8
10000 and above	3,064	0.5

Statistics of number of villages in India

Maharashtra	Andra Pradesh	Tamilnadu	Uttar Pradesh	Punjab
Grocery	Grocery	Grocery	Grocery	Grocery
Personal care	Saving/Invest	Saving/Invest	Apparel	Apparel
Apparel	Apparel	Consumer durables	Personal care	Personal care
Saving/Invest.	Personal care	Apparel	Saving/Invest	Saving/Invest
Entertainment	Consumer durables	Personal care	Household maintenance	Consumer durables

RURAL DEMOGRAPHIC

Following are the interesting demographics about Indian rural markets. These demographic will helps marketers to estimate demands for rural markets and understand the nature of the rural market.

Rural population of India:

Year	Rural population in million	Ratio	Urban population in million	Ratio %	Total in million
1951	295	2.2	62	7.4	57.0
1961	360	2.0	79	8.0	39.0
1971	439	0.1	109	9.9	48.0
1981	508	6.0	160	4.0	68.0
1991	621	4.3	215	5.7	36.0
2001	736	0.2	285	7.2	021.0
2011	833	8.85	377	1.15	211.0

Source – Census of India 2011.

INCOME

Rural households fall under different income categories as shown below.

Income range of Rs.	% of Rural households
Above Rs. 100000	3.8
75001-100000	4.7
50001-75000	13.0
25001-50000	41.1
25000 and below	37.4

SPENDING PRIORITIES

There is also regional variance in spending priorities of people in the rural areas, which are as under:

Literacy Level (%)

Sr. No.	Sex	1971		1981		1991		2001		2011	
		Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
1	Male	34	61	41	66	58	81	61	82	77	89
a2	Female	13	42	18	48	31	64	32	67	57	79
3	All	24	52	30	57	45	73	50	75	68	84

RURAL CONSUMER BEHAVIOR –

Consumers in rural areas have different culture, habits, tastes, and preferences. They belong to various religious groups, castes, and sub-castes. The multiplicity of this aspect varies from place to place.

Rural consumer intends to buy or his potential to buy products depends upon his needs, purchasing capacity and his attitude towards the product involving the cost benefit analysis done by him before purchasing the products. Therefore, marketers must understand the expectations of rural consumers, their socioeconomic background, tastes and preference etc. while marketing goods or providing services to each area.

POTENTIAL OF RURAL MARKET–

Regional disparities heavily influence the income levels of rural consumers and also their level of awareness of the availability of various consumer goods. The increase in profitability and prosperity of agriculture has increasing purchasing power of rural consumers. Due to increasing in percentage of literacy and demographic dividend the potential of rural market is very high/ large. According to research studies of National Council for Applied Economic Research (NCAER)and ORG-marg. rural Markets growing at five times the rate of the urban markets.

Due to increasing in purchasing power & awareness of rural consumers and effective implementation of various Govt. schemes for the progress of rural people, there is wide scope for products like telecommunication services & cell phones, two /three/ four wheel vehicles and its allied

business services, TV/LED,LCD, Sewing machines, washing machines, Refrigerators, Air coolers / conditioner, household equipments, FMCG, bank and insurance services, hotel and catering services, farm machineries and equipments, pesticides, fertilizers and allied agro products.

CHALLENGES IN INDIAN RURAL MARKETS–

There is various challenges face by marketers in rural markets.

1) **Mismatch of urban focus strategy to rural markets –** Urban marketing strategy does not fit into the rural marketing and its need a reorientation by looking at the competitive landscape and challenges of rural markets.

2) **Lack of retail infrastructure –** Outlet density in rural India is lower than that in urban area. Thus, it is more difficult to make a product available to a rural consumer than to urban one. The availability of retail infrastructure is directly linked to the village size.

3) **Vast and unevenly distributed purchasing power –** Regional disparities heavily influence the income level of rural consumers. The purchasing power variables as per profitability and prosperity of agriculture sector.

4) **Lack of storage, handling, roads and communication infrastructure –** There is no sufficient provision of storage, transport and communication infrastructure in rural area.

5) **Difficulty in logistic planning –** Due to uneven distribution of purchasing power, spares population distribution and unavailability of relative data, marketers face difficulties in logistic planning.

6) **Seasonal demand –**Agriculture is the primary source of income in rural India. The nature of rural demand is typically high during the peak crop harvesting and marketing season as well as in marriage seasons & festivals.

7) **Great diversity –**There is diversity among Indian consumers in language, religion, castes, culture and social customs. Therefore, it is difficult to identify the potential customers.

MEASURES /STRATEGIES FOR SUCCESS IN RUSRAL MARKET–

Rural marketing is offering promising opportunities to Indian markets. Rural markets is fast growing and developing in all directions, such as the overall growth of economy has resulted into substantial increase in the purchasing power of the rural communities, growth of infrastructure facilities, exposure of rural people to modern style of living, growth of literacy and so on. This provides wide ranged opportunities for sales promotion in India.

Marketers should keep in mind following points for success:

1) Advertising and communication and servicing must be evolved in tune with rural needs and in ways different from what is effective in large towns and cities.

2) There should be strong research and development team to produce products specifically for rural.

3) An efficient countrywide distribution network must be created, so that company's products are available to the rural consumers at their doorstep.

4) Pricing of products should be in line with the economic capacity of rural consumers.

5) Packing should be simpler and more functional than ornamental.

6) Role of trade in distribution and communication must be strengthened.

7) To attract the rural consumers, companies can organize village fairs, dance and drama shows, group meetings to convince the rural consumers about the products and services.

CONCLUSION:

As part of planned economic development, the government is making continuous efforts towards rural development. There are several roadblocks that make it difficult to progress in the rural market. Marketers encounter a number of problems like dealing with physical distribution, logistics, proper and effective deployment of sales force and effective marketing communication when they enter rural markets. The rural market in India is quite fascinating and challenging in spite of all the difficulties existing. The potential is enormous. Even though, these markets have weaknesses they also have tremendous opportunities which should be availed by the marketers. The marketers have to come up with innovative ideas through which the villagers also get involved in getting business from their respective villages.

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Paper ID: 14

VIRTUAL CLASS ROOM: ILLUSION AND REALITY

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ABSTRACT:

During earlier period traditional class rooms was used for teaching. In Modern era the teaching methods has been drastically changed. Virtual Class Room is one of them. The explosion of the knowledge age has changed the context of what is learnt and how it is learnt–the concept of virtual class rooms is a manifestation of this knowledge revolution. In present study the comparison is made between traditional teaching and virtual learning

KEYWORDS:

Traditional Class Room, Virtual Class Room, Illusion and Reality.
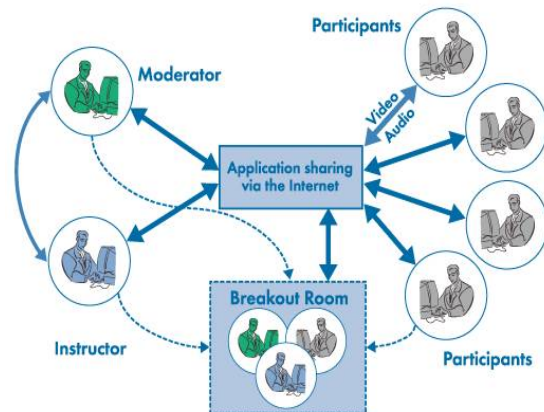
1. INTRODUCTION

A virtual classroom (VCR) is an online classroom that allows participants to communicate with one another, view presentations or videos, interact with other participants, and engage with resources in work groups. It is a teaching and learning environment located within a computer mediated communication system.

A virtual classroom allows both learners and instructors around the world to participate in live classes to collaborate and interact with each other through internet.

Virtual classrooms can be used to deliver lectures or even tutorials online. They are also great options for impromptu meetings and group projects where members need to check-in on progress and bounce ideas of one-another. With the virtual environment, ideas and collaborators are never far away.

A virtual class room is an advanced learning environment, created using internet, computers, supplicated video conferencing devices, in which either teacher is not physically present (for remote learning) or students are not present (distance education) in the class room.

Thus the virtual classroom possesses some of the characteristics of the internet which is what the traditional classroom does not have. For example, there is no limit of time, place, distance, and it is more convenient for both the students and the teachers to get more information from the internet.

2. OBJECTIVE OF VIRTUAL CLASS ROOM:

- To support live on-line classes for distance learning and remote education.
- To pool academic resources thereby improving access to advanced educational experiences.
- To improve the quality and effectiveness of education by collaborative learning and teaching process.
- To hold and participate in the meetings, webinars, Conferences/Symposium/Workshop, interviews, etc. through video conferencing.
- To increase and improve the accessibility of educational resources to the persons with disabilities.

3. VCR ACCESSORIES:

The list of accessories in virtual class rooms are as follows:

- Projector
- LCDs
- Server Machine
- Video conferencing System and its accessories
- High-Definition Multimedia Visualizer
- Interactive Whiteboard or Touch Panel
- Digital Canvas
- HD Cameras

4. ADVANTAGES OF VIRTUAL CLASS ROOM:

The virtual classroom does have its own merits over the traditional classroom. The following is the well accepted advantages of virtual classroom.

1. As it is an online learning, students and faculty members do not have the geographical barrier. It saves their time and money.
2. A good way to develop students self-learning ability.
3. It can take place from anywhere and according to the convenience of both.
4. It can be recorded so that students as well as faculty members can view the class in future for better understanding and improvement. This can help faculty members to review their classes and they can discuss with their colleagues for suggestions.
5. It can replace the classroom teaching.
6. The facility of chat helps students to ask their doubts to the faculty member. At the same time by raising one's hand, learner can ask his/her query with the help of audio input.
7. The facility of chat also helps to have discussion among students; they can express their views on the given topic.
8. The faculty member has the facility of whiteboard, which can be used to draw figures, tables, writing important points, etc.

5. DISADVANTAGES OF VIRTUAL CLASS ROOM:

1. Familiarity with Technology: The basic requirement for conducting or attending virtual classroom is familiarity with technology. If either teacher or student is not familiar with it, then it is of no use to them.
2. As there are many features like audio input, video input, chat session, whiteboard, PPT, etc, it might be difficult for a teacher to handle the class in an effective manner.
3. One of the basic requirements for conducting virtual classroom is connection to internet & if one does not have access to internet, and then one cannot take part in virtual classroom.
4. If one does not have latest software's like Flash Player 10 and Internet Explorer on his

computer, then it might create problem before or during the class.
5. The participants as well as facilitator might face some technical problems like electricity failure, echo of audio input, speed of internet connection, etc.

6. APPLICATIONS OF VIRTUAL CLASS ROOM:

1. **Live Video Streaming** Presentations with Powerful functionality that delivers easy viewing of slides and other documents, shared Internet access, virtual white board, all through an easy-to-use tool bar.
2. **Application, file, and desktop sharing** enable you to view live demonstrations.
3. Instructor can view each student's session when you perform your hands-on labs, the instructor can access your remote system to demonstrate and assist while you sit back to absorb the class room style mentoring you expect.
4. **Public and private text chat** allows for increased interactivity between participants and can be easily saved as a text file.

7. ILLUSION OF VIRTUAL CLASS ROOM:
(TRADITIONAL CLASS ROOM VS VCR):

- **The teaching environment is completely different :**

The traditional classroom has its own campus and fixed classrooms. Students wither live near the college or on the campus. They attend class every day and follow the same curriculum, while the virtual classroom is on the opposite. There are no limits of classroom, time schedule, or place. Students from all over the world can choose the same teacher and the same course. Most importantly, students who attend virtual classroom are not "pure" students. Unlike the full time students on campus, who are students and needn't worry about other things like work, family or duty, the students attending virtual classroom are mostly those who cannot attend the regular classroom. They have to worry about their life, work, or something else. So, it is more difficult for them than those regular students. At the same time, virtual classroom does not mean less effort or time. It is still time-consuming and energy-consuming if they want to learn better. They even need more efforts.

- **There is great difference between students:**

In the traditional classroom, the students are of the same age. Thus, the educator can make plans according to their psychological characters. The students are arranged into different classes. In the virtual classrooms, students are highly diversified, their age, life experiences, work experiences are all different. Thus, the teachers cannot assume the characteristics of their students.

- **The time schedules are different:**

The traditional classroom goes according to a definite time table and has the same textbook. They

plan courses according to the characteristics of the course and the cognitive development of the students. The students can learn different subjects in one day. It is more efficient. This is impossible for virtual classrooms students. They may not have so much time to learn different courses in a short time. They have to adjust their courses according to their time.

- **Different ways of interaction:**

In the traditional classroom, teachers and students are the two participators of education. The teachers teach and the learners learn under the guidance of the teachers. The teachers need to lead the students to think and find out ways to solve problems according to the performance of individual students. They interact face to face. In the virtual classroom, they have to communicate through the internet. The face-to face communication is very rear, though it is possible due to the development of multimedia. When there is a face-to-face communication on the internet, it is only between the teacher and the one student. Other students are difficult to participate.

8. CONCLUSION:

The effectiveness of virtual classroom is more significant than the traditional classrooms. It is an latest method of teaching which improves lectures quality, time feasibility, & less wastage of time

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Paper ID: 15

OVERVIEW OF STEGANOGRAPHY – AN ART OF DATA HIDING

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ABSTRACT:

Information security is one of most important concern in any communication. Data hiding is related field to information security. This is made people to worry about their privacy and works. Steganography is a technique that prevents unauthorized users to have access to the important data. It is the science of hiding the information into the other information so that the hidden information appears to be nothing to the human eyes.

This paper provides a general overview of Steganography – an art of data hiding in which Text, Image, Audio and Video Medias used for the information hiding behind channels.

KEYWORDS:

Stegnography, Stego-Key, Stego-File, Secrete Message, Audio Stegnography.

1. INTRODUCTION

Today's large demand of internet applications requires data to be transmitted in a secure manner. Data transmission in public communication system is not secure because of interception and improper manipulation by eavesdropper.

"Steganography" is a Greek origin word which means "hidden writing". Steganography word is classified into two parts: Steganos which means "secret or covered" (where you want to hide the secret messages) and the graphic which means "writing" (text). However, in the hiding information the meaning of Steganography is hiding text or secret messages into another media file such as image, text, audio, and video.

Steganography is a very old art of embedding personal information into other data by using some rules and techniques. As a result, unauthorized users are not able to see and recognize the embedded information. Steganography is managing a secret path for sending information invisibly. Steganography is a useful technique for hiding data behind the carrier file such as image, audio, video etc. and that data securely transfer from sender to receiver.

2. HISTORY

The history of Steganography can be traced back from 440 B.C. Steganography has been widely used in historical times, especially before cryptographic systems were developed.

Wax Tablets

In ancient Greece, people wrote secret messages on wood and then covered it with Wax. Also, a normal message was written over the wax to cover the secret message.

Fig.1 Wax Tablets

Shove Heads

This was also used back in ancient Greece. Slave's heads were shove and secret messages were written on the scalp. Then, the slave's hair was allowed to grow and the secret message was exposed to the recipient after shaving the head again.

Fig.2 Shove head with the secret message

Invisible Ink

Secret messages were written using invisible ink which became visible only when the paper carrying the message was heated. Liquids such as milk, vinegar and fruit juices were used as invisible inks. This method was used by the French Resistance during World War II by writing secret messages on the back of couriers using invisible ink.

Fig.3 Invisible ink

Morse Code

Secret messages were written in Morse code on the knitting yarn. A cloth was made out of the yarn which was worn by the carrier. Also, Jeremiah Denton blinked his eyes in Morse code to spell the word "Torture" in a Television conference. This ensured the US Military that American POWs were tortured in North Vietnam.

Fig.4 Morse coding for each alphabet

3. PROCESS OF STEGNOGRAPHY SYSTEM:

Basic Steganography process consists of secret message, carrier media, and secret key, stego file and embedding/extracting algorithm.

Before the hiding process, the sender must select the carrier media and select the effective secret messages as well as the secret key (which is also known by the receiver), then by using embedding algorithm sender create stego file and send the Stego file by email or chatting, or by other modern techniques. After receiving the message by the receiver, he can decode it using the extracting algorithm and the same secret key used by the sender. The Process of Steganography is shown in the fig. 5.
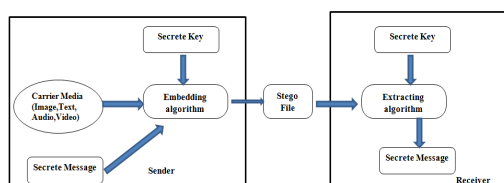
Fig. 5 Process of Steganography

The image file is the most popular used for this purpose because it easy to send during the communication between the sender and receiver. The images are divided into three types: binary (Black- White), Gray scale and Red-Green-Blue (RGB) images.

4. TYPES OF STEGNOGRAPHY:

i)   **Image Steganography**:-For hiding the secret message into carrier image, which is then converted into stego image.

ii)   **Audio Steganography**:-The secret message is embedded into unused audio bits as every file contains some unused bits or unused area of bits where secret message can be hided.

iii)   **Video Steganography**:- Video steganography divides the video into audio and image frames where embedding is performed in the audio file

5. STEGNOGRAPHY METHODS:

Steganography is differentiated on the basis of the media in which we hide the data. These are: text, image, audio and video.

A.   Text Steganography

The Steganography method uses the text media to hide the data known as text Steganography. There are different techniques to embed the secret data in text files.
- Format Based Method
- Random and Statistical Method
- Linguistics Method

B.   Audio Steganography

When secret data is embedded into digital sound, the technique is known as audio steganography. This method embeds the secret message in WAV, AU and MP3 sound files. There are different methods through which audio steganography explored:
- Low Bit Encoding
- Phase Coding
- Spread Spectrum

C.   Image Steganography

In this method, images are used as cover object. The image Steganography, data hiding method can be classified into different categories.
- Spatial domain
- Frequency domain
- Adaptive domain.

D.   Video Steganography

Video files are generally a collection of images and sounds, so most of the presented techniques on images and audio can be applied to video files too.
- DCT (Discrete Cosine Transform) method

6. APPLICATION OF STEGANOGRAPHY:

Steganography can be used in a lot of useful applications. For example copyright control of materials, to enhance the robustness of an image search engines and smart identity cards where the details of individuals are embedded in their photographs.

Other applications include video-audio synchronization, TV broadcasting, TCP/IP packets where a unique ID is embedded in an image to analyze the network traffic of particular users.

Medical Imaging Systems is one of the modern applications that use Steganography where a separation is recommended between patients" image data or DNA sequences and their captions for security or confidentiality reasons. Thus, embedding the patient's information in the image could be a security measure to help solving security issues.

Digital technologies have swept the confidence in the integrity of visual imagery.

In the business world steganography can be used to hide a secret chemical formula or plans for a new invention.

Steganography can also be used for corporate espionage by sending out trade secrets without anyone at the company being any the wiser.

Terrorists can also use steganography to keep their communications secret and to coordinate attacks

7. DATA HIDING USING STEGANOGRAPHY MODEL:

The model for steganography is shown in Fig 6. Message is the data that the sender wishes to remain it confidential. Message can be plain text, image, audio or any type of file. Password is known as a stego-key, using the stego key the receiver can extract the message from cover file if receiver knows stego key. The cover-file with the secret information is known as a stego-file.
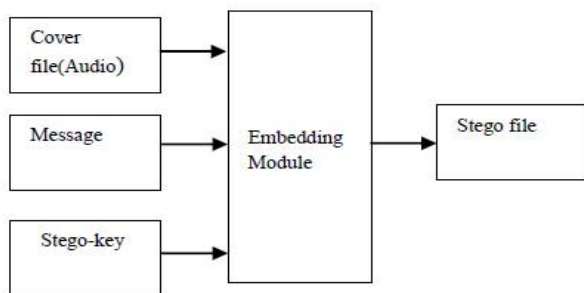
Fig. 6 Basic Audio Stegnography Model

8. TOOLS TO DETECT STEGANOGRAPHY:

There are several available steganographic detection tools such as Encase by Guidance Software Inc., ILook Investigator by Electronic Crimes Program, Washington DC, various MD5 hashing utilities, etc.

9. CONCLUSION:

Steganography is a fascinating and effective method of hiding data that has been used throughout history. In the last few years, Steganography has become an art of data hiding techniques. This paper provides an overview of history of steganography, process of steganography, application, types, tools and different steganography methods that satisfy the most important factors of steganography design.

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Paper ID: 16

OVERVIEW OF E-COMMERCE

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ABSTRACT

E-Commerce or Electronics Commerce is a methodology of modern business, which addresses the requirements of business organizations. It can be broadly defined as the process of buying or selling of goods or services using an electronic medium such as the Internet. E-Commerce is to sell goods and services online. This paper discussed about the factors of online shopping, online Business, online Marketing.

KEYWORDS: E-Commerce, Customer, Marketing, Online.

I.   INTRODUCTION

E-commerce is usually associated with buying and selling over the Internet, or conducting any transaction involving the transfer of ownership or rights to use goods or services through a computer-mediated network. Though popular, this definition is not comprehensive enough to capture recent developments in this new and revolutionary business phenomenon. A more complete definition is: E-commerce is the use of electronic communications and digital information processing technology in business transactions to create, transform, and redefine relationships for value creation between or among organizations, and between organizations and individuals. The Internet has become a major resource in modern business, thus electronic

shopping has gained significance not only from the entrepreneur's but also from the
Customer's point of view. E-commerce creates new opportunities for business; it also creates new opportunities for education and academics. E-commerce provides tremendous opportunities in different areas but it requires careful application for consumer protection issues. Growth of e-commerce would also depend to a great extent on effective IT security systems for which necessary technological and legal provisions need to be put in place and strengthened constantly.
The rapid pace of e-commerce development has generally left the legal system struggling to keep up and gasping for breath. In much the same way as companies doing ecommerce must invent new business procedures and rules, the legal system is trying to adapt existing laws to fit new settings where it is simply unclear how these laws will apply.

II.   E-COMMERCE

The process of buying, selling, transferring, or exchanging products, services and information via electronic network and computer.
Electronic commerce or e-commerce refers to a wide range of online business activities for products and services.

III.   HISTORY OF E-COMMERCE

a) E-commerce actually began in the 1970s when large corporations started creating private networks to share information with business partners and suppliers. This process, called Electronic Data Interchange (EDI).

b) Transmitted standardized data that streamlined the achieve process between business, so that paper work and human intervention were nearly eliminated.

c) EDI is still in place, and so effective at reducing costs and improving efficiency that an estimated 95% of fortune thousands companies use it.

d) Early E-Commerce was pioneered by Internet companies that didn't perform traditional retail. Called Pure Plays. (E.g. Amazon.com and CDNow.)

e) E-commerce refers to the paperless exchange of business information using the following ways:
   - Electronic Data Exchange (EDI).
   - Electronic Mail (e-mail).
   - Electronic Bulletin Boards.
   - Electronic Fund Transfer (EFT).
   - OtherNetwork-based technologies.
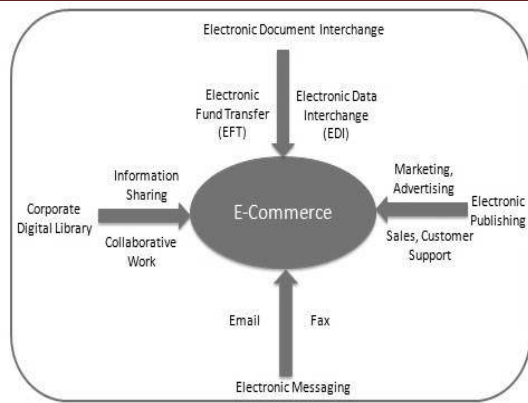
Fig 1. Paperless Exchange of Business Information

IV.   TYPES OF E-COMMERCE

The major different kinds of e-commerce are:

- Business-to-Business (B2B);
- Business-to-Customer (B2C);
- Business-to-Government (B2G);
- Customer -to-Customer (C2C);
- Government –to-Customer(G2C);
- Government –to Business(G2B);

What is B2B e-commerce?

B2B e-commerce is simply defined as e-commerce business make online transactions with other businesses.Most B2B applications are in the areas of supplier management, inventory management, distribution management, especially in the transmission of shipping documents channel management information dissemination on changes in operational conditions and payment management (e.g., electronic payment systems or EPS).
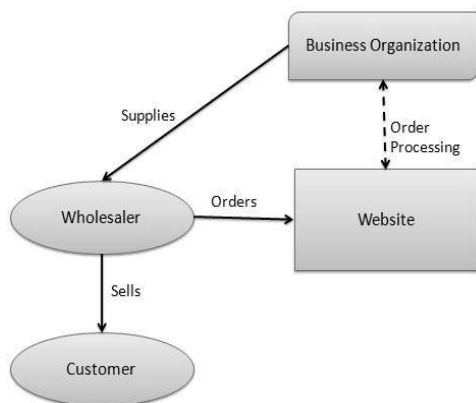
Fig 2. Business-to-Business (B2B)

What is B2C e-commerce?

B2C e-commerce between companies and consumers, involves customers gathering information; purchasing physical goods or information goods and, for information goods, receiving products over an electronic network. It is the second largest and the earliest form of e-commerce. Its origins can be traced to online retailing or e-tailing. Hence, the more common B2C

business models are the online retailing companies such as Amazon.com..
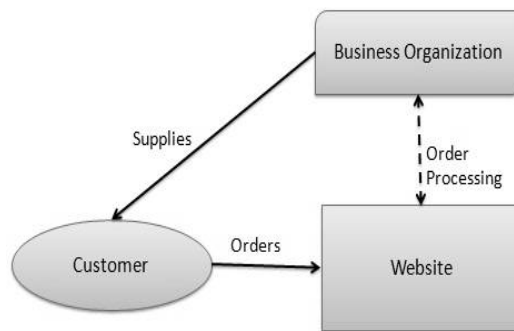
Fig 3. Business-to-Customer (B2C)

What is C2C e-commerce?

C2C e-commerce is simply commerce between private individuals or consumers.

This type of e-commerce is characterized by the growth of electronic marketplaces and online auctions, particularly in vertical industries where firms/businesses can bid for what they want from among multiple suppliers. It perhaps has the greatest potential for developing new markets.
such as olx.com.
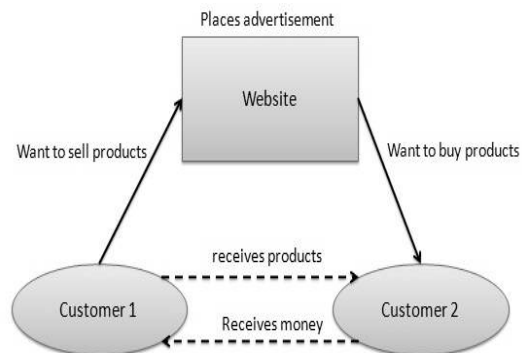
Fig 4. Customer -to-Customer (C2C)

What is B2G e-commerce?

 B2G e-commerce is generally defined as commerce between companies and the public sector.

 It refers to the use of the Internet for public procurement, licensing procedures, and other government-related operations. This kind of e-commerce has two features: first, the public sector assumes a pilot and leading role in establishing e-commerce; and second, it is assumed that the public sector has the greatest need for making its procurement system more effective. such as a Web site offering B2G services could provide businesses with a single place to locate applications and tax forms for one or more levels of government.

Fig 5. Business-to-Government (B2G)

What is G2C e-commerce?

G2C e-commerce is provide good and effective services to a each citizen government provide the facilities through the websites. Governments use G2C model websites to approach citizen in general.

Such websites support auctions of vehicles, machinery, or any other material. Such website also provides services like registration for birth, marriage or death certificates. The main objective of G2C websites is to reduce the average time for fulfilling citizen's requests for various government services.s

Fig 6. Government –to-Citizen (G2C)

What is G2B e-commerce?

G2B e-commerce is a business model that refers to government providing services or information to business organisation. Governments use B2G model websites to approach business organizations. Such websites support auctions, tenders, and application submission functionalities.

Fig 7. Government –to-Business(G2B)

V. APPLICATIONS OF E-COMMERCE
- Some common applications are in electronic commerce is as follows:
- International Payment system
- Supply change management
- Online shopping and Online marketing
- Instant messaging
- Online Banking

PAYMENT SYSTEMS

E-commerce sites use electronic payment, where electronic payment refers to paperless monetary transactions. Electronic payment has revolutionized the business processing by reducing the paperwork, transaction costs, and labor cost. Being user friendly and less time-consuming than manual processing, it helps business organization to expand its market reach/expansion.

Following are the modes of electronic payments:
- Credit Card.
- Debit Card.
- Smart Card.
- E-Money.
- Electronic Fund Transfer (EFT).

VI. SECURITY SYSTEMS

Security is an essential part of any transaction that takes place over the internet. Customers will lose his or her faith in e-business if its security is compromised. Following are the essential requirements for safe e-payments and transactions:

a) **Confidentiality -** Information should not be accessible to an unauthorized person. It should not be intercepted during the transmission.
b) **Integrity -** Information should not be altered during its transmission over the network.
c) **Availability -** Information should be available wherever and whenever required within a time limit specified.
d) **Authenticity -** There should be a mechanism to authenticate a user before giving him and her an access to the required information.
e) **Non-Repudiability -** It is the protection against the denial of order or denial of payment. Once a sender sends a message, the sender should not be able to deny sending the message. Similarly, the recipient of message should not be able to deny the receipt.
f) **Encryption -** Information should be encrypted and decrypted only by an authorized user.
g) **Auditability -** Data should be recorded in such a way that it can be audited for integrity requirements.

VII. ADVANTAGES OF E-COMMERCE
1. E-commerce helps organizations to reduce the cost to create process, distribute, retrieve and manage the paper based information by digitizing the information.
2. E-commerce helps organizations to provide better customer service.
3. Customers can enquire about a product or service and place orders anytime, anywhere from any location.
4. A customer can put review comments about a product and can see what others are buying, or see the review comments of other customers before making a final purchase .
5. E-commerce helps the government to deliver public services such as healthcare, education, social services at a reduced cost and in an improved manner.

VIII. DISADVANTAGES OF E-COMMERCE
The disadvantages of e-commerce can be classified into two major categories:
- Technical
- Non-technical

A. Technical Disadvantages
1. There can be lack of system security, reliability or standards owing to poor implementation of e-commerce.
2. The software development industry is still evolving and keeps changing rapidly.
3. There could be software and hardware compatibility issues, as some e-commerce software may be incompatible with some operating system or any other component.

B. Non-Technical Disadvantages
1. Initial cost: The cost of creating and building an e-commerce application in-house may be very high. There could be delays in launching an e-Commerce application due to mistakes, and lack of experience.

2. User resistance: Users may not trust the site being an unknown faceless seller. Such mistrust makes it difficult to convince traditional users to switch from physical stores to online and virtual stores.
3. Security and Privacy: It is difficult to ensure the security or privacy on online transactions.
4. E-commerce applications are still evolving and changing rapidly.

IX. FUTURE OF E-COMMERCE

- According to business world estimate near about 16,000 new jobs will be created for the internet world alone in the next two years.
- E-Commerce transactions are expects to across the Rs.3, 500 crore milestone in 2011-11, a jump of around 350 % from the 2008-09 fig. of Rs.1, 000 crore.
- eBay said that customer were trading goods worth almost 3 crore Rupees every day, across the globe.

X. PROCESSES OF E-COMMERCE
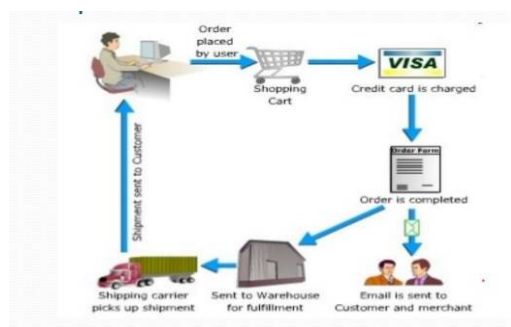
Fig 9. Processes of e-commerce

- The customer uses web Browser to connect a home page of merchant's web side of the internet.
- The customer browsers of catalog of products featured on the site and selects items to purchase .The selected item are placed in the electronic equivalent of a shopping card. i.e., Credit card, Online banking.
- When a customer is ready to complete the purchase of selected items, she provides a bill-to and ship-to address for purchase and delivery.
- When the credit card number is validated then the order is completed at the commerce server site, the merchant's site display a receipt confirming the customer's purchase.
- The commerce server side then forwards the order to a processing network for payment processing and fulfilment.

XI. CONCLUSION

In this paper electronic commerce is the most buying and selling of goods. It is about more marketing and selling it is useful in all the functional area of a business. We can easily interact with any other to make activities between customers and producers. E-commerce is healthy and safe so this e-marketing can be more consistent in the future.

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Paper ID: 17

HADOOP DISTRIBUTED FILE SYSTEM & BIG DATA

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ABSTRACT

The 'Big Data' describes innovative techniques and technologies to capture, store, distribute, manage and analyze petabyte, larger-sized datasets with high-velocity and different structures. Big data can be structured, unstructured or semi-structured, resulting in incapability of conventional data management methods.To process these large amounts of data in inexpensive and efficient way, parallelism is used. Big Data is a data whose scale, diversity, and complexity require new architecture, techniques, algorithms, and analytics to manage it and extract value and hidden knowledge from it. Hadoop is the core platform for structuring Big Data, and solves the problem of making it useful for analytics purposes.

KEYWORDS

Big Data, Hadoop, MapReduce, HDFS, Hadoop Components.

I. INTRODUCTION

Big Data is a collection of large datasets that cannot be processed using traditional computing techniques. It is not a single technique or a tool, rather it involves many areas of business and technology.Hadoop is an Apache open source framework written in java that allows distributed processing of large datasets across clusters of computers using simple programming models. The Hadoop framework application works in an environment that provides distributed *storage* and *computation* across clusters of computers. Hadoop is designed to scale up from single server to thousands of machines, each offering local computation and storage.

Big data include the data produced by different devices and applications. some of the fields that come under the umbrella of Big Data are as given below.

Black Box Data,Social Media Data,Social Exchange Data,Power Grid Data,Transport Data,
Search Engine Data,

Figure-1:Types of Bigdata.

Hence Big Data includes huge volume, high velocity, and extensible variety of data. The data with in it will be of three types.

Structured data: Relational data.
Semi Structured data: XML data.
Unstructured data: Word, PDF, Text, Media Logs.

II. BIG DATA TECHNOLOGIES

Operational Big Data,Analytical Big Data

Big Data Challenges

The major challenges associated with big data are as follows:

☐ Capturing data
☐ Curation
☐ Storage
☐ Searching
☐ Sharing
☐ Transfer
☐ Analysis
☐ Presentation

Therefore to fulfill the above challenges, organizations normally take the help of enterprise servers.

Hadoop

Using the solution provided by Google, Doug Cutting and his team developed an Open Source Project called HADOOP.
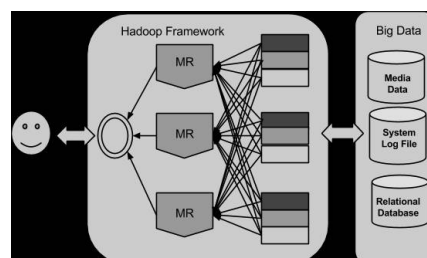
Figure-2:.Hadoop Framework

HADOOP ARCHITECTURE

At its core, Hadoop has two major layers namely:
(a) Processing/Computation layer (MapReduce), and
(b) Storage layer (Hadoop Distributed File System).
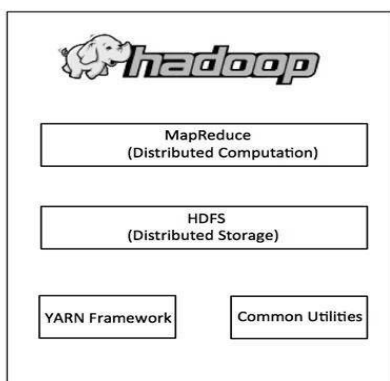
Figure-3:.Hadoop core Modules

Thereare four core modules are included in the basic framework from the Apache Foundation:

MapReduce: MapReduce is a Framework using which we can write application to process hug amount ,in parallel,on large clusters of commodity hardware in a Reliable manner.The MapReduce programs runs on Hadoop which is an Apache Open-source framework. The MapReduce algorithm contains two important tasks, namely Map and Reduce. Map takes a set of data and converts it into another set of data, where individual elements are broken down into tuples (key/value pairs).Secondly reduce task which takes the output from a map as an input and combines those data & smaller subproblems.As the sequence of the name MapReduce implies, the reduce task is always performed after the map job.

Advantages of mapreduce is that it is easy to scale data processing over multiple computing nodes.

Hadoop Distributed File System(HDFC): It is a Java-based scalable system that stores data across multiple machines without prior organization.

YARN(Yet Another Resource Negotiator):YARN provides resource management for the processes running on Hadoop.

Hadoop Common Utilities: The java libraries and utilities used by other Hadoop modules.

Hadoop Operation Modes:

you have download Hadoop,you can operate your Hadoop cluster in one of the three supported modes that is:

1.Local/standalone Mode:- It is configured in a standalone mode & can be run as a single java process.

2.Pseudo Distributed Mode:-It is a distributed simulation on single machine.Each Hadoop daemon such as hdfs,yarn,mapreduce etc,will run as a separate java process.It also is useful for development.

3.Fully Distributed Mode:-This mode is fully distributed with minimum two or more machines as a cluster.

WORKING OF HADOOP

It is quite expensive to build bigger servers with heavy configurations that handle large scale processing, but as an alternative, you can tie together many commodity computers with single-CPU, as a single functional distributed system and practically, the clustered machines can read the dataset in parallel and provide a much higher throughput. Moreover, it is cheaper than one high-end server. So this is the first motivational factor behind using Hadoop that it runs across clustered and low-cost machines. Hadoop runs code across a cluster of computers. This process includes the following core tasks that Hadoop performs:

☐ Data is initially divided into directories and files. Files are divided into uniform sized of blocks of 128M and 64M (preferably 128M).

☐ These files are then distributed across various cluster nodes for further processing.

☐ HDFS, is on top of the local file system, then hdfs supervises the processing.

☐ Blocks are replicated for handling hardware failure.

☐ Then Checking that the code was executed successfully.

☐ Performing the sort that takes place between the map and reduce stages.

☐ Sending the sorted data to a certain computer.

☐ Writing the debugging logs for each job.

Figure-4:Hadoop Importance

Hadoop has Ability to store and process huge amounts of any kind of data, quickly. With data volumes and varieties constantly increasing, specially from social media and Internet of Things (IoT), that's a key consideration.

Computing power. Hadoop's distributed computing model processes big data fastly. The more computing nodes you use, the more processing power you have.

Fault tolerance. Data and application processing are protected against hardware failure. If a node goes down, jobs are automatically redirected to other nodes to make sure the distributed computing does not fail. Multiple copies of all data are stored automatically.

Flexibility. The Unlike traditional relational databases, you don't have to preprocess data before storing it. You can store as much data as you want and decide how to use it later. That includes unstructured data like images,text,videos.

Low cost. The open-source framework is free and uses commodity hardware to store large quantities of data.

Scalability. You can easily grow your system to handle these more data simply by adding nodes. small administration is required.

CHALLENGES OF HADOOP

1)MapReduce programming is not a good match for all problems. It is good for simple information requests and problems that can be divided into independent units, but it's not efficient for iterative and interactive analytic tasks. MapReduce is file-intensive. Because the nodes donot intercommunicate except through sorts and shuffles, iterative algorithms require multiple map-shuffle/sort-reduce phases to complete. This creates multiple files between MapReduce phases and is inefficient for advanced analytic computing.

2)Widely acknowledged talent gap. It can be difficult to find entry-level programmers who have sufficient Java skills to be productive with MapReduce. That is one reason distribution providers are racing to put relational (SQL) technology on top of Hadoop. It is much easier to find programmers with SQL skills than MapReduce skills. Hadoop administration seems part art and part science, requiring low-level knowledge of operating systems, hardware and Hadoop kernel settings.

3)Data security. Another challenge centers around the fragmented data security issues, though new tools and technologies are surfacing. The Kerberos authentication protocol is a great step toward making Hadoop environments secure.

4)Full-fledged data management and governance. It does not have easy-to-use, full-feature tools for data management, data cleansing, governance and metadata. Especially lacking are tools for data quality and standardization.

Data getting from Hadoop
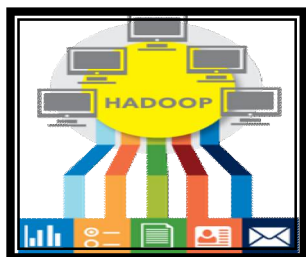
Figure-5:Data Getting from Hadoop

Here are just a few ways to get your data into Hadoop.Use third-party vendor connectors (like SAS/ACCESS® or SAS Data Loader for Hadoop).Use Sqoop to import structured data from a relational database to HDFS, Hive and HBase. It can also extract data from Hoodoo and export it to relational databases and data warehouses.Use Flume to continuously load data from logs into Hadoop.Load files to the system using simple Java commands. Create a cron job to scan a directory for new files and "put" them in HDFS as they show up. This is useful for things like downloading email at regular intervals.Mount HDFS as a file system and copy or write files there.

PRE-INSTALLATION SETUP

Before installing Hadoop into the Linux environment, we need to set up Linux using ssh (Secure Shell).To get Hadoop used default Port No for accessing Hadoop is 50070.Also using hadoop url to get hadoop services on browser http://localhost:50070/dfshealth.html/#tab-overview Hdfs-Site.xml:-The hdfs-site.xml file contains information such as the value of replication data,namenode path,and datanode paths of your local file systems.It means the place where you want to store the Hadoop Infrastructure.

ADVANTAGES OF HADOOP

1)Hadoop does not rely on hardware to provide fault-tolerance and high availability (FTHA), rather Hadoop library itself has been designed to detect and handle failures at the application layer.

2)Servers can be added or removed from the cluster dynamically and Hadoop continues to operate without interruption.

3)Another big advantage of Hadoop is that apart from being open source, it is compatible on all the platforms since it is Java based.

Hadoop framework allows the user to quickly write and test distributed systems. It is efficient, and it automatic distributes the data and work across the machines and in turn, utilizes the underlying parallelism of the CPU cores.

IV. CONCLUSION

From the above information I conclude that Hadoop has matured to a point that people can successfully build large and complex applications atop the platform.Hadoop has met our scalability requirements for handling large and various types of data.SAS support for big data implementations,including Hadoop,centers on a singular goal-helping you know more ,faster,so you can make better decisions.How you use the technology,every project should go through an iterative and continuous improvement cycles you can derive insights and quickly turn your big Hadoop data into bigger opportunities. SAS is focused on analytics,not storage ,we offer a flexible approach to choosing hardware and database vendors.We can help deploy the right mix of technologies,including Hadoop and other data warehouse technologies.We've found that many organizations are looking at how they can implement a project or two in Hadoop,with plans to add more in the future.

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A REVIEW : A COPYRIGHT IPR ISSUES

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ABSTRACT :

Intellectual property rights (IPR) have been defined as ideas, inventions, and creative expressions based on which there is a public willingness to bestow the status of property. IPR provide certain exclusive rights to the inventors or creators of that property, in order to enable them to reap commercial benefits from their creative efforts or reputation. There are several types of intellectual property protection like patent, copyright, trademark, etc. Patent is a recognition for an invention, which satisfies the criteria of global novelty, non-obviousness, and industrial application. IPR is prerequisite for better identification, planning, commercialization, rendering, and thereby protection of invention or creativity. Each industry should evolve its own IPR policies, management style, strategies, and so on depending on its area of specialty. Pharmaceutical industry currently has an evolving IPR strategy requiring a better focus and approach in the coming era.

KEYWORDS:

Copyrights IPR Issues

I. INTRODUCTION

Intellectual property (IP) pertains to any original creation of the human intellect such as artistic, literary, technical, or scientific creation. Intellectual property rights (IPR) refers to the legal rights given to the inventor or creator to protect his invention or creation for a certain period of time. IPR is a strong tool, to protect investments, time, money, effort invested by the inventor/creator of an IP, since it grants the inventor/creator an exclusive right for a certain period of time for use of his invention/creation. Thus IPR, in this way aids the economic development of a country by promoting healthy competition and encouraging industrial development and economic growth. Present review furnishes a brief overview of IPR with special emphasis on pharmaceuticals.

The laws and administrative procedures relating to IPR have their roots in Europe. The trend of granting patents started in the fourteenth century. In comparison to other European countries, in some matters England was technologically advanced and used to attract artisans from elsewhere, on special

terms. The first known copyrights appeared in Italy. Venice can be considered the cradle of IP system as most legal thinking in this area was done here; laws and systems were made here for the first time in the world, and other countries followed in due course. Patent act in India is more than 150 years old. The inaugural one is the 1856 Act, which is based on the British patent system and it has provided the patent term of 14 years followed by numerous acts and amendments.

I. Intellectual Property Rights (IPR)

Intellectual property (IP) refers to Creations of the mind, such as inventions; literary And artistic works; designs; and symbols, names and images used in commerce. IP is protected in law by, for example, Patents, Trademarks, Copyrights, which enable people to earn recognition from what they invent or create as shown in figure-1.

Figure-1: Types of IPR

A. PATENTS :

1)

Figure-2: Symbol of Patent

2)   A Patent describes an invention for which the inventor claims the exclusive right. INVENTION PATENABLE IF…….New (Novel),Useful, Not Obvious, Pertains to patentable subject matter.

It is covered under the Act called the Patents Act, 1970(Amended by Patents Act, 2005). It extends to the whole of India. It shall come into force on such date as the Central Government may publish, by notification in the Official Gazette.

B. TRADEMARKS :

A symbol, logo, word, sound, color, design, or other device that is used to identify a   business or a product in commerce.

Figure-3: Example of Trademark

It is covered under the Act called the Trade Marks Act, 1999. The Act came into effect on September 15, 2003. It replaced the Trade and Merchandise Marks Act,1958. It extends to the whole of India. It shall come into force on such date as the Central Government may publish, by notification in the Official Gazette.

➤ **Different Symbols are :**
  TM Intent to use application filed for product
  SM Intent to use application filed for services

 Registered Trademark
Trademark, as the word implies, is a mark that shows the trade of the maker. In 1266, King   Henry III of England passed a law requiring all bakers to make a distinctive mark for all the bread they sold. The Löwenbraü brewery in Munich, Germany claims it has used a lion (Löwenbraü means "lion's brew") as its trademark since 1383. The first modern trademark law was promulgated in France in 1857, and Britain first issued its trademark law, the Merchandise Marks Act, in 1862. The British act made it a criminal offense to try and sell a product under the auspices of another manufacturer. In the U.S., Congress tried to pass a trademark law in 1870, but it was struck down by the Supreme Court that year. Congress tried again in 1881, which was revised into the Trademark Act in 1905.

C. COPYRIGHT :

" The exclusive right given by law for a certain term of years to an author, composer   etc. (or his assignee) to print, publish and sell copies of his original work "

What do you need to know about Copyrights?

- Governed by the Copyright Act 1957. Valid from 21 January 1958
- Introduced civil and criminal remedies against infringement
- Term of copyright depends on nature of work/owner of copyright and whether the work has been published.

Covered by Copyright

Literary, Films, Dramatic, Musical, Artistic, Sound Recording

Not Covered by Copyright

Ideas, Facts, Recipes, Works lacking originality(e.g. The phone book), Names, titles or short phrases

Figure-4: Format Of Copyright

Copyright notice

A copyright symbol used in copyright notice.
Before 1989, United States law required the use of a copyright notice, consisting of the copyright symbol (©, the letter **C** inside a circle), the abbreviation "Copr.", or the word "Copyright", followed by the year of the first publication of the work and the name of the copyright holder. Several years may be noted if the work has gone through substantial revisions. The proper copyright notice for sound recordings of

musical or other audio works is a sound recording copyright symbol (℗, the letter **P** inside a circle), which indicates a sound recording copyright, with the letter **P** indicating a "phonorecord". In addition, the phrase *All rights reserved* was once required to assert copyright, but that phrase is now legally obsolete.

In 1989 the United States enacted the Berne Convention Implementation Act, amending the 1976 Copyright Act to conform to most of the provisions of the Berne Convention. As a result, the use of copyright notices has become optional to claim copyright, because the Berne Convention makes copyright automatic. However, the lack of notice of copyright using these marks may have consequences in terms of reduced damages in an infringement lawsuit – using notices of this form may reduce the likelihood of a defense of "innocent infringement" being successful.

D. TRADE SECRET :

A fourth type of intellectual property, in addition to patents, trademarks, and copyrights, is **trade secrets**. Trade secrets consist of information and can include a formula, pattern, compilation, program, device, method, technique or process. To meet the most common definition of a trade secret, it must be used in business, and give an opportunity to obtain an economic advantage over competitors who do not know or use it.

As a member of the World Trade Organization (WTO) and a party to the Agreement on Trade Related Aspects of Intellectual-Property Rights (TRIPS), the United States is obligated to provide trade secret protection. Article 39 paragraph 2 requires member nations to provide a means for protecting information that is secret, commercially valuable because it is secret, and subject to reasonable steps to keep it secret. The U.S. fulfills its obligation by offering trade secret protection under state laws. While state laws differ, there is similarity among the laws because almost all states have adopted some form of the Uniform Trade Secrets Act. The language of the Uniform Trade Secret Act is very similar to the language in TRIPS.

❖ **What is Trade Mark?**

"*Trade secret* means information, including a formula, pattern, compilation, program, device, product, method, technique or process that is used or may be used, in business or for any commercial advantage, that derives independent economic value, actual or potential, from not being generally known to the public or to other persons who can obtain economic value from its disclosure or use, that is the subject of reasonable efforts to prevent it from becoming generally known, and the disclosure of which would result in harm or improper benefit."

Figure-3: Trade Secret

II.   CONCLUSION

Create yourself, rather than using other's creations. Do not use competitor's mark in such way that it harms competitor in unfair way. No comparisons that are likely to cause confusion. Intellectual property rights reward creativity and human endeavor, which fuel the progress of humankind. Understanding the country's IP Rights and following the best practices can drastically reduce the risk of losing the company's intellectual property.

Indian government has initiated various steps towards Intellectual Properties rights Protection

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THRESHOLDING TECHNIQUES FOR DOCUMENT IMAGE ANALYSIS

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ABSTRACT

Thresholding is the simplest method of image segmentation or **Image thresholding is a simple, yet effective, way of partitioning an image into a foreground and background. This image analysis technique is a type of image segmentation that isolates objects by converting grayscale images into binary images.**

The simplest thresholding methods replace in an image with a black pixel if the image intensity I i , j {\displaystyle I_{i,j}} *$I_{i,j}$ is less than some fixed constant T (that is,* I i , j < T {\displaystyle I_{i,j}<T} *$I_{i,j}$ <T), or a white pixel if the image intensity is greater than that constant.*

INTRODUCTION

Thresholding is a process of converting a grayscale input image to a bi-level image.

Fig. 1.: The process of thresholding along with its inputs and outputs.

Image binarization or thresholding is an important tool in image processing and computer vision, to extract the object pixels in an image from the background pixels. Image binarization is central to many applications including document image analysis (printed characters, logos, graphical content, and musical scores are important as objects). Preprocessing is the first phase of document analysis. The purpose of preprocessing is to improve the quality of the image being processed. It makes the subsequent phases of image processing like recognition of characters easier.

TYPES OF THRESHOLDING.

Global Thresholding: When T is a constant applicable over an entire image, the process given in equation is referred to as global thresholding.

To extract the objects form the background is to select a threshold T. Any point (x,y) in the image at which f(x,y)>T is called an object point; otherwise, the point is called a background point. The segmented image g(x,y) is given by,

$$g(x,y) = \begin{cases} 1 & \text{if } f(x,y) > T \\ 0 & \text{if } f(x,y) <= T \end{cases}$$

If $g(x, y)$ is a thresholded version of $f(x, y)$ at some global threshold T.

g is equal to 1 if $f(x, y) \geq T$ and zero otherwise.

Basic Global Thresholding:

When the intensity distribution of objects and background pixels are sufficiently distinct, it is possible to use a single (global) threshold applicable over the entire image. In most applications, these is usually enough variablility between images that, even if global thresholding is a suitable approach, an algorithm capable of estimating automatically the threshold value for each image is required.

The following iterative algorithm can be used for this purpose:

1. Selecting an initial estimate for the global threshold, T.

$$g(x,y) = \begin{cases} 1 & \text{if } f(x,y) > T \\ 0 & \text{if } f(x,y) <= T \end{cases}$$

using,

2. Segment the image

This will produce two groups of pixels: G_1 consisting of all pixels with intensity values > T and G2 consisting of pixels with values ≤ T.

3. Compute the average (mean) intensity values m1 and m2 for the pixel in G_1 and G_2 respectively.

4. Compute a new threshold value:

$$T = \frac{1}{2}(m1+m2)$$

4. Repeat steps 2 through 4 until difference in T in successive iterations is smaller than a predefined parameter ΔT.

Global image threshold using Otsu's method

Otsu's thresholding chooses the threshold to minimize the intraclass variance of the thresholded black and white pixels.

Otsu's algorithm may be summarized as follows:

1) Compute the normalized histogram of the input image. Denote the components of the histogram by

$$p_i, \quad i = o, 1, 2, \ldots, L-1;$$

2) Compute the cumulative sums, $p_1(k)$, for k=0,1,2,….,L-1, using

$$p_1(k) = \sum_k^k p_i$$

$$m(k) = \sum_{i=0}^k i\, p_i$$

3) Compute the cumulative means, m(k), for k=0,1,2,…..,L-1, using

$$m_G = \sum_{i=0}^k i\, p_i$$

4) Compute the global intensity mean, m_G, using

5) Compute the between class variance, $\sigma^2_B(k)$, for k=0,1,2,….,L-1 using

$$\sigma^2_B(k) = \frac{[m_G\, p_1(k) - m(k)]^2}{p_1(k)[1 - p_1(k)]}$$

6) Obtain the Otsu threshold, k*, as the value of k

$$\eta(k) = \frac{\sigma^2_B(k)}{\sigma^2 G}$$

for which $\sigma^2_B(k)$ is maximum. If the maximum is not unique, obtain k* by averaging the values of k corresponding to the various maxima detected.

7) **Obtain the separability measure, η*, by evaluating**

At k=k*

2) VARIABLE THRESHOLDING:

Image partitioning is the simplest approaches to variable thresholding are to subdivide an image into on overlapping rectangles. This approach is used to compensate for non-uniformities in illumination and /or reflectance. This rectangle is chosen small enough so that the illumination of each is approximately uniform. When the value of T changes over an image, we use the term variable thresholding

Variable thresholding based on local image properties

A more general approach than the image subdivision method in image partitioning is to compute a threshold at every point (x,y) in the image based on one or more specified properties computed in a neighborhood of (x,y). Although this may seem like a laborious process , modern algorithms and hardware allow for fast neighbourhood processing, especially for common functions such as logical and arithmetic operations.

The term local or regional thresholding is used sometimes to denote variable thresholding in which the value of T at any point (x,y) is an image depends on properties of a neighborhood of (x,y).

3) Adaptive thresholding: Adaptive thresholding is a form of thresholding that takes into account spatial variations in illumination. We present a technique for real time adaptive thresholding using the integral image of the input. Adaptive thresholding changes the threshold dynamically over the image. This more sophisticated version of thresholding can accommodate changing lighting conditions in the image, e.g. those occurring as a result of a strong illumination gradient or shadows.

Adaptive thresholding typically takes a grayscale or color image as input and in the simplest implementation, outputs a binary image representing the segmentation. For each pixel in the image, a threshold has to be calculated. If the pixel value is below the threshold it is set to the background value, otherwise it assumes the foreground value.

Local Adaptive thresholding, on the other hand, selects an individual threshold for each pixel based on the range of intensity values in its local neighborhood. This allows for thresholding of an image whose global intensity histogram doesn't contain distinctive peaks.

3) Multiple Thresholding: Multiple Thresholding classifies a point (x,y) as belonging to the background if $f(x,y) \leq T_1$, to one object class if $T_1 < f(x,y) \leq T_2$, and other object class if $f(x,y) > T_2$.

That is, the segmented image is given by,

$$g(x, y) = \begin{cases} a, & \text{if } f(x, y) > T_2 \\ b, & \text{if } T_1 < f(x, y) \leq T_2 \\ c, & \text{if } f(x, y) \leq T_1 \end{cases}$$

Where a, b and c are any three distinct intensity values.

EXPERIMENTAL RESULTS:

1) **Global Image threshold using Otsu method on Color Document Image.**

Input Image	Output Image
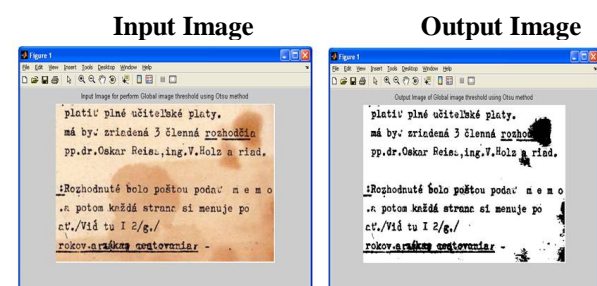
2) Global Image threshold using Otsu method on Gray Scale Document Image.

Input Image	Output Image

Experimental Result:

3) Adaptive thresholding on Color Document Image.
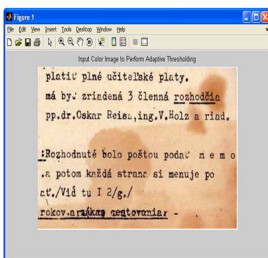
Input Image	Output Image
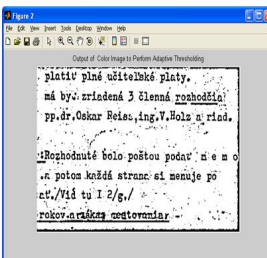
4) Adaptive thresholding on Gray Scale Document Image.
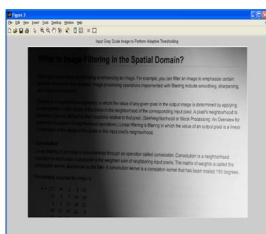
Input Image	Output Image
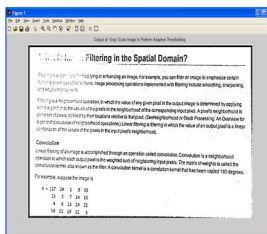
CONCLUSION:

In degraded document images, where considerable background noise or variation in contrast and illumination exists, there exist many pixels that cannot be easily classified as foreground or background. In such cases, binarization with local thresholding is more appropriate than global thresholding using Otsu's method. This paper describes a locally adaptive thresholding technique that removes background by using local mean and mean deviation normally the local mean computational time depends on the window size.

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Centerjor Advanced Studies in Engineering (CASE)

Thresholding : A pixel level image Processing Methodology preprocessing Techniques for an OCR system for the Brahmi script by H.K.Anasuya Devi

EDGE DETECTION

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ABSTRACT

Edge is a basic feature of an image.Edges can be defined as boundary between two different regions in an image. Edge detection refers to the process of identifying and locating sharp discontinuities in an image Edge detection process significantly reduces the amount of data and filters out useless information, while preserving the essential structural properties in an image. Since computer vision involves the recognitionand classification of objects in an image, edge detections is a vital tool

In this paper,the main aim is to study edge detection process based on different techniques

KEYWORDS:-Edge, Edge Detection.

I. INTRODUCTION

For computer vision and image processing systems to interpret an image , the separation of the image into object and background is a critical step. Segmentation partition the image into a set of disjoint regions that are visually different, uniform and meaningful with respect to some characteristics or computed properties, such as grey level, intensity, texture or colour to enable easy image analysis . A huge number of methods are available in the literature to segment images. This is a crucial workbecause the output of an image segmentation algorithm can be feed as input to higher-level processing tasks. Edge based method is most commonly used technique to perform image segmentation.. The purpose of edge detection is to mark the points ina digital image at which the luminous intensity changes sharply. In Image analysis process to interpret an image,one first must be able to detect the edges of each object in the image. Edge representation of an image significantly reduces the amount of data to be processed,yet it retains useful information about the shapes of objects in the scene. The effectiveness of many image processing and computer vision tasks depends on the perfection of detecting meaningful edges. Edge-detection has been a challenging task in low level image processing .Various approaches are available for edge detection , some are based on error minimization, maximizing an object function, neural network, fuzzylogic, wavelet approach, Bayesian approach,morphology, genetic algorithms

II.WHATARE EDGES

We can also say that sudden changes of discontinuities in an image are called as edges. Significant transitions in an image are called as edges.

III. TYPES OF EDGES

Generally edges are of three types:

- Horizontal edges
- Vertical Edges
- Diagonal Edges

IV. WHAT IS EDGE DETECTION

Edge detection is an image processing technique for finding the boundaries ofobjects within images. It works by detecting discontinuities in brightness. Edge detection is used for image segmentation and data extraction in areas such as image processing, computer vision, and machine vision.

V. WHY DETECT EDGES

Most of the shape information of an image is enclosed in edges. So first we detect these edges in an image and by using these filters and then by enhancing those areas of image which contains edges, sharpness of the image will increase and image will become clearer.

VI. EDGE DETECTION STEPS

A. Filtering

Filter image to enhance performance of the edge detector concerning noise It includes suppressing the noise as much as possible, without destroying the true edges.

B.Enhancement/Sharpening

Give emphasis to pixels having considerable change in local intensity

C.DetectionDecisive

Aboutwhich edge pixels should be superfluous as noise andwhich should beretained.

D. Localization

Determinethe accurate locations of an edge .Edge thinning and linking aregenerally a requisite for edge localization.

VII. EDGE-DETECTION METHODS

The edge detection algorithms can be generallyclassified based on the behavioural study of edges withrespect to the operators. Different edge-detectionapproaches can be broadly classified under Classical orGradient based edge detectors (first derivative), Zerocrossing (second derivative) and Optimal edge-detector.

Edge-Detection Approaches

Methods	Approach
First order derivative / Gradient methods	Roberts Operator Sobel Operator Prewitt Operator
Second order derivative / Zero crossing	Laplacian of Gaussian Difference of Gaussian
Optimal Edge Detection	Canny Edge Detector

VIII. EXPERIMENTAL RESULT

Orignal Color Image   **Edge detection of color image**

Gray scale image   **Edge detection of gray scale image**
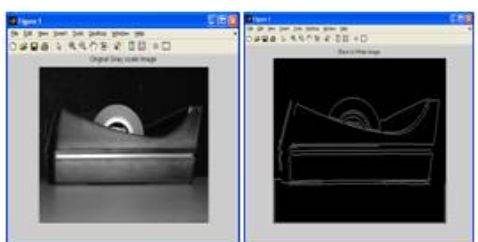
Orignal Color image   **Edge detection of color image**

Gray scale image   **Edge detection of gray scale image**
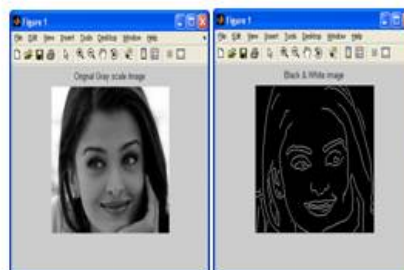
XI. CONCLUSIONS

In this paper we have done the comparison between different image using edge detection So we conclude that, edge detection of gray scale approach is best approach as compare to edge detection of color image. And edge detection is clearly visible in gray scale image as compare to the color image.

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IMAGE FILTERING IN FREQUENCY DOMAIN

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ABSTRACT: *This paper presents a survey on different image filtering techniques. Image filtering is a crucial part of vision processing as it can remove noise from noisy images. There are two filtering techniques to filter an image. Each filtering technique has its own benefits to filter an image. The overall objective of this paper is to explore the benefits and limits of existing techniques.*

KEYWORDS: low-pass filter, High-pass filter

1. INTRODUCTION

Filtering is a technique for modifying or enhancing an image. For example, you can filter an image to emphasize certain features or remove other features. Image processing operations implemented with filtering include smoothing, sharpening, and edge enhancement. There are **two types** of Filtering:-

1) Low-Pass Filter:-

A low-pass filter is a filter that passes signals with a frequency lower than a certain cutoff frequency and attenuates signals with frequencies higher than the cutoff frequency.

In Low-Pass Filtering,there are three types of low pass filtering:-

A)Gaussian low-pass filter
B)Ideal low-pass filter
C)Butterwoth low-pass filter

2) High-Pass Filter:-

A high-pass filter is an electronic filter that passes signals with a frequency higher than a certain cutoff frequency and attenuates signals with frequencies lower than the cutoff frequency. The amount of attenuation for each frequency depends on the filter design.

In High-Pass Filtering,there are three types of high pass filtering:-

A)Gaussian high-pass filter
B)Ideal high-pass filter
C)Butterwoth high-pass filter

2. EXPERIMENTAL RESULT

Low-Pass Filtering apply on Images:-
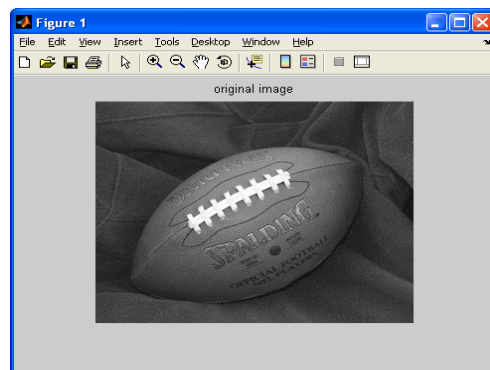
Fig (a):-Original Image

This is a Gray-scale image for filtering. Now We Apply Low-Pass filter on it the figure display in this fashion.
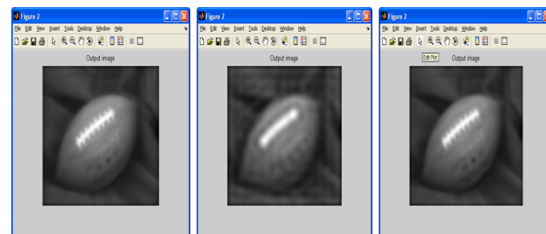
Fig(i):-Ideal   Fig(ii):-Butterworth   Fig(iii):-Gaussian

High-Pass Filtering apply on Images
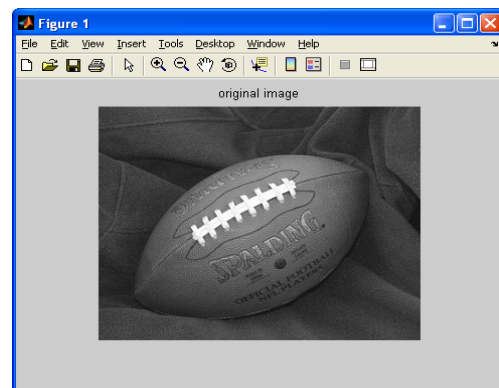
Fig(b):-Original Image

This is a Gray-scale image for filtering.Now We Apply High-Pass filter on it the figure display in this fashion.
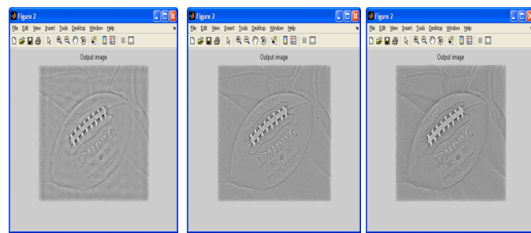
| Fig(i):-Ideal | Fig(ii):-Butterworth | Fig(iii):-Gaussian |

Low-Pass Filtering apply on Images:
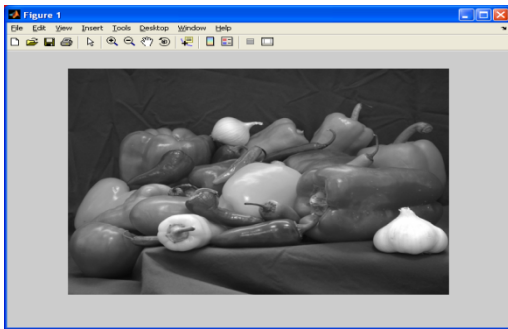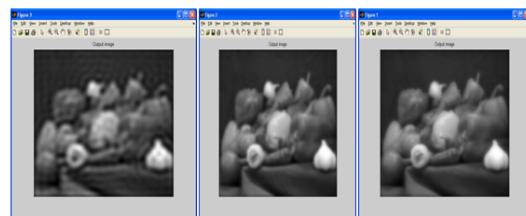
Fig (a):-Original Image

| Fig(i):-Ideal | Fig(ii):-Butterworth | Fig(iii):-Gaussian |

High-Pass Filtering apply on Images:
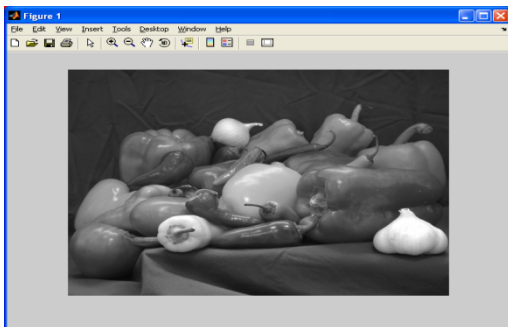
Fig (a):-Original Image
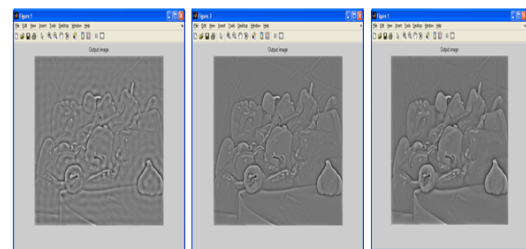
| Fig(i):-Ideal | Fig(ii):-Butterworth | Fig(iii):-Gaussian |

3. CONCLUSION:

In this paper we have done the comparison between different image filtering techniques of low pass and high pass filtering. So, we conclude that high pass filtering approach is the best approach that can be easily implemented .And the images visible in high pass filtering are more clearly with the comparison of the low pas filtering. The high pass filter is demonstrably better than another algorithms at removing noise because it preserves edges for a given, fixed window size. [So, high pass filtering is very widely used in digital image processing.

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ANALYTICAL HIEARACHY PROCESS: RANK THE CITIES IN THE ORDER OF SOLID WASTE POLLUTION

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ABSTRACT: *The present paper is based on the solid waste pollution. In this paper a method is developed to rank various cities in the order of Pollution using the technique of Analytical Hierarchy Process.*

KEYWORDS: Solid waste, Methane Gas.

1. INTRODUCTION

Solid waste comprises all the wastes arising from human and animal activities that are normally solid and discarded as useless or unwanted matter. There are many problems associated with solid waste, such as:

- Health & Environmental implications of City Solid Waste
- Collection of city waste
- Generation of Methane Gas
- Transmission of diseases through vectors
- Aesthetics and Environmental aspects

There is a need of ranking various cities in the order of the pollution created by them because of solid waste so that the citizens as well as municipal authorities will try to improve for the conditions and manage the solid wastes to reduce the overall pollution. The municipal corporations can also rank various locations in order to allocate resources properly.

There are many characteristics of the solid waste and their outcome is conflicting, i.e. if in a particular city the physical characteristics of the solid waste are more than the chemical characteristics may be more in another city. Therefore linear ordering is not possible. The parameters of pollution are conflicting and problem reduces to that of Multi Criteria Decision Making.

In this paper a method is developed to rank various cities in the order of Pollution using the technique of Analytical Hierarchy Process.

2. ANALYTICAL HIERARCHY PROCESS :

The Analytical Hierarchy Process (AHP) is a decision-aiding method developed by Saaty(1990). It aims at quantifying relative priorities for a given set of alternatives on a ratio scale, based on the judgment of the decision makers, and stresses the importance of the intuitive judgments of a decision-maker as well as the consistency of the comparison of the alternatives in the decision-making process. Since decision-makers base judgments on knowledge and experience, then make decisions accordingly. The AHP approach agrees well with the behaviors of a decision-maker. In the present paper, AHP is used to rank different localities of the city from the data obtained through survey. The following steps were applied by the author to analyze the data (Saaty 1980):

1. Define the problem and determine its goal.
2. Structure the hierarchy from the top (top objectives from a decision-maker's viewpoint) through the intermediate levels (criteria of which subsequent level depend) to the level.
3. Construct a set of pair-wise comparison matrices (size n x n)for each of the lower levels with one matrix for each element in the level immediately above by using the relative scale measurement shown in Table 1. The pair-wise comparison are done in terms of which element dominates the other.
4. There are n (n-1) judgments required to develop the set of matrices in step 3. Reciprocals are automatically assigned in each pair-wise comparison.
5. Hierarchical syntheses are then used to weight the eigenvectors by the weights of the criteria and the slum is taken over all weighted eigenvector entries corresponding to those in the next lower of the hierarchy.
6. Having made all the pair-wise comparisons, the consistency is determined by using the eigenvalue λmax , to calculate the consistency index, CI as follows: $CI = (\lambda max - n) / (n-1)$, where n is the matrix size. Judgment consistency can be checked by taking to consistency ratio (CR) as CI/RI, taking the appropriate value of CI from Table 2. The CR is acceptable, if it does not exceed o.10. If it is more, the judgment matrix is inconsistent. To obtain a consistent matrix judgment should be review and improved.
7. Steps 3-6 are performed for all levels in the hierarchy.

Table -2
Average random consistency (RI) (Saaty 1980)

Size of Matrix	1	2	3	4	5	6	7	8	9	10
	0	0	0.58	0.9	1.12	1.24	1.32	1.41	1.45	1.49

3. DEVELOPMENT OF A HIRARCHICAL MODEL FOR SOLID WASTE.

A hierarchical model for solid waste is developed for a typical project environment, and is shown in figure 1. The model is described below:

Level 1: At the top of the hierarchy is the goal of "solid waste".

Level 2: The objectives of Physical, Chemical 1 and Chemical 2 that contribute to the goal occupy the second level hierarchy.

Level 3: All characteristics of the Physical, Chemical and Chemical 2 occupy the lower level. The actual data is estimated at this level either through experiments and/or field survey.
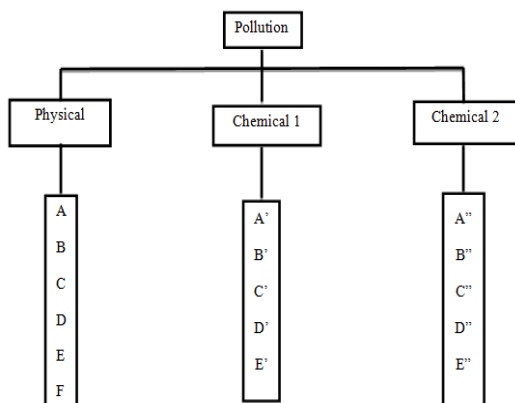
Figure 1: Hierarchical Model for Soiled Waste

4. DATA COLLECTION

At the lowest level 3 matrices of size 6 x 6, 5 x 5 and 5 x 5 are filled by the experts on pair-wise comparison. At the second level 3 x3 matrix is filled for the three Criteria of Physical, Chemical 1 and filled by experts on pair-wise comparison. The Physical characteristics are:

A. Compo stable material
B. Paper
C. Plastic
D. Metal
E. Glass & Crockery
F. Earth Stone, Bricks, Ash

The matrix for Physical Characteristics is shown in Table 3.

Table – 3
Pair-wise comparison matrix for objective Physical characteristics

	A	B	C	D	E	F
A	1	0.5	0.67	0.4	2	0.67
B	2	1	1.33	0.8	4	1.33
C	1.5	0.75	1	0.6	3	1
D	2.5	1.25	1.66	1	5	1.66
E	5	0.25	0.33	0.2	1	0.33
F	1.5	75	1	0.6	3	1

Then the following steps were carried out:

1. Synthesizing the pair-wise comparison matrix (Table 4);
2. Calculating the priority vector (Table 5);
3. Calculating the normalized ranking vector;
4. Calculating the consistency ratio;
5. Calculating λmax;
6. Calculating the consistency index, CI;
7. Selecting appropriate value of the random consistency ratio from Table 2; and
8. Checking the consistency of the pair-wise comparison matrix to check whether the decision-maker's comparisons were consistent or not.

The calculations for these items are explained for illustration purposes as follows:

Synthesizing the pair-wise comparison matrix is performed by dividing each element of the matrix by its Column total. For example, the value 0.111 in Table 4 is obtained by dividing 1 (from Table 3) by 9, the Sum of the column items in Table 3 (1+2+1.5+2.5+0.5+1.5). The priority vector can be obtained by finding the row averages of Table 4. For example, the priority of A is calculated by dividing the sum o the row (0.111+0.111+0.111+0.111+0.111) by the number of columns, i.e., 6 in order to obtain the value 0.111.

Table 4
Synthesized matrix for objective Physical Characteristics

	A	B	C	D	E	F
A	0.111	0.111	0.111	0.111	0.111	0.111
B	0.222	0.222	0.222	0.222	0.222	0.222
C	0.166	0.166	0.166	0.166	0.166	0.166
D	0.28	0.28	0.28	0.28	0.28	0.28
E	0.05	0.05	0.05	0.05	0.05	0.05
F	0.166	0.166	0.166	0.166	0.166	0.166

The priority vector, thus obtained, is shown in column 1 of Table 5. The ranking vector is obtained by normalizing the highest value of the priority with 1. The ranking vector is shown in column 2 of Table 5.

Table 5
Priority and Ranking Vectors for objective Physical Characteristics

	Priority Vector	Ranking Vector
	(1)	(2)
A	0.111	0.40
B	0.222	0.80
C	0.166	5.99
D	0.277	1
E	0.055	0.198
F	0.166	0.599

For estimating the consistency ratio, first the maximum value of the Eigen value is calculated. Then the consistency ratio is estimated as given below:

First the elements of weighted sum matrices are obtained as given below:

Dividing all the elements of the weighted sum matrix by their respective priority vector element, we obtain the vector = 6, 6, 6.01, 6.01, 6.05, 6.01

λmax is then computed by taking the average of these values.

λmax = (6+6+6.01+6.01+6.05+6.01) / 6 = 6.01

CI = (λmax – n) / (n-1) = 0.002

Selecting appropriate value of random consistency ratio, RI for a matrix size of six using Table 2, RI = 1.24 is obtained

CR = CI / RI = 0.0016

As the value of CR is less than 0.1, the judgments are acceptable.

The procedure is repeated for all the matrices for other criteria, that is for Chemical 1 Characteristics and Chemical 2 Characteristics.

The priority and ranking vectors of Chemical 1 and Chemical 2 and that of the second level after grouping Physical, Chemical 1and Chemical 2 are given in Table 6, Table 7 and Table 8 respectively.

Table - 6
Priority and Ranking Vectors for objective Chemical 1 Characteristics

	Priority Vector	Ranking Vector
	(1)	(2)
A'	0.1534	0.499
B'	0.23	0.749
C'	0.307	1
D'	0.076	0.247
E'	0.23	0.749

Table - 7
Priority and Ranking Vectors for objective Chemical 2 Characteristics

	Priority Vector	Ranking Vector
	(1)	(2)
A''	0.133	0.40
B''	0.066	0.2
C''	0.2	0.60
D''	0.266	0.80
E''	0.33	1

Table - 8
Priority and Ranking Vectors for the second level after grouping Physical, Chemical 1 and Chemical 2

	Priority Vector	Ranking Vector
	(1)	(2)
P	0.2	0.5
C1	0.4	1
C2	0.4	1

5. FIELD SURVEY

The field survey has not been done in this research work. However in the present research work the following Characteristics for three sites have been taken to explain the method form the literature (Misra et. A1. 1994), and is shown in Table 9, Table 10 and Table 11 for the three alternatives which are to be ranked.

Table – 9
Physical Characteristic of City Solid Waste

Alternative	Compostable	PaperPlastic	MetalGlass & Crockery	Earth, Stone, Bricks, Ash	Material
Alternative 1	42.87	7.91	1.01	0.52	0.89	46.8
Alternative 2	35.47	7.71	0.91	0.46	0.76	54.69
Alternative 3	29.85	6.57	1.35	0.72	0.87	60.64

Table - 10
Chemical 1 Characteristic of City Solid Waste

Alternative	Moisture	Organic Carbon	Nitrogen	Phosphorus	Potash
Alternative 1	26.94	32.76	0.70	0.65	0.95
Alternative 2	29.50	34.36	0.67	0.72	0.76
Alternative 3	21.36	32.34	0.72	0.60	0.54

Table – 11
Chemical 2 Characteristic of City Solid Waste

Criteria	Moisture	p H	Organic Carbon	C/N	HCV
Criteria 1	26.94	7.9	32.76	28.57	1294
Criteria 2	29.50	7.6	34.36	27.52	1286
Criteria 3	21.36	7.2	32.34	27.48	1252

The pair-wise comparison is done. By multiplying the value by respective Weights. The aggregate values for Physical, Chemical 1 and Chemical 2 are obtained for the three alternatives and are shown in Table 12.

Table – 12
Second level values for the three alternatives

	Physical	Chemical 1	Chemical 2
Alternative 1	58.25	39.56	1348.8
Alternative 2	58.69	41.86	1341.9
Alternative 3	62.45	36.14	1303.3

Here every column gives the characteristics for the alternatives.

Finally at third level the characteristics values of each group is multiplied by respective weights

obtained in Table 8, to obtain a single value for each alternative.

1417.48
= 1413.10
1370.66

Final value of Alternative 1 = 58.25 * 0.5 + 39.56*1+1348.8*1=1417.48

Final value of Alternative 2 = 58.69*0.5+ 41.86*1 + 1341.9*1 = 1413.10

Final value of Alternative 3 = 62.45*0.5 + 36.14*1 + 1303.3*1 = 1370.66

Hence the Alternative 1 is ranked at No. 1 having maximum pollution.

6. CONCLUSION

In this paper a multilevel, multi-objective decision making methodology using AHP is developed. The application of the method developed is illustrated with the help of the problem of ranking various alternatives. The methods developed are generic and can be applied for ranking any number of alternatives where there are conflicting objectives and the objectives have different weights. Since the weights for different criteria have been obtained by pair-wise comparison by the experts, the proposed method can handled tangible as well as intangible parameters.

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Paper ID: 23

DIGITAL READING ROOM DEVELOPMENT: A FEASIBILITY STUDY

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ABSTRACT:

The students of the college belong to lower and middle economic and social strata with a strong inclination toward learning resources published in Marathi, their mother tongue and exhibit mediocre technical skills. With the intention of habituating the students to use digital content that keeps the learners abreast with the latest developments of their subject and also offer effective learning experiences in multiple formats such as audios and videos, the digital reading room facility providing to student access e-content.

The college library has over 77,350 books and subscribes to 121 printed periodicals. The paper explains the architecture and functionality of Digital Reading Room, as an innovative enterprise.

KEYWORDS: E-content; Digital resources; NList service; E-books; Audios and Videos.

1. INTRODUCTION:

Education at all levels primary, secondary, and higher education has been challenged to develop digital resources for the enhancement of teaching and learning. Teaching and learning can be facilitated by multimedia resources. Those resources can provide motivation and interest in the study for students.

A digital learning resource is both an artifact and a semiotic tool with a bigger potential than traditional textbooks. Digitally stored content allows the user to view and navigate through the information non-sequentially in much the way that humans think – by association rather than linear sequence apart from offering multimedia experience. The Digital learning resources can be multi-modal, which means that the communication can be made both visually and auditory.

The college library also had a good collection of encyclopedias, dictionaries, demonstrations of experiments etc., in Compact Disc format, but since they were not issued to the students for the fear of breakage or corruption, they were not much utilized by the students. There was no facilitating centre in the library for the students to access these e-resources. This led to the designing and developing of a Digital Reading Room Center in the college library the architecture and functionality of which are described below.

2. ADVANTAGES OF DIGITAL READING ROOM:

The Digital Reading Room (DRR) provides access to library and other digital resources that have been selected for participating courses. The DRR is a searchable database and can be used to locate material from other courses and disciplines. As a result, the DRR is a useful tool for students who are writing papers and need to find subject specific information.

Students will find resources in a variety of formats, including online journal articles, electronic books, audio clips, video clips, and Web sites. Much of the information can be accessed with a click of the mouse. Some resources are listed under a "Required" heading and students in the course are expected to consult these. Materials listed under a "Supplementary" heading are optional, and are included to enhance understanding and encourage further exploration of course topics.

1. **Meets the needs of students to be wise consumers of media**, managers of information and responsible producers of their ideas using the powerful multimedia tools of a global media culture.

2. **Engages students** . . . bringing the world of media into the classroom connects learning with "real life" and validates their media culture as a rich environment for learning.

3. **Gives students and teachers alike a common approach to critical thinking that**, when internalized, becomes second nature for life.

4. **Provides an opportunity for integrating all subject areas** and creating a common vocabulary that applies across all disciplines.

5. **Increases the ability and proficiency of students** to communicate (express) and disseminate their thoughts and ideas in a wide (and growing) range of print and electronic media forms - and even international venues.

6. **By focusing on process skills rather than content knowledge**, students gain the ability to analyze any message in any media and thus are empowered for living all their lives in a media-saturated culture.

7. **Not only benefits individual students but benefits society** by providing tools and methods that encourage respectful discourse that leads to mutual understanding and builds the citizenship skills needed to participate in and contribute to the public debate.

3. RESOURCES OF DIGITAL READING ROOM:

Infrastructure	
10 Computers	E-Books Collection
Audio Collection	Video Collection
Headphones	Internet connection
Software/Hardware	
Windows 7	DRMS(Digital Reading Management System)
Microsoft Visual .NET 2010	Microsoft SQL Server 2008
Subscription of external resources	
NList	Consortia
Open source resources	Skilled man power for handling resources.
	Outsource expertise required.

4. ARCHITECTURE AND TOPOLOGY OF DIGITAL READING ROOM:

The digital reading room is set up in client server environment with 10 computer nodes serving as clients and a dedicated Internet Information Service (IIS) server. The computer nodes are connected to each other using mesh topology with a fast Ethernet Switch. The Switch receives the internet connection from the college's main server which distributes the internet connectivity among the nodes. A database consisting of 1200 e-books, 200 videos and about 100 audios pertaining to the topics of interests to the students has been developed.

The collection has been classified subject-wise and, with the help of web pages with links to the collection have been created. Each computer terminal is installed with dictionaries, encyclopedias and other ready reference material so that the student has direct access to these resources. The browsers in all the terminals are configured to open the digital reading homepage with index of documents as the default page. Further, the index page also is provided with other useful links that are of great significance to the students of higher education.

For example http://www.nptel.iitm.ac.in links to a large collection of video recordings of lectures by eminent Indian Institute of Technology professors. http://shodganga.inflibnet.ac.in provides the research dissertations and theses submitted by the research scholars to various Indian universities.

Question papers of previous year examinations of all the subjects offered by the college have been scanned and uploaded on the digital reading room server. The server also hosts personality development and etiquette related videos including spoken English programs. Thus the digital reading is designed to host all that a student can get benefit out of.
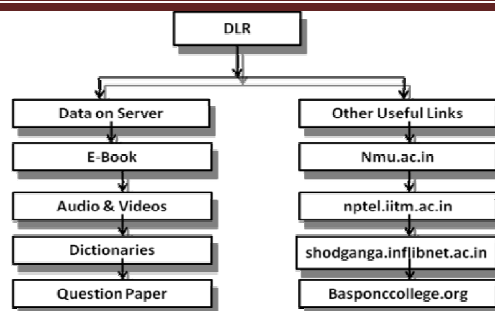
Fig. 1. Digital reading room software: A schematic representation

5. MEASURING THE EFFECTIVENESS OF DIGITAL READING ROOM:

Establishing a facilitation centre like Digital Reading Room in the college for accessing digital content is only successful when the content is actually put to use by the students in their learning process. Use studies are conducted by the college to study whether the centre is successful in meeting the objective of facilitating easy access to digital learning resources, for the students and encouraging greater use of digital content in their learning process.
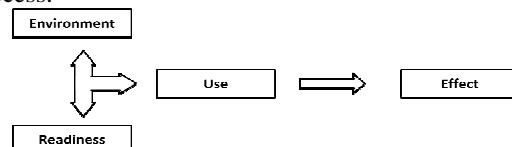
Under Environment it identifies two criteria: how easy it is to access Digital reading room and how many Digital reading room are available to the users. User readiness is the propensity of users to use digital reading room which is linked to the level of ICT related skills and competence shown by the students. According to the draft the technological environment and the level of readiness combine to facilitate the actual use of digital reading room. Accordingly, use is defined as the actual application of Digital reading room in teaching and learning activities.

6. CONCLUSION:

Changing the reading habits of the students from conventional methods and habituating the reading of digital content is the immediate challenge in front of academic libraries, especially in case of rurally located ones in the developing countries. The present ongoing research vouches for the success of the centre. While the fact that most e-books are available in English language only is the chief discouraging factor for the students hailing from rural backgrounds to prefer digital content over printed books, video lectures, simulations, power point presentation and previous year question papers etc., generally prove points of attraction to the students.

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SALT & PEPPER NOISE REDUCTION USING DIFFERENT FILTERS

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ABSTRACT

Noise is an important factor which when get added to an image reduces its quality and appearance. So in order to enhance the image qualities, it has to be removed with preserving the textural information and structural features of image. There are different types of noises exist who corrupt the images (4).

Impulse noise removal is a mechanism for detection and removal of impulse noise from images. Median filters are preferred for removing impulse noise because of their simplicity and less computational complexity (2).

KEYWORDS: Median filter, Max filter, Min filter, Noise.

I. INTRODUCTION

Noise is an important factor which when get added to an image reduces its quality and appearance. So in order to enhance the image qualities, it has to be removed with preserving the textural information and structural features of image. There are different types of noises exist who corrupt the images.

Image noise removal plays a vital role in image processing as a pre-processing stage (2).

Noise is a random variation of image Intensity and visible as grains in the

Image Noise means, the pixels in the image show different intensity values instead of true pixel values. Noise removal algorithm is the process of removing or reducing the noise from the image. The noise removal algorithms reduce or remove the visibility of noise by smoothing the entire image leaving are as near contrast boundaries. But these methods can obscure fine, low contrast details. There are several impulse noise removal techniques found in literature. The median filter is one of the simplest and most popular approaches for impulse noise removal. In this paper, an experimental study on the state of the art impulse noise removal techniques mentioned above is presented.

II. VARIOUS SORCES OF NOISE IN IMAGES

Noise is introduced in the image at the time of image acquisition or transmission. Different factors may be responsible for introduction of noise

in the image. The principal sources of noise in the digital image are(1):

a) The imaging sensor may be affected by environmental conditions during image acquisition.

b) Insufficient Light levels and sensor temperature may introduce the noise in the image.

c) Interference in the transmission channel may also corrupt the image.

III. SALT AND PEPPER NOISE

An image containing salt and pepper noise will have dark pixels in bright regions and bright pixels in dark region.This type of noise can be caused by dead pixels analog to digital converter errors, bit errors in transmission, etc.This can be eliminated in large part by using dark frame subtraction and by interpolating around dark/bright pixels.Salt-and-pepper noise is a form of noise sometimes seen on images. It presents itself as sparsely occurring white and black pixels.

IV. HOW FILTERS HELP TO DENOISE IMAGE

Filtering is a technique for modifying or enhancing an image. Image denoising is an important image processing task, both as a process itself, and as a component in other processes. Very many ways to denoise an image or a set of data exists. The main properties of a good image denoising model are that it will remove noise while preserving edges. Noise filtering techniques can either be linear or non-linear. The linear filtering technique applies the algorithm linearly to all the pixels in the image without defining the image as corrupted or uncorrupted pixel. Since the algorithm applies to all the pixels in the image, so this causes the uncorrupted pixels to be filtered and hence these filtering techniques are not effective in removing impulsive noises. The most widely used non-linear filter is the median filter which uses the median value to replace the corrupted pixel, and these filters have the capability to remove impulsive noise while preserving the edges.

V. DIFFERENT TYPES OF FILTERS

For noise reduction we use different types of filters, such as median, max, min, adaptive etc.

Let we consider & apply the median, max& min filter for salt & noise reduction.

a) Median filter

The median filter is a nonlinear digital filtering technique, often used to remove noise. Such noise reduction is a typical pre-processing step to improve the results of later processing (for example, edge detection on an image). Median filtering is very widely used in digital image processing because, under certain conditions, it preserves edges while removing noise .Median filters are effectively work on grayscale or RGB images

b) Max Filters

The "Max - Min" filter blurs the image by replacing each pixel with the difference of the highest pixel and the lowest pixel (with respect to intensity) within the specified window size. They have also work on grayscale & RGB image & finding brightest point in an image.

c) Min Filters

The transformation replaces the central pixel with the darkest one in the running window. They have also work on grayscale & RGB image & finding darkestt point in an image.

VI.   EXPERIMENTAL RESULT

a. Noise reduction Using Median filter

Fig.1.Original image
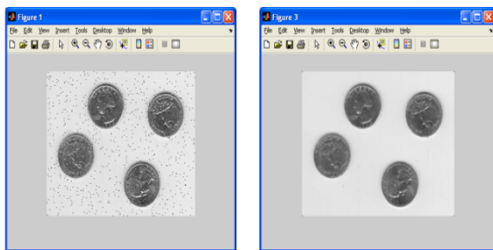
Fig2.Noisy image   Fig3.Denoise image

b.   Noise Reduction Using Max Filter

Fig.1.Original image
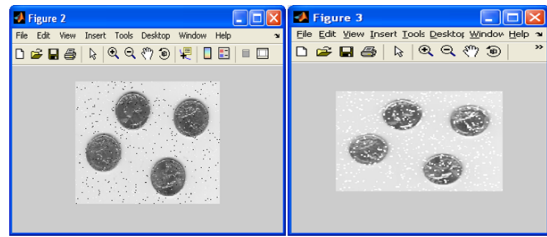
Fig2.Noisy image   Fig3.De-noise Image

c. Noise Reduction Using Min Filter

Fig1.Original image
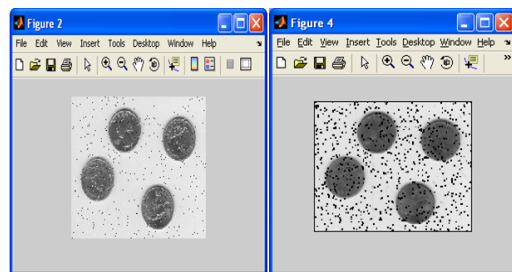
Fig2.Noisy image   Fig3.De-noise image

VII.   CONCLUSION

In this paper, we have of noise that creep in images during image acquisition or transmission. In the fifth section we present the various filtering techniques that can be applied to de-noise the images. Experimental results presented, insists us to conclude that median filters performed well. Whereas other filters performed worst.

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COMPARABILITY STUDY OF DM TECHNIQUE FOR IMPROVING EDUCATIONAL QUALITY

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ABSTRACT

In this paper we have discus how to improve the educational quality of student, teacher and educational organization for decision support system, how to improve the performance of functional activity that is the student can improve his academic record, and teacher they have arranged there classes using the KDD process of student performances and to predict the easiest way to academician for the educational benefits.

KEYWORDS: KDD, NCRP, Educational Data mining.

1.INTRODUCTION

Data mining is the process of finding hidden pattern from the raw data. The eighty percent data is unstructured only twenty percent data is structure that is the images and massaging. This unstructured data are replaced with using KDD process that is knowledge Discovery Data. Best results are achieved by balancing the knowledge of human experts in describing problems and goals with the search capabilities of computers. The many people told the data mining synonyms is knowledge discovery from data, or KDD. while other consider data mining as just a necessary steps in the process of knowledge discovery. The KDD process is shown below.
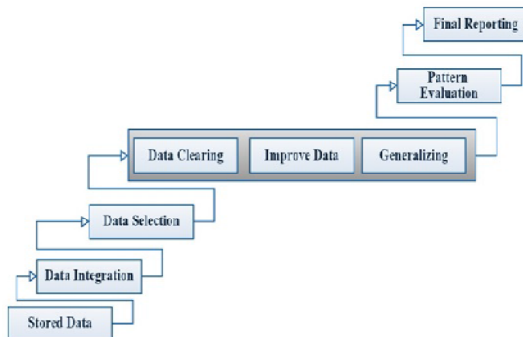
Figure 1: KDD Process

- Stored Data: The educational data set can be stored.
- Data Integration: In this process the multiple data sets can be combined.
- Data Selection: the relevant data can be retrieved from the database.
- Data Clearing: in this process dirty data can be removed.
- Improve Data: By removing the dirty data it can be possible.
- Generalizing: this process obtained improved data by clearing dirty noises.
- Pattern Evaluation: it can be used to identify interesting patterns representing require knowledge.
- Final Reporting: This process can be used to represent knowledge.

2.DATA MINING TECHNIQUE IN EDUCATION SYSTEM

In the Education system Data mining can be used to predict useful pattern and this pattern can be used for many purpose.

2.1-Predicting the student performance:

In Education system using Data mining technique Student academic performance value can be predicted and this value can be numerical or categorical.

Relationship between dependent and one or more independent variable can be analyzed using Regression analysis.

Individual items can be classified by using Classification technique. Different techniques of data mining can be applied like rule based system, neural network, regression analysis, and co-relation analysis on education data.

2.2-Group student:

Group of students are created by considering the various characteristic of students and also their performance is taken into consideration for clustering and to do so different clustering techniques are used like K-means, hierarchical model based clustering.

3.NEED OF CURRENT RESEARCH

Now a day's many higher education systems generate mountains of administrative data about students, courses, staff including lecturers, organizational personnel, managerial systems and soon. This data is a strategic resource for higher educational institution. Making the most use of these strategic resources will lead to the main objective of higher educational system, which is improving the quality of processes. To retain qualified in educational domain, a deep

understanding of the knowledge hidden among the data is required. In today's higher education lack of deep and enough knowledge among the processes such as evaluation, counseling and etc., prevents management system from achieving this quality objective, so there has not been an efficient and effective use of their strategic resources yet. Data mining techniques can be used to extract unknown pattern from the set of data and discover useful knowledge, which would assist decision makers to improve the decision making and policy-making procedures. It results in extracting greater value from the raw data set, and making use of strategic resources efficiently and effectively. It finally improves the quality of higher educational processes.

Figure 2: Need of Current Research Process

4. COMPARATIVELY STUDY OF EDM

As said by Nidhi Chopra and ManoharLal that as world around was going through a technological revolution with the dawn of digital age, educationist were in some ways compelled to rethink the existing education system and its components. Available techniques and tools, it was imperative to reconsider how they can be used to improve educational institutions and associated bodies. Knowledge discovery in educational data have increased tremendously with digital revolution now as compared to the scenario in the past. Educational data was becoming increasingly rich as move and more educational systems were going online and collecting large amount of data. They have presented a study of an enrollment dataset. [1] Longbing Cao, Senior Member, IEEE, Huaifeng Zhang, Member, IEEE, Yanchang Zhao, Member, IEEE, Dan Luo, and Chengqi Zhang, Senior Member, IEEE have said that enterprise data mining applications often involve complex data such as multiple large heterogeneous data sources, user preferences, and business impact. In such situations, a single method of one-step mining was often limited in discovering informative knowledge. It would be very time and space consuming, if not impossible, to join relevant large data … sources for mining patterns consisting of multiple aspects of information. It was crucial to develop effective approaches for mining patterns combining

necessary information from multiple relevant business lines, centering for real business setting and decision-making actions rather than just providing a single line of patterns. The recent years have seen increasing efforts on mining more informative patterns, e.g., integrating frequent pattern-based classifiers. Rather than presenting a special algorithm. They have proposed combined mining as a general approach to mining for informative patterns combining components from either multiple data sets or multiple features or by multiple methods on demand. They have summarized general frameworks, paradigms and basic processes or multifeature combined mining, multisource combining mining. Novel types of combined patterns, such as incremental cluster patterns, can result from frameworks, which cannot be directly produced by the existing methods. A set of real-world case studies has been conducted to test the frameworks. They have identified combined patterns for informing government debt prevention and improving government service objectives, which show the flexibility and instantiation capability of combined mining in discovering informative knowledge in complex data. [8]

As per M. Ramaswami and R. Bhaskaraneducational data mining (EDM) was a new growing research area and the essence of data mining concepts were used in educational field for the purpose of extracting useful information on the behavior of students in the learning process. they have carried out a comparative study of six filter feature section algorithms by which they could reach the best method as well as optimal dimensionality of the feature subset. Benchmarking of filter feature selection method was subsequently carried out by deploying different classifier models. The results of the present study effectively supported the well-known fact of increase of minimum number of features. The expected outcomes shown a reduction in computational time and constructional cost in both training and classification phases of the student performance model. [9]

As work done by the Cesar Vialardi, Javier Bravo, Leila Shafti, Alvaro Ortigosa, one of the main problem faced by university students was to take the right decision in relation to their academic itinerary based on available on available information for example courses, schedules, sections, classrooms, and professors. In their work, they have proposed the use of a recommendation system based on data mining techniques to help students to take decisions on their academic itineraries. It provided support for the student to better choose how many and which courses to enroll on, having as basis the experience of previous student with similar academic achievements. They have analyzed real data corresponding to seven years of student enrolment at the school of system engineering at universidad de Lima. [12]

Crist´obal Romero *, Sebasti´an Ventura and Enrique Garc´ıa have described how different data mining techniques can be used in order to improve the course and the students learning. All

these techniques can be applied separately in a same system or together in a hybrid system. Although they have described the most general and well-known data mining techniques, there were as well other specific data mining techniques that were also used in e-learning such as outlier analysis and social network analysis. Outlier analysis (Hodge and Austin, 2004) is a type of data analysis that seeks to determine and report on records in the database that differ significantly from expectations. An outlier was an observation that was usually large or small when compared to the other values in a data set. This technique was used for assisting instruction in the detection of learners irregular learning processes (Ueno, 2004b). In e-learning, SNA can be used for mining group activities by analyzing the sociograms associated with a given group, and the status of participants and group cohesion of social interactions (Reyes and Tchounikine, 2005), for the analysis and interpretation of the structure and content of online educational communities (Rallo et al., 2005). [14]

Study of Ana-Bel´en Gil Francisco J. Garc´ıa-Pe˜nalvohave taken a brief look at self-organization and emergence while examining certain aspects connected with recommender systems. It explained the foundation from which they have proposed a recommendation mechanism in e-learning based on complex systems with a bio-inspired algorithm. Their goal was to have a structural and immediate connection between the set of LO elements that a user needs, relaying on the semantic content and qualities evaluation and the landscape of agent that represent the recommendation. They were working on the ACLUSTER algorithm to introduced new metrics that would be allowed them to identify the similarity between Los in the environment. The possibility of this proposal was at simulation phase. [20]

Michael P. O'Mahony and Barry Smyth have reported on their work to date concerning the development of a course recommender system for university college Dublin's on-line enrollment application. They outline the student factors that influenced student choices and proposed solutions to address some of the considerations that are identified. They empirically evaluated their approach using historical student enrollment data and promising performance was achieved with their initial design. When their collaborative algorithm was evaluated using historical enrollment data, it was found to provide very encouraging performance in terms of both recall and coverage. [22]

Mohamed Kouthea¨ırKhribi, Mohamed Jemniand OlfaNasraoui have described an automatic personalization approach aiming to provide inline automatic recommendation for active learning without requiring their explicit feedback. Recommended learning resources were computed based on the current learner's recent navigation history, as well as exploiting similarities and dissimilarities among learner's preferences and educational content. The proposed framework for building automatic recommendations in e-learning platforms is composed of two modules: an off-line module which pre-processes data to build learner and content models, and an online module which uses these models on-the-fly to recognize the students' needs and goals, and predict a recommendation list. Recommended learning objects were obtained by using a range of recommendation strategies based mainly on content based filtering and collaborative filtering approaches, each applied separately or in combination. [23]

As said by S. Anupama Kumar and Dr. Vijayalakshmi M.N, Association rule mining techniques have been identified as one of the easiest and interesting method to apply on educational data. The algorithms were capable of generating frequent and rare association mining rules depending on the necessity of the work. Apriori algorithm has been found as one the best method to bring out frequent item set as well as interesting rules in finding out the behavior of students towards the learning style. It was found that that students are moving from traditional / auditory type of learning towards visual as well as tactile learning. Tertius algorithm was capable of finding out rules and conducting them when the numbers of literals were increased. They were also capable of classifying the rules according to the values present in the questionnaire. The output in the form of TPR, FPR and ROC values also explains the efficiency of the algorithm. Therefore these algorithms can be used in other domains of education to bring out interestingness among the data present in the repository. [36]

SUSHIL VERMA, R. S. THAKUR SHAILESH JALORI have discussed the various data mining techniques which can be used to support education system via generating strategic information. Since the application of data mining brings a lot of advantages in higher learning institution, it was recommended to apply these techniques in the areas like optimization of resources, prediction of retainment of faculties in the university. Data mining techniques capabilities have provided effective improving tools for student performance. It has shown how useful data mining can be in higher education in particularly to predict the final performance of student. [50]

According Priyanka Saini, Sweta Rai and Ajit Kuamr Jain, in recent years, Indian higher educational institute's competition grew rapidly for attracting students to get enrollment in their institutes. To attract students educational institutes select a best advertisement method. There were different advertisements available in the market but a selection of them was very difficult for institutes. Their work was helpful for institutes to select a best advertisement medium using some data mining methods. Their study looked for better advertisement method, shown that most student have answered with friends in the questionnaire but in their study data mining techniques were applied and this analysis concluded that the family and newspaper could be the best advertising method. Their study was helpful for educational institutes to

making a good advertisement strategy that attracts student effectively. [32]

5. CONCLUSION

Taken as a whole, easiness of working of academicians, education system administrators and students must be considered in the development process as effective analysis of student information. Predicting of academic intervention strategies if considered at the initial stage of each development may able to provide easy working of educational system stake holders outcomes namely environmental, social as well as economic benefits but also for the educational benefits of the students that have proven to be successful. It needs to be noted that further and more studies need to be carried out in order to evaluate accurately design, strategies and model for predicting of academic intervention for higher education.

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A PILOT INVESTIGATION OF COGNIZANCE OF BRAINWAVE ENTRAINMENT EXPERIMENTATION

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ABSTRACT:

In the present research, we reviewed some scientific literature as well as contain the analysis of some brainwave entrainment; we are trying to review some of the tools to get awareness of generating and analyzing the existing selected binaural beats frequencies by using different software tools. Therefore, we observed there are number of software available, out of these software, we selected some existing software tools for analyzing, that whether the auditory wave file is having binaural beats or not.

KEYWORDS: Brainwave Entrainment Reviews, Binaural Beats, BAVSA, and Audacity

1. INTRODUCTION:

We usually go to mall for shopping, restaurant for having food and usually found one thing over there that they keep some music playing behind all over the mall and restaurant. Because most of the music creates positive energy, so that we feel good at restaurant and mall hence we spend more time over there. Therefore, tried to find out any technical reason behind auditory effect on the human brain, we come to know that a concept that is popularly known as brainwave entrainment, which uses different types of auditory tones like binaural beats, isochronic tones, and monaural beats. Binaural beats were discovered by Heinrich Wilhelm Dove. Binaural beats can be used for relaxation, meditation, creativity and different desired mental states. What happen when such tone is heard? The brain try to follow that tone and stimulate to some desired state of brain depends on the different frequency ranges.

According to many articles, reviews, textbooks and other online articles have been said that human brain consists of about 100 billion numbers of cells, which is known as neurons and these cells (neurons) communicate with each other. This electrical activity is known as Brainwave [1] [2].To get this activity one can use electroencephalography or EEG [1]. Whenever a person is doing something, on that basis the particular areas of cells of brain communicate with each other and it changes from one state to other

depends on what kind of work or activity is done by that person.

2. REVIEW

Brainwave Entrainment (BWE):

A review is done by Tina L. Huang, Christine Charyton, have said, Brainwave entrainment was discovered in late 1800, by Pierre Janet, a French psychologist [5]. The brainwave entrainment is used to stimulate the brainwave states, which is desired one with the help of frequency that is in the range of brain waves. This technique is known as frequency following response [3] [5]. Stimulus may uses either auditory or visual. There are different ways to use this brainwave entrainment to stimulate brain to a specific frequency by using either auditory or visual or sometimes it could be the combination of auditory and visual. Monaural, binaural beats and Isochronic tones used in auditory process of brainwave entrainment [5].

Comparison of Brainwaves

SR	Type	Brainwave Frequency Range	Usually associated with
1	Beta	14 – 30 Hz	Normal and waking consciousness
2	Alpha	7 – 13 Hz	Relaxed state, Daydreaming, light form meditation
3	Theta	4 – 8 Hz	Deep relaxation, meditation
4	Delta	1 – 3 Hz	Deep sleep, unconsciousness

Table No.: 1 Brainwave Frequency Ranges [3]

Frequency

The human hearable frequencies are from range 20 to 20,000 Hz; the infrasound is in the range from 0 to 20 Hz, the ultrasound from 20 kHz to 1 GHz, Hypersound from 1 GHz to 10 THz [3][4]. And human brain waves frequencies are below about 40 Hz [3].

Binaural Beats

J. Ben David, A. Naftali, and A. Katz said that, Heinrich Wilhelm Dove discovered the Binaural Beats in 1839, and Oster explained it. The perception is sound localization and low frequency beating when two different but nearly similar tone or rhythm heard through stereo headphone with slightly different frequencies. The frequency of the tones must be less than approximately 1000 Hz to 1500 Hz for hearable beating and in addition to that the difference between

these two frequencies must be less that about 30 Hz otherwise, two separate tone will be heard and there is no perceived [3].
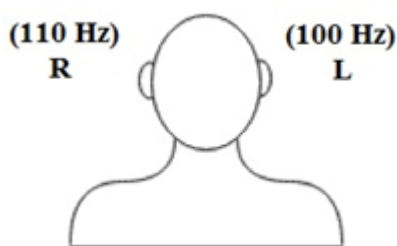
Binaural Beats = Higher Frequency – Small Frequency

Binaural Beats = 110 Hz – 100 Hz = 10 Hz

Fig.1: Basic Concept of Binaural Beats

For example, as shown in the figure 01, one ear is having 110 Hz of frequency, which is higher one, and another ear is having 100 Hz of frequency, which is lower one. Then the brain receives these two frequencies, and third new frequency is generated that is 10 Hz is a Binaural beat, to get best result of binaural beats the person must wear stereo headphones and just try to focus on the beats without any disturbance.

The nutshell about binaural beats is, at the time of hearing the binaural beats brain is having some brainwave state initially then brain is following that tone and keep following after some time brain will have stimulated frequency and have changed the state of brainwave to that frequency.

3. EXPERIMENTAL ANALYSIS

In the following section of this paper we analyzed some selected brainwave frequency's binaural beats generation and its analysis by using software Audacity which is free, cross platform licensed under GNU GPL [9], and a tool known as BAVSA is also free application software under GNU GPLv2 [8]. This analysis includes only selected parameter like brainwave frequency range while checking and analyzing binaural beats. As per C. Kasprzak, right ear presented 110 Hz and left ear presented 100 Hz frequencies in his experiment. So therefore the brain was having around 10 Hz binaural beats [6]. As per table no. 1, 10 Hz is used to have for alpha brainwave state. In this paper we are also using 110 Hz and 100 Hz frequencies respectively and analyzed them by using BAVSA tool.

In this paper, we have taken two different experiments that are shown in the table number 2, and numbered as 1 and 2. Therefore in the first experiment, we have presented two different mono tones in first tone we presented 110 Hz frequency in the right ear and 100 Hz frequency in left ear and mix them to create stereo wave formatted file by using a software known as audacity which allow us to create our own stereo audio wave formatted file which consist of binaural beats. And then by using BAVSA we analyzed this wave-formatted file to check whether that file is having binaural beats or not. Then we found that it has around 10 Hz of binaural beats in side of that wave file.

In the second experiment to produce binaural beats we used two different monaural tones then to make them stereo combine them by using

audacity, export that output in wave-formatted file. The binaural beats can be perceived best when the carrier frequency is about 440 Hz. Beats can be heard in either both ears or in one ear [7]. As said by the Gerald Oster, six beats can be perceived per second when 440 Hz presented in one ear and 434 Hz presented in another ear [7].

SR	Right Ear	Left Ear	Binaural Beats	Time	Fig. No.
1	110 Hz	100 Hz	10 Hz	20 min	Fig. 2(a), 2(b)
2	440 Hz	434 Hz	6 Hz	20 min	Fig. 3(a), 3(b), 3(c)

Table No.: 2 Binaural Beat Frequency generation and Analysis process

To get better effect of these two experiments person must use the earphone with stereo sound in it. So that users are able to get experience of binaural beats. Otherwise that person may not be able to perceive the binaural beats. The graphical representation of our both experiment is shown in figure number 2 and 3 mentioned in the table number 2, which shows binaural beats in BAVSA with different angles or views.
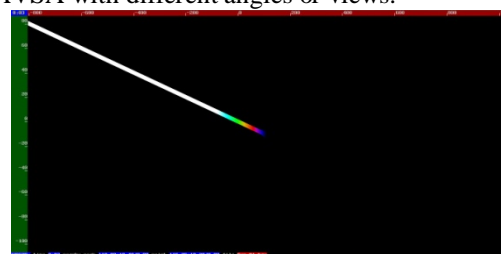
Fig. 2 (a) Experiment No. 1
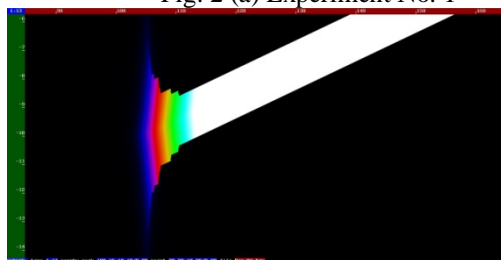
Fig. 2 (b) Experiment No. 1
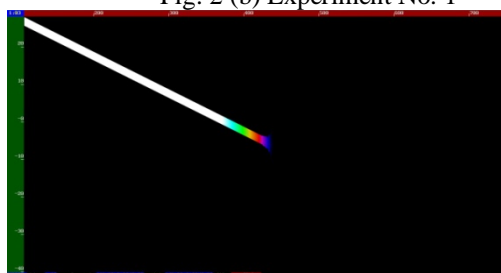
Fig. 3 (a) Experiment No. 2
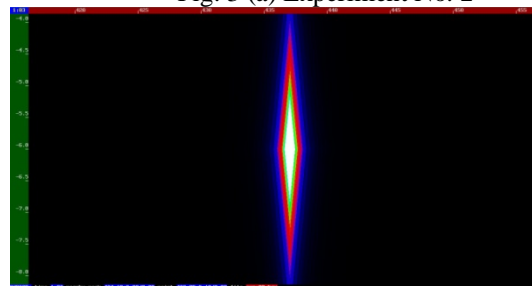
Fig. 3 (b) Experiment No. 2
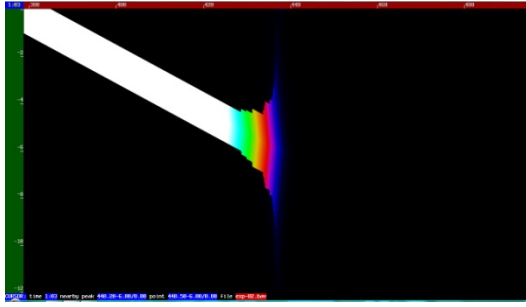
Fig 3 (c) Experiment No. 2

As shown in the above figures left side of axis is used to indicate binaural beat frequency, whereas on the topside axis indicates the frequencies presented to each ear. At the bottom side gives reading based on the cursor located to particular section on the diagram [8].

4. CONCLUSION

In this paper, we have taken experimental review of binaural beats generation and analysis. There are many brainwave entrainment available these could be either free or some are paid. But we want to make our own binaural beat and also want to check that whether the generated wave formatted auditory file has binaural beat or not. We were able to generate recorded wave formatted file by using Audacity, and have checked with BAVSA tools.

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NEED OF E-LIBRARIES IN HIGHER EDUCATION

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ABSTRACT:

In recent year's work for information e-libraries has become by fast change Every day, we are inundated with vast amounts of information. A 24-hour news cycle and thousands of global television and radio networks, coupled with an immense array of online resources, have challenged our long-held perceptions of information management. Rather than merely possessing data, we must also learn the skills necessary to acquire, collate, and evaluate information for any situation. This new type of literacy also requires competency with communication technologies, including computers and mobile devices that can help in our day-to-day decision making. This paper describes how e- libraries are evolving to meet the needs for Higher education.

KEYWORDS: Electronic Library, Services, Information, Need of E- Library in Higher Education

1. INTRODUCTION

E-Libraries have long served crucial roles in learning. e- library is fundamentally an organized set of resources, which include human services as well as the entire spectrum of media (e.g., text, video, hypermedia. e-Libraries serve at least near roles in learning. First, they serve a practical role in sharing expensive resources such as books and periodicals, films and videos, software and electronic databases, and specialized tools such as projectors, graphics equipment and cameras are shared by a community of users.

Responsive services include maintaining reserve materials, answering reference questions, providing bibliographic instruction, developing media packages, recommending books or films, and teaching users how to use materials. Proactive services include selective dissemination of information to faculty and students, initiating thematic events, collaborating with instructors to plan instruction, and introducing new instructional methods and tools. In these ways, e- libraries serve to allow instructors and students to share expensive materials and expertise. e-Libraries preserve objects through careful storage procedures, policies of borrowing and use, and repair and maintenance as needed. In addition to preservation, e- libraries ensure access to materials through indexes, catalogs, and other finding aids that allow learners to locate items appropriate to their needs.. Most of the information resources in schools are tied directly to the instructional mission. Students or teachers who wish to find information outside this mission have in the past had to travel to other libraries. By making

the broad range of information resources discussed below available to students and teachers in schools, e- libraries open new learning opportunities for global rather than strictly local communities. Much learning in life is informal--opportunistic and strictly under the control of the learner. Learners take advantage of other people, mass media, and the immediate environment during informal learning. computing technology and world-wide telecommunications networks are beginning to change what is possible in formal classrooms, they are changing how individuals pursue personal learning missions.

2. DEFINITIONS OF THE TERMS:

With particular reference to the subject of the proposed research the related terms are defined as under

1) **Library:** A building or room containing collections of books, periodicals, and sometimes films and recorded music for use or borrowing by the public or the members of an institution.

2) **E- library:** A **electronic library** is a special **library** with a focused collection of **digital** objects that can include text, visual material, audio material, video material, stored as **electronic** media formats (as opposed to print, microform, or other media), along with means for organizing, storing, and retrieving the files and media ...

3) **Information :** Data that is accurate and timely, specific and organized for purpose, presented within a context that gives it meaning and relevance and can lead to an increase in understanding and decrease in uncertainty.

3. WHAT IS E-LIBRARY

The term "E-Library is the most recent in long series of names for a concept that has been written about nearly as long as the development of first computer a computerized "library" that would supplement, and even replace traditional libraries.

The concept of E-Library is not merely to electronic collection with information management tools. It is rather an environment to bring together collections, services and people in support of full life cycle of creation, dissemination, use and prevention of data, information and knowledge.

1) "A library that provides collection of services in electronic form".

2) It's an electronic or online library where one can have access to books, journals, novels, articles, or any other information over net.

4. E-LIBRARY SERVICES:

Always library services are followed by library works but now the advancement in the information technology has brought changes in the concept of traditional library work as well as services. E- library gives near services.

- ❖ E-Journal
- ❖ E-books
- ❖ Online Public Access Catalogue(OPAC) Web OPAC Service
- ❖ E-mail Services
- ❖ Scanning and Downloading
- ❖ Full text database, Bibliographic database and house database
- ❖ Reference Service Web forms, chat using commercial applications, chat using instant messaging
- ❖ Reference service
- ❖ User Training Programme
- ❖ Document delivery Services
- ❖ Inter library loan
- ❖ Online services

5. ADVANTAGES OF THE E- LIBRARY

E- library is not confined to a particular location or so called building it is virtually distributed all over the world. The user can get his/ her information on his own computer screen by using the Internet. Actually it is a network of multimedia system, which provides fingertip access.

1. **No physical boundary**: The user of a E- library need not to go to the library physically, people from all over the world could gain access to the same information, as long as an Internet connection is available.
2. **Round the clock availability**: E- libraries can be accessed at any time, 24 hours a day and 365 days of the year
3. **Multiple accesses**: The same resources can be used at the same time by a number of users.
4. **Structured approach**: E- library provides access to much richer content in a more structured manner i.e. we can easily move from the catalogue to the particular book then to a particular chapter and so on.
5. **Information retrieval**: The user is able to use any search term bellowing to the word or phrase of the entire collection. E- library will provide very user friendly interfaces, giving click able access to its resources.
6. **Preservation and conservation**: An exact copy of the original can be made any number of times without any degradation in quality.
7. **Space**: Whereas traditional libraries are limited by storage space, digital libraries have the potential to store much more information, simply because digital information requires very little physical space to contain them. When the library had no space for extension digitization is the only solution.
8. **Networking**: A particular digital library can provide the link to any other resources of other

digital library very easily thus a seamlessly integrated resource sharing can be achieved.
9. **Cost** - The cost of maintaining a digital library is much lower than that of a traditional library. A traditional library must spend large sums of money paying for staff, book maintains, rent, and additional books. E- libraries do away with these fees.

6. DISADVANTAGES OF THE E-LIBRARY

The computer viruses, lack of standardization for digitized information, quick degrading properties of digitized material, different display standard of digital product and its associated problem, health hazard nature of the radiation from monitor etc. makes digital libraries at times handicap.

Speed of access: - As more and more computer are connected to the Internet its speed of access reasonably decreasing. If new technology will not evolve to solve the problem then in near future Internet will be full of error messages.

Initial cost is high: - The infrastructure cost of digital library i.e. the cost of hardware, software; leasing communication circuit is generally very high.

Band width: - E- library will need high band for transfer of multimedia resources but the band width is decreasing day by day due to its over utilization.

Efficiency: - With the much larger volume of digital information, finding the right material for a specific task becomes increasingly difficult.

Environment: - E- libraries cannot reproduce the environment of a traditional library. Many people also find reading printed material to be easier than reading material on a computer screen.

Preservation: - Due to technological developments, a E- library can rapidly become out-of-date and its data may become inaccessible.

7. NEED OF E- LIBRARY IN HIGHER EDUCATION

The trend of Globalization and free learning global competition in Higher Education also its increases fast development, in the knowledge industry and human resource development within the next decade, most of information output created in our society will be made and communicated only electronically.

E- Trends: E- library need the must have special services which includes in the fields electronic environment, networking, digital sources, websites and organization of data.

E-Mail, Web-forum, Whiteboard, news discussion groups are tools which can be effectively use to eliminating the precincts between the learners and teachers as well as administrator.

Information Communication and technology and e-library are medium of fast connectivity and development, showing a tremendous growth in 21 century.

No physical boundary: The user of a **electronic library need** not to go to the **library** physically, people from all over the world could gain access to the same information.

8. CONCLUSION:

Recent development in technological capabilities increase the services to higher education of Electronic storage, explosive growth of internet world wide web, sophisticated search engines, fast processing power, reading cost of computer high bandwidth networks and increasing number of electronic publications make it possible to the establishment of electronic libraries in an integrated library system E-Library use of information technologies. E library Provides E-Journal, E-books, Online Public Access Catalogue(OPAC) Web OPAC Service, E-mail Services, Scanning and Downloading, Full text database, Bibliographic database and house database, Reference Service Web forms, chat using commercial applications, chat using instant messaging, Reference service, User Training Programme, Document delivery Services, Inter library loan, Online services this services very useful in higher education.

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CLOUD REFUGE THROUGH KERBEROS AND BIOMETRICS

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ABSTRACT:

Cloud computing has become one of the hottest, emerging and most popular accession method of shared and dynamically configurable resources using internet on demand. Cloud computing has potential advantages and many applications are migrating data to present public and hybrid clouds. Though cloud computing is having various benefits and cost effective options but some security exploits are present. Security and privacy are the major cloud concerns .the service providers who are actually hosting the services are also in major concern of securing the data on cloud and privacy of data on clouds. To overcome the security problem up to certain extent the model proposed in this paper is a combination of Kerberos Authentication and Biometrics (i.e. IRIS).

KEYWORDS: Cloud Computing, Security, Kerberos, Biometrics, Iris.

1. INTRODUCTION

One of the newest issue in the IT industry well known for its services is the cloud computing. Irrespective of location of the resources the different services can made available to the user through cloud computing. The view towards cloud is always varying depending on the perspective of the individuals like on-demand model which make easy access to data when ever required. Cloud computing means a real time internet based information technology services that certify users' needs without the users having to pay maintenance and infrastructures cost. Cloud computing offers a wide range of services to organizations and businesses in a transparent manner over a large network like the internet [1].Internet and remote servers are used to maintain data and applications in cloud computing. Regardless of different benefits of cloud computing the major challenge is of security which consists of faith and access management. To overcome all such security and privacy problems in usage of cloud computing the new model is been proposed combination of Kerberos Authentication and Biometrics (i.e. IRIS).

1.1 Cloud Computing:

Cloud computing is a kind of computing system in which various hardware, software and applications share their facilities over the internet. In general cloud computing is a technology based on virtual technology. It is a technology in which virtual techniques are used to perform many tasks through

the use of Internet only. Cloud computing is the technology which can be used only through internet. It provides a strong mechanism for retrieving the information by the advance computing and the virtual technology with the use of information technology. Cloud computing acts as central remote server to update the information and maintain data records. It gives the rights for storage and process of centralized data. So far, for the effective use of cloud computing, we require internet connection by the cost effective service of computing [2].

1.1 Types of clouds: There are different types of clouds that you can subscribe to depending on your needs. As a home user or small business owner, you will most likely use public cloud services.

1. **Public Cloud** –A Public cloud is open cloud which allows general public to easily access system and services, e.g., e-mail.

2. **Private Cloud** - A private cloud is a cloud in which an organization is allowed to avail systems and services. It offers more security since its private in nature.

3. **Hybrid Cloud** - A hybrid cloud is essentially a combination of at least two clouds, where the clouds included are a mixture of public, private, or community. However its important activities are performed using private cloud and other activities using public cloud.

4. **Community Cloud** - A community cloud is shared among two or more organizations that have similar cloud requirements.
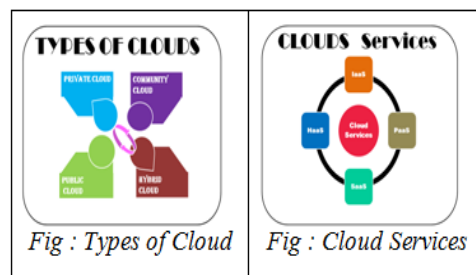
Fig : Types of Cloud   Fig : Cloud Services

1.2 Service Models: Cloud Services made available to users on demand via the Internet from a cloud computing provider's.

1. **Software as a Service:** SaaS is a complete operating environment with applications, management, and the user interface. In the SaaS model, the application is provided to the client through a thin client interface (a browser, usually),

and the customer's responsibility begins and ends with entering and managing its data and user interaction. Everything from the application down to the infrastructure is the vendor's responsibility.

2. Platform as a Service: PaaS provides virtual machines, operating systems, applications, services, development frameworks, transactions, and control structures. The client can deploy its applications on the cloud infrastructure or use applications that were programmed using languages and tools that are supported by the PaaS service provider. The service provider manages the cloud infrastructure, the operating systems, and the enabling software. The client is responsible for installing and managing the application that it is deploying.

3. Infrastructure as a Service: IaaS provides virtual machines, virtual storage, virtual infrastructure, and other hardware assets as resources that clients can provision. The IaaS service provider manages the entire infrastructure, while the client is responsible for all other aspects of the deployment. This can include the operating system, applications, and user interactions with the system.

4. Hardware as a Service (HaaS): In Hardware as a Service (HaaS) user of the service leases the hardware for his own purposes. This option allows you to save on maintenance of the equipment, but in essence little different from "Infrastructure as a Service" except that you have the bare hardware on which you can deploy your own infrastructure using the most appropriate software.

1.3 Kerberos

Kerberos is an authentication protocol, and at the same time a (KDC), that has become very popular. Several systems including Windows 7 use Kerberos. Kerberos is named after the three headed dog in Greek mythology that guards the gates of l-Iades. Originally designed at Massachusetts Institute of Technology eM IT), it has gone through several versions. It was developed as a part of Project Athena at MIT to provide a solution to network security problems. Consider a distributed environment having many users on different workstations and services, available on servers distributed across the network. An unauthorized user may be able to gain access to services and data that he or she is not authorized to access. Instead of building elaborate authentication protocols at each server, Kerberos provides a centralized authentication server, whose function is to authenticate users to servers and servers to users.

Kerberos is an authentication protocol for trusted hosts on untrusted networks. The Kerberos protocol is designed to provide reliable authentication over open and insecure network where communicates between the hosts belonging to it may be intercepted. The following requirement for kerberos is: Secure-Reliable-Transparent-Scalable.

1.3.1. Authentication service AS: an authentication service that knows the password of all user and stores these in a centralized database in addition, the AS shares a unique secret key with each server.

1.3.2 Tickets granting service (TGS): TGS provide and issue tickets to user who have been authentication to AS.

1.3.3 Data Base: The Kerberos server must have the user ID (UID) and hashed password of all participating user in the database .All user are register with the Kerberos server. It makes more security in cloud server [3].

1.4 Biometric & Iris Authentication

Biometric Encryption The word biometric is originated from Greek language and which refers the identification of human by their unique measurable biological characteristics. The common physical characteristic used for security purpose are finger print, eye, voice, hand and face. Here we use physiological measurements. Since they are unique to individuals, they are more reliable in verifying identity than token and knowledge-based methods. Biometric identification consists of two stages: enrollment and verification. During the enrollment stage, a sample of the designated biometric is acquired. Some unique characteristics or features of this sample are then extracted to form a biometric template for subsequent comparison purposes. During the verification stage, an updated biometric sample is acquired. As in enrollment, features of this biometric sample are extracted. These features are then compared with the previously generated biometric template [4].

The biometric systems based on behavioral characteristics fail in many cases as the characteristics can easily be learnt and changed by practice. Some of the techniques based on physiological characteristics such as Face Recognition, Finger Prints and Hand Geometry also fail when used over a long time as they may change due to ageing or cuts and burns.

Iris recognition system can be used to either prevent unauthorized access or identity individuals using a facility when installed, this requires users to register their irises with the system. A distinct iris code is generated for every iris image enrolled and is saved within the system. Once registered, a user can present his iris to the system and get identified. Iris recognition technology to provide accurate identity authentication without PIN numbers, passwords or cards. Enrollment takes less than 2 minutes. Authentication takes less than 2 seconds . Among all the biometric techniques Iris Recognition has drawn a lot of interest in Pattern Recognition and Machine Learning research area because of its several advantages.

Biometric	Identify versus Verify	Robust	Distinctive
Fingerprint	Verify	Moderate	High
Hand/Finger Geometry	Verify	Moderate	Low
Facial Recognition	Either	Moderate	Moderate
Voice Recognition	Verify	Moderate	Low
Iris Scan	**Either**	**High**	**High**
Retinal Scan	Either	High	High
Dynamic Signature Verification	Verify	Low	Moderate
Keystroke Dynamics	Verify	Low	Low

2. RELATED WORK

2.1 Kerberos for cloud Computing: Kerberos is used for providing authentication for a client who want to access the applications stored at server side. Some another reasons for using Kerberos is, in Kerberos user password never travel over the network, never stored in any form on the client machine and it never be stored in unencrypted form and mutual authentication. Awareness of authenticity of user and server to each other is known as Mutual authentication.

Fig: Kerberos Authentication for Cloud Computing
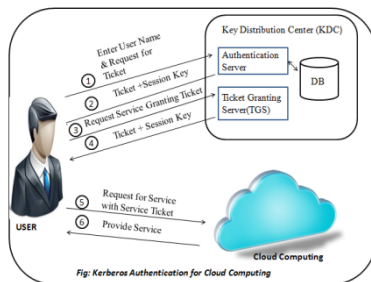
2.1.1 Authentication Server: AS Issues a Ticket Granting Ticket to user. User sends their user name to server. Server responds with TGT encrypted with user's password. User enters password on client-if correct the TGT is successfully decrypted.

2.1.2 Ticket Granting Server: Logically different from the AS but may reside on the same server. User contacts when a network service is desired. Service ticket request is encrypted with session key provided by the in the TGT, not user's password.TGS authenticates tickets and issues a ticket for the resources as well as the encryption key to use with communication with the service.

2.2.3 Network Server: Client sends resource ticket and authenticator to the service encrypted with the client/server key. Server verifies both and issues a return message with a modified version of timestamp in the authenticator encrypted with client/service key. Client views message- if timestamp is modified correctly the service is genuine and ready to process request.

Since all authentication is controlled by a centralized Key Distribution Centre, compromise of this authentication infrastructure will allow an attacker to impersonate any user by getting the knowledge about the key. So we use Threshold Cryptography algorithm to divide Ticket Granting Server into multiple parts to allow multiparty authentication, it means one cannot decrypt the key until the predefined numbers of parts of TGS are not available. Second reason for using Threshold Cryptography algorithm is to provide more availability to the TGS. In a traditional Kerberos authentication system if TGS got deactivated due to any reason, then all the system get affected and the whole procedure of authentication get shut down. To avoid this type of system failure in this paper we are proposing a Threshold Cryptography algorithm which will divide our TGS into n parts and at least k parts are need to make an useful information. Here k is always smaller than n[5].

Advantages of Kerberos Authentication

1. **Mutual Authentication:** When two nodes -- such as a client and server or server and server -- begin communications, they pass encrypted tickets through a trusted third-party system called the Key Distribution Center. The KDC passes a secret ticket with a decryption key to both nodes. The nodes then pass encrypted time stamps to each other and use the key to decrypt them. If they do so successfully, they authenticate their counterparts and can trust each other for as long as the session remains open.

2. **Passwords:** When a server attempts to authenticate a client computer using the Kerberos protocol, the client does not have to send a password -- thanks to the mutual authentication both the client and the server have the necessary information needed to decrypt the tickets. This means that any packet sniffers eavesdropping on the communication will not have access to client or server passwords, let alone any other information passed during the session.

3. **Integrated Sessions:** When a client node is authenticated on a Kerberos-supported network, it receives a client ticket with an expiration time stamp. As long as the ticket has not expired, the client can use it to access to any other network service that supports Kerberos authentication without having to re-authenticate itself. If the client's session on the network is still active but the ticket expires, the client may request a new ticket.

4. **Renewable Sessions:** Once a client and server have authenticated themselves to one another, they never have to do so again. As part of the mutual authentication, the client receives credentials from the server. When the client initiates a future session, it sends its credentials to the server, which recognizes them and immediately authenticates the client. This eliminates the need for a KDC, so the two nodes can establish a secure connection even faster than they did during their first session [6].

2.2 Iris Authentication: The Iris Verification system can be split into four stages: data acquisition, segmentation, encoding and matching. The data acquisition step captures the Iris images using Infra-Red (IR) illumination. The Iris Segmentation step localizes the Iris region in the image. For most algorithms and assuming near-frontal presentation of the Pupil, the Iris boundaries are modeled as two circles, which are not necessarily concentric. The inner circle is the pupillary boundary between the Pupil and the Iris whereas the outer circle is the limbic boundary between the Iris and the Sclera. The noise due to Eyelid occlusions, Eyelash occlusions, Specular highlights and Shadows are eliminated using segmentation. Most segmentation algorithms are gradient based that is segmentation is performed by finding the Pupil-Iris edge and the Iris-Sclera edge. The encoding stage encodes the Iris image texture into a bit vector code. The corresponding matching stage calculates the distance between Iris codes, and decides whether it is a match in the verification context or recognizes the submitted Iris

from the subjects in the database. Biometrics is widely used in many applications such as access control to secure facilities, verification of financial transactions, welfare fraud protection, law enforcement, and immigration status checking when entering a country.

Fig: Steps in Iris Authentication
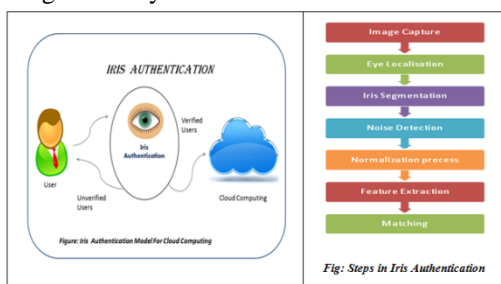
Advantages of Iris Authentication
1. The Iris formation starts in the third month of gestation period and is largely complete by the eight month and then it does not change after two or three years.
2. The human Iris might be as distinct as the iris for the different individuals.
3. The forming of Iris depends on the initial environment of the Embryo and hence the Iris Texture Pattern does not correlate with genetic determination.
4. Even the left and the right Irises of the same person are unique.
5. It is almost impossible to modify the Iris structure by surgery.
6. The Iris Recognition is noninvasive.
7. It has about 245 degrees of freedom [14].

3. PROPOSED MODEL

Proposed model Kerberos and Iris authentication is the hybridization of Kerberos and Iris Authentication it is also known Kerberos and Iris authentication model (Kerberos with Iris Authentication Cloud). In kerberos authentication model the user first sends the username and demands the ticket for the accession of the services. Then the authentication server sends a ticket and session key to the user. Then using that ticket provided by authentication server the user request for the service granting ticket to the ticket granting server (TGS). Then the TGS grants the service ticket to the user with which user can avail the desired services. In Iris authentication model the user authentication is checked using their iris there are several biometric methods for authentication checking but the well known and the robust one is the iris authentication. In iris authentication there are some steps like Image Capture, Eye localization, Iris Segmentation, Normalization process, feature extraction association and decision. There are various algorithms available for the iris authentication. To overcome various problems in Kerberos authentication & Iris authentication individually the hybridization of both the authentication model together will jointly solve the problems which individual were not able to overcome. The proposed model Kerberos and Iris authentication will work as follows
1) The user will send username ,request for ticket & Iris to the Authentication server of KDC

2) The authentication server will check the user validity using Iris and the username
3) If the provided Iris is authentic then & then only user will get the ticket for demanding the service ticket to TGS (Ticket Granting System).
4) If user is valid then using the ticket granted by authentication server user will request for the service ticket to the TGS.
5) After getting the service ticket from the TGS the user can easily avail the cloud services.

In traditional Kerberos system any person who knows the user name could get the ticket from the authentication server & further from the TGS which could result in misuse of the services as well as security violation but due to proposed Kerberos and Iris authentication model only the registered users having username as well as their Iris registered to Kerberos and Iris authentication will be able to access the services for which authentication were required.

4. ADVANTAGES OF KERBEROS AND IRIS AUTHENTICATION
1. **Secured KERBEROS AND IRIS AUTHENTICATION -** It provides secured access to cloud computing using Kerberos & Iris Authentication
2. **Ease of Use -** the user can have quick access to data based on the correct Iris & using tickets.
3. **Secure Authentication** -Iris Authentication used with the Kerberos authentication helps to identify the correct user to use the services.
4. **Hybridization -**The hybridization will remove most the setbacks of an individual system**.**
5. **Robust System-** The Kerberos authentication has become robust due to only authenticated user are able to access the service tickets.
6. **Accountability** – The Kerberos and Iris Authentication restricts access to clouds, protects data on cloud and provides audit trail minimizing misuse for the third party (i.e. Cloud Vendors).

Fig : Cloud Refuge Model using Kerberos & Iris Authentication
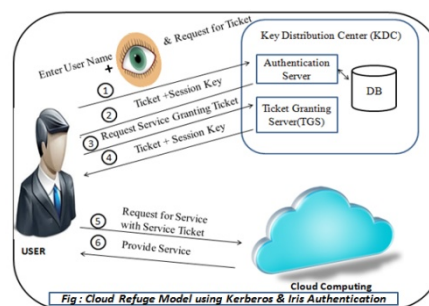
5. CONCLUSION

The acceptance of cloud Computing has been rapidly more in demand due to which the security issues of cloud has to be taken more in account. To keep the cloud computing secured and more authentic based the hybridization of Kerberos with Iris authentication also known as Kerberos and Iris Authentication will help to keep more of the accountability of access being provided only to the

authenticated authentic users. In this paper we have seen different authentications models like Kerberos and Iris authentication for security with their characteristics advantages & disadvantages. Kerberos and Iris Authentication is proposed model for access control and security of cloud computing. Kerberos and Iris Authentication model is extended model for both Kerberos & Iris Authentication for cloud computing.

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LAWN WEED DETECTION USING SVM CLASSIFIER AND SEASONWISE COLORBASED INFORMATION DETECTION

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ABSTRACT:

A Lawn Weed Detection Method Using SVM Classifier based on previous method i.e.Bayesian classifier method. The proposed method employs features calculated from not only the edge-strength of weed/lawn textures but also color information of RGB. Instead of using Bayesian Classifier we exploit more sophisticated classifier, i.e., support-vector machine, for detecting weeds. After weed detection, the proposed method uses noise blob inspection for removing misclassified weed areas. The inspection process is based on a bank of directional filters modeled from characteristics of the edge of grass blade. In Winter season the color of weeds are clearly different. By testing the input image with the dataset image the result will be displays. The dataset taken from four seasons. A hybrid method, i.e. a combination between a grayscale based detection method and the colorbased method with different individual parameters as input feature vector. In detection method there are two types of simulated automatic weeding systems i.e. chemical and non-chemical. A method for deciding from an input image whether the color information based method should be employed.

KEYWORDS: svm;blob;stem;classifier;feature vector;ANN;

I. INTRODUCTION

Weeds are plants that require some form of action to reduce their harmful effects on farmers livelihoods, the economy, environment, human health and amenity. Around 28,000 plant species have been introduced into Australia since European settlement. More than 2,770 of these have become naturalised and weedy, of which around 65ecosystems and about 35systems [1]. In addition to plants not native to Australia, weeds may include native plants that are growing outside their known natural range. Some weeds are declared under legislation as requiring control by all landholders. These are usually particularly harmful and may not yet have spread far, and so it is in the wider communities best interest if individual landholders are required by law to control these weeds on their land. Other more widespread weeds may not be declared under legislation, but there is an economic and environmental imperative for individual landholders to manage such weeds. Each weed species may pose a threat to different regions or parts of Australia, depending on factors such as climate and the extent to which the weed has taken hold in a region. Each weed species has a particular life-cycle, and time of year when it is flowering or producing seed. It is important to detect and control weeds early in their life-cycle before they produce seed (there is a well known saying that one years seeding is 7 years weeding!).

- Some weed species are more noticeable at certain times of year.
- Often you will have the best chance of killing or controlling weeds, at least with herbicides, when they are young and actively growing.
- Seasonal and climatic conditions, particularly rainfall, influence the time of year when weeds are most likely to grow quickly.

It is important to know which weed species are most likely to grow on your land, and to be aware of how the factors above will affect the growth of these species. A list of weed identification resources is provided at the end of this booklet. Your State department of agriculture or primary industries, or weeds officer may also be able to provide fact sheets or further information on when specific weed species are likely to grow.

Fig.1 Weed Species

Using herbicide is one of the popular methods for controlling weeds because it is convenient and does not take too much time. Obviously, using a large amount of herbicide, however, causes environmental pollution and also increases the cost of weeds control. Therefore a weed control method with reduction of herbicide usage or a non-chemical method is preferred. Nowadays, with the advances of image processing techniques and robotics, an automatic weed control system becomes an alternative solution

for this problem. Such the system uses a camera for capturing the field or lawn image, and sends the image to a processor for detecting weeds. If the processor found a weed in the image, it controls a nozzle system for selective spraying (sometimes called spot spraying), i.e., it sprays herbicide only onto the area of detected weeds, instead of spraying uniformly the entire area. Consequently, herbicide usage can be significantly reduced. Moreover, the system may not use any nozzle system for spraying but it is equipped a non-chemical weeding device for removing weeds, e.g., using a robot arm for picking up, or using foaming or electric current to destroy weeds.

II. LITERATURE SURVEY

Ukrit Watchareeruetai and Yoshinori Takeuchi and Tetsuya Matsumoto and Hiroaki Kudo and Noboru Ohnishi proposed a lawn weed detection method based on simple and fast color image processing for the case that color of weeds and lawns are clearly different, especially in winter. The proposed detection method evaluated with two types of simulated automatic weeding systems, i.e., chemical and non-chemical (pulse high voltage discharge) based system. The color information based method for detecting weeds in winter which the color of weeds and lawns are clearly different. The result showed that the feasibility of using this method color based weed detection and winter lawn image discrimination methods to construct a hybrid system between color and gray-scale based methods which automatically employs the appropriate detection method depend on an input image [8].

L. Tang, L. Tian, B. L. Steward, They proposed Classification of Broadleaf and Grass Weeds Using GABOR Wavelets and an Artificial Neural Network. Three species of broadleaf weeds (common cocklebur, velvetleaf, and ivyleaf morning glory) and two grasses (giant foxtail and crabgrass) that are common in Illinois were studied. After processing 40 sample images with 20 samples from each class, the results showed that the method was capable of classifying all the samples correctly with high computational efficiency, demonstrating its potential for practical implementation under real-time constraints. The ANN training process converged quickly within 500 epochs. After training the ANN, application of the feature vectors from the broadleaf weed validation images to the input nodes of the ANN resulted in values from 0.989 to 0.995 at the broadleaf class output and from 0.003 to 0.015 at the grass class output. When the feature vectors from the grass weed validation images were applied, the broadleaf class output varied from 0.006 to 0.043 while at the grass node, the result varied from 0.958 to 0.996. A pattern recognition system composed of a Gabor wavelet feature extractor and a feedforward backpropagation ANN classifier was developed to classify weeds into broadleaf and grass classes. Particularly, a Gabor wavelet filter bank was designed to obtain joint space-frequency characteristics from weed texture images[9].

Watchareeruetai, Ukrit; Takeuchi, Yoshinori; Matsumoto, Tetsuya; Kudo, Hiroaki; Ohnishi, proposed Computer vision based methods for detecting weeds in lawns. two methods for detecting weeds in lawns using computer vision techniques are proposed. The first was based on an assumption about the differences in statistical values between the weed and grass areas in edge images and using Bayes classifier to discriminate them. The second also uses the differences in texture between both areas in edge images but instead applies only simple morphology operators. Correct weed detection rates range from 77.70 to 82.60. for the first method and from 89.83 to 91.11. for the second method. From the results, the methods showed the robustness against lawn color change. In addition, the proposed methods together with a chemical weeding system as well as a non-chemical weeding system based on pulse high voltage discharge were simulated and the efficiency of the overall systems are evaluated theoretically. With a chemical based system, more than 72. of the weeds can be destroyed with a herbicide reduction rate of 9094. for both methods. For the latter weeding system, killed weed rate varies from 58 to 85. [12].

Matteo Frigo and Steven G. Johnson proposed The Design and Implementation of FFTW3.FFTW was an implementation of the discrete Fourier transform (DFT) that adapts to the hardware in order to maximize performance. A new algorithm for real-data DFTs of prime size, a new way of implementing DFTs by means of machine-specific single-instruction, multiple-data (SIMD)instructions, and how a special-purpose compiler can derive optimized implementations of the discrete cosine and sine transforms automatically from a DFT algorithm [14].

Vutipong Areekul and Ukrit Watchareeruetai and Sawasd Tantaratana proposed Fast Separable Gabor Filter for Fingerprint Enhancement. Since two-dimensional Gabor filter can be separated into one dimensional Gaussian low pass filter and one-dimensional Gaussian band pass filter to the perpendicular, a new set of separable Gabor filters are implemented for fingerprint enhancement. This separable Gabor filtering consumes approximately 2.6 time faster than the conventional Gabor filtering with comparable enhancement results. Three major experiments were conducted in order to compare performance between conventional 2-D Gabor filter and separable Gabor filter such as effect on computational complexity, effect on minutiae, and effect on matching results [15].

III. THE PRPOSED SYSTEM

Bayesian classifier (BC) based weed detection method was designed from the assumption that the texture of weed and lawn surfaces are different; the weed surface is quite smooth, whereas lawn surface contains a lot of edges. The BC method uses two features extracted from edge image, i.e., mean and variance of edge strength, to measure the difference of weed/lawn surfaces. The features are calculated from each pixels in the edge image using a window of size $N * N$. Then, each pixel is classified into weed or lawn classes using Bayesian classifier. In this work, we not only use the edge based features but also add up color information from input image.

We directly use features from RGB images, i.e., the intensities of red, green, and blue bands. In most related works, to make weed detection be generalized to any seasons, color information is not used as a feature in the detection and only gray-scale based information is used because of the similarity of weed and lawn colors. In fact, although the colors of weed and lawn seem to be similar when they are observed by human eyes, they are slightly different when they are observed by a digital camera. Moreover, using color information may reduce the errors caused by the soil and shadow. In the soil and shadow areas, it is possible that their textures are similar to that of the weed areas; however, their colors are clearly different from the color of weeds.

A. Architectural System

Using more features, SVM can exploit the kernel method to map input features into higher dimension space where input patterns from different classes can be separated. Here we use five-dimensional feature vector as input. Similar to the BC method, each pixel in the image is classified into weed or lawn classes by using trained SVM. After weed detection, noise blob inspection is done for removing noise blobs. The flowchart of the proposed method is shown in Fig.3.1 below.
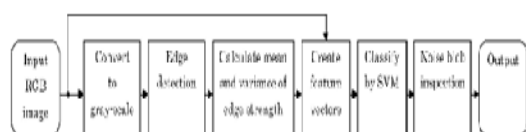
Fig.2 Flowchart of the proposed system.

Noise blob inspection using grass-edge model filter:

For detecting weeds in agriculture fields, many works attempt to detect only the known plant, i.e., the crop in the field, and consider the other unknown plants as weeds . However, it is quite difficult to do that for detecting weeds in lawn fields, where the known plant is grass. As shown in Fig. 3.2(left), there are a lot of grass blades in lawn areas. Each of them aligns in different directions, and these alignments seem to be in random-manner. Therefore no one proposes a model of grass blade and does detection in the way mentioned above. However, in this work, we try to model the edge of grass blades and design matching filters corresponding to the model. Figure 3.2(right) shows an example of edge image calculated by using Sobel operators . There are nearly parallel lines caused from drastically changing at the border of grass blade, whereas the inside of the grass blade seems to have no edge due to its smoothness. Therefore there should be two peaks caused by two edge lines in the direction that is perpendicular to grass blade direction. This characteristic of the edge image can be used as a model of grass blade, i.e., composition of two peaks in cross section and two parallel lines in the grass blade direction.

Fig.3 Example of lawn weed image (left) and its edge image (scaled version) (right)

An example of filtering results of the edge image in Fig.3.2(left). In noise blob inspection, using Eq. 3.1, we generate a bank of n filters of various directions and shapes by changing the parameters and d. This filter bank is convoluted to some detected areas to calculate a feature. That feature is used for discriminating noise blobs from real weed blobs by thresholding method. The noise blob inspection is described as follows:

1. Apply closing operation to connect detected areas located in near distance.
2. Delete all blobs whose area is less than a threshold value Th1.
3. Apply dilation operation to expand border of the remaining blobs.
4. Consider only the remaining blobs whose area is smaller than a threshold value Th2, and convolute them with the proposed filterbank.
5. Calculate M_{ij}, i.e., the mean of intensity of the pixels located inside the jth blob convoluted by the ith filter (i = 1, 2, 3, ..., n, j = 1, 2, 3, ..., m, where m is the number of convoluted blobs).
6. Calculate $V AR_j$, i.e., the variance of M_{ij} over all n convoluted images.
7. Delete the jth blob if $V AR_j$ is greater than a threshold value $V AR_{max}$.

Image Pre-Processing:

Compared with general texture analysis applications, texture-based weed classification has particular characteristics. In this particular application, the texture pattern of interest was the characteristics of the frequency of reflectance changes across weed leaf areas. Background features should be minimized when extracting spatial frequency features from weed canopies. Meyer et al. indicated that weeds in field images must be carefully segmented; otherwise, the textural analysis will yield unreliable results by mixing soil and residue features with those from weeds. Weeds in the images were thus first segmented from the image background. Segmented images were used to constrain sampling to ensure that sampling points, which were the central locations of later convolution filtering used to extract features, were from known vegetation regions. Woebbecke et al. examined several color indices for weed image segmentation and found that the excess green (ExG) and modified hue color indices yielded the best near-binary images of weeds. Meyer et al. also applied ExG to separate plant and soil regions for weed species identification research. The color index used for egmentation in this research was called modified excess green (MExG) and was defined as:

$ME*G=2*G - R - B$..................................... (3.1)

where R, G, and B are the unnormalized red, green, and blue channel pixel intensities, with constraints.: if (G ¡ R or G ¡ B or G ¡ 120), then ExG = 0. Image artifacts generated by the camera used in this research motivated the modification of the excess green color index.

One image artifact was a tendency for color saturation to rise at plant edges.
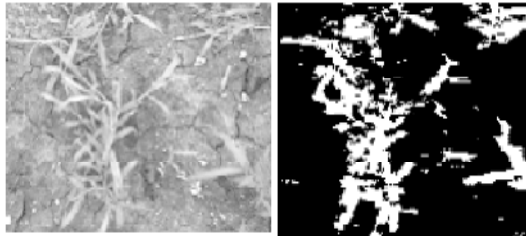
Fig.4 crabgrass.
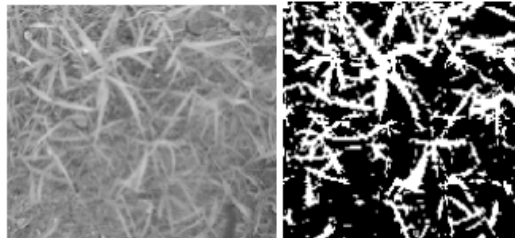
Fig.5 giant foxtail.
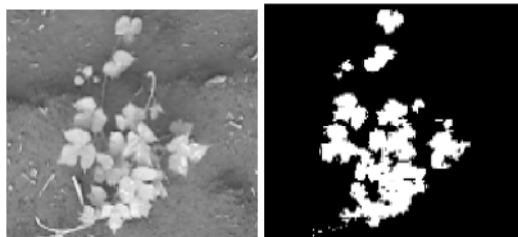
Fig.6 ivyleaf morning glory.

A limitation of the STFT or Gabor transform is that the size of the window in the time/space domain is fixed, which results in a fixed resolution in both spatial and frequency domains. Therefore, the STFT and Gabor transform are suitable for analysis of stationary signals, which is not the case for most natural textures. This problem can be overcome by the wavelet transform that possesses resolution flexibilities in both spatial and frequency domains.

Color Based Weed Detection Method:

According to our observation of lawn weed images in winter, the colors of weeds may be green, yellow-green, or red while the color of lawns may be yellow, brown, or gray, and is quite brighter than that of weeds. Moreover, lawn areas contain some dark areas that are caused by the shadow of grass blades. Depend on these observed characteristics, we set the following rules for discriminating the area of weeds from lawns: [16].
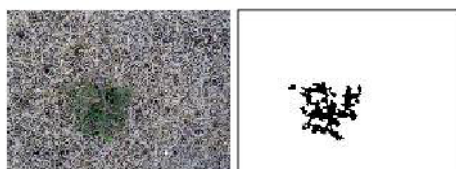
Fig.6 Weed detection result of the proposed method

Winter Lawn Image Discrimination:

In order to design the automatic weeding system which can automatically select the appropriate method for each season, a calendar program may be integrated to the system. Consequently, the system uses the appropriate method programmed in the calendar. This way seems possible if the system operates in the middle of winter [16]. However, a problem may be occurred when the system operates in the beginning or the end of winter because the color of lawns may not completely change.

Fig.7 Example of images from each datasets. Top-left: dataset 1, top-right: dataset2,bottom-left: dataset 3, and bottom-right dataset 4

Therefore we cannot accurately predict the date that the entire of lawn area change from green into yellow or change back from yellow to green. For example, lets set the calendar program so that the system chooses the color based method st st from 1 December to 1 March. What happens if the system operates on 1 December and the color of lawn has not changed to yellow yet? The answer is that the system falsely detects lawn areas as weeds areas and causes a lot of errors. The same result will occurred if the system st operates on 1 March and the color of lawn has changed back to green already. One may say that the system does not need such calendar program but appropriate method should be selected by a user. However, in the case that color of lawn does not change uniformly, i.e., colors of some areas have changed to yellow while those of the other areas are still green, has the user to consider one by one image and decide for which method should be applied for? That is hardworking. Otherwise, the user has to select the gray-scale based method and use it for the entire area to make sure that a great number of errors will not occur but this means that the system cannot efficiently operate. Therefore, the system needs an adaptive detection to give the best result. Moreover, this method makes the system move nearly to a full automatic system that does not need any decision by the user [4].

IV. RESULT ANALYSIS:

The separability of broadleaf and grass classes appeared to be substantially improved when the mask size was increased from 9 * 9 pixels to 13 * 13 pixels. Some additional improvement was observed when the mask size was further increased to 17 * 17 pixels.
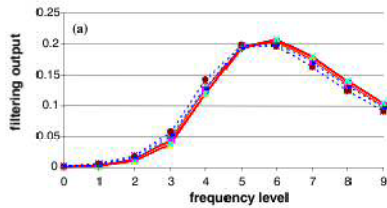
Fig.8 - 9 * 9 pixels

The proposed color information based weed detection method, denoted by Color, is compared with three of gray-scale based method, i.e., BC based method , morphology operations based method (MO), and gray-scale uniformity analysis based method (UA). [5] The dataset used in the experiments is the dataset 3 used in. This dataset was collected in winter (4 January 2006) when the color of lawns completely changed into yellow [17]. Images were taken from top-view with about 39 cm distance from camera to lawn. The dataset contains 30 images; five images were used as training set for BC method and 25 images were used as test set. Performance evaluations were done by using two-type of simulated automatic weeding systems [17]. The first is chemical based weeding system.

V. APPLICATION

The methods show the robustness against lawn color change with a chemical weeding system as well as a non-chemical weeding system based on pulse high voltage discharge are simulated and the efficiency of the overall systems are evaluated theoretically. With a chemical based system, more than 72 of the weeds can be destroyed with a herbicide reduction rate of 9094 for both methods. For the latter weeding system, killed weed rate varies from 58 to 85.

VI. CONCLUSION

A pattern recognition system composed of a Gabor wavelet feature extractor and a feed forward back propagation ANN classifier was developed to classify weeds into broadleaf and grass classes. Particularly, a Gabor wavelet filter bank was designed to obtain joint space frequency characteristics from weed texture images. The classifier was changed to more sophisticated one, i.e., support-vector machine. Also noise blob inspection has been proposed for post-processing. It is based on the proposed directional filter bank design from the model of grass-edge. From the experiments, the performance of the proposed method outperforms the compared methods. the color information based method for detecting weeds in winter which the color of weeds and lawns are clearly different. The performances of simulated weeding systems of the proposed method were better than those of the other gray-scale based methods. the method for discriminating winter images from the images of other seasons.

VII. FUTURE SCOPE

This technique will used in real work. And the farmers get better result from that technique.

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HOLOGRAPHIC PROJECTION TECHIQUE: THE NEW REVOLUTION

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ABSTRACT:

This research papers examines the new technology of Holographic Projections. It highlights the importance ,workingof this technology and how it represents the new wave in the future of technology and communications, different applicationof the technology, the fields of life it will dramatically affect including business, education, telecommunication and healthcare.The paper also discusses the future of holographic technology and how it will prevail in the coming years highlighting how it willalso affect and reshape many other fields of life, technologies and businesses.

KEYWORDS: Holographic display, projection, 2D, 3D, Technology.

INTRODUCTION

I] HOLOGRAPHIC PROJECTION

Holographic display is a type of display that utilizes light diffraction to create a virtual three-dimensional image of an object. Holographic displays are unique from other forms of 3D imaging in that they do not require the aid of any special glasses or external equipment for a viewer to see the image.

3D Holographic Projection Technology : Holography is a technique that enables a light field, which is generally the product of a light source scattered off objects, to be recorded and later reconstructed when the original light field is no longer present, due to the absence of the original objects.

Holographic projection is the new wave of technology that will change how we view things in thenew era. It will have tremendous effects on all fields of life including business, education, science, art andhealthcare.

To understand how a holographic projector works we need to know what a hologram is. Holography is the method we use to record patterns of light. These patterns are reproduced as a three Dimensional image called a hologram. WhileHungarian physicistDennis Gabor invented thehologram in 1947. Today's new technology providessome outstanding advantages to not only everydayconsumers but also large business corporations andgovernments[10].

Three-dimensional holographic projectiontechnology is loosely based on an illusionary techniquecalled Peppers Ghost, and **was first used in Victoriantheatres across London in the 1860s**. Pepper's Ghostwas typically used to create ghostlike figures on stage.Hidden from the audience's view, an actor dressed in aghostly costume would stand facing an angled plate ofglass. The audience would be able to see the glass, butnot the actor directly[11].

A holoprojector will use holographic technology to project large-scale, high-resolution images onto avariety of different surfaces, at different focaldistances, from a relatively small-scale projectiondevice [13] .With many of the latest big budget cinema leases being available in 3D, and everyone talkingabout the 3D future of television, many eyes arestarting to focus on 3D 1hologram projections withoutthe glasses! [15].
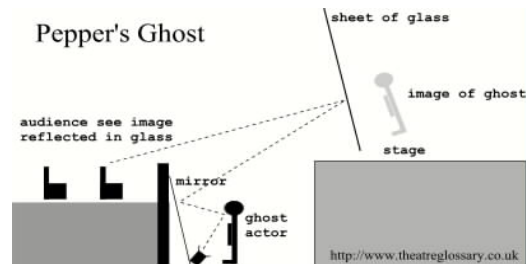
Figure: Images of   Ghost Paper and Holographic Projection

II] Working of 3D Holographic Projection Technology

Holography is a technique that enables a light field, which is generally the product of a light source scattered off objects, to be recorded and later reconstructed when theoriginal light field is no longer present, due to the absence of the original objects.

Holography can be thought of as somewhat similar to sound recording, whereby a sound field created by vibrating matter like musical instruments or vocal cords, is encoded in such a way that it can be reproduced later, without the presence of the

original vibrating matter. A clever reimagining of the Pepper's Ghost technique lets your magic happen. It starts with the patented foil, completely invisible to the naked eye. Rig it at 45°across the stage and then bounce content off a projector screen. This is then reflected upwards, reflects off the foil and gives the impression of a real 3Dvolumetric image on stage.
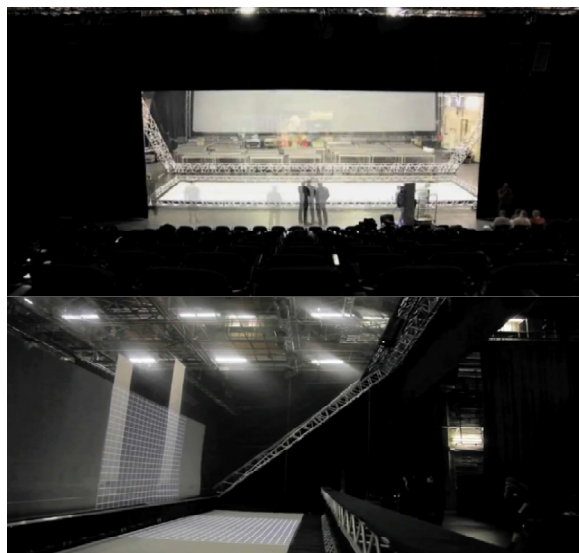
III] Applications of holographic projection technology

-With the use of the latest HD projectors, CGIanimation, specialist HD film techniques and specialeffects created in postproduction, Pepper's Ghosttechnology has been upgraded to the 21st century.Instead of a real object or person's reflection appearingon a plate of glass, high definition video and CGIanimation is beamed directly onto a speciallydesigned, chemically treated transparent film via ahigh power HD projector. Although much moreexpensive, this modern approach results in a muchclearer, believable hologram projection[15].

-In August 2009, Endemol, the producers of thefamous reality TV show Big Brother, working togetherwith activ8-3D holographic projections, beamedhousemates' friends and families into the house todeliver messages of support and encouragement. Themessages were pre-recoded using HD cameras andspecifically angled lighting. A stage was rigged insidethe Big Brother house task room, compiling of a HDprojector, media player, lighting, and audioequipment. Each housemate entered the room in turnand took a seat in front of the stage. On cue, thehousemate's family member or friend was beamed intothe stage before delving their message. Although thehologram displays were difficult to judge on 2Dtelevision screens, the event was hailed as a greatsuccess, evoking brilliant reactions from thehousemates which made for great TV[15].

-In January 2009 Coco-Cola gave a holographic salesconference presentation in Prague for over 800 people.Senior directors of the company were beamed into thestage as 3D holograms before giving a presentationabout how the Coco-Cola brand has evolved over theyears. The content of the presentation was also in theform of 3D holographic projections. The centre piecewas a giant 3D hologram Coco-Cola branded spinningclock, representing the progression of time. Ashowcase of previous Coco-Cola bottles, logos, andlabels amongst other objects were also projected as 3Dholograms to create Prague's first 3D holographicprojection display[15].

-3D Medical Animation Studio - 3d medicalillustrations, has the capability of displaying 3dmedical animations through holographic displaysincluding the option of interactivity.Medical simulations companyTres 3d is pushing theboundaries of traditional MOA's (method of action) bycreating holographic/3d animations to be viewed onholographic film without the need of special glasses.By using film with holographic properties and creatingcustom 3d computer medical animations Tres3d is able to create a holographic illusion. This process enablesthe audience to view the 3d medical animations withthe illusion of depth."Holographic Projection and 3d Imaging is nothingnew to most of us. We all remember the first few 3dmovies that required those silly paper glasses, picturea boardroom filled with top executives wearing them. Iguess, that's why the technology never truly caughton."Noted David Gonzalez, President of Tres3d ComputerMedical Animation Studio (medical illustration studio)[17].

Medical Care -The medical sector is usually at the forefront of technological deployment.

Any innovation that has the potential to drive discovery in research, improve medical operations and enhance patient care is likely to see some implementation. While some deployments have more wide-ranging and longlasting effects than others,technology continues to progressive treatment in this essential field.3D holography, in particular, stands to enhance visual understanding of the human body. What 3D holographic technologies offer that other visual forms cannot is the ability to show parts of the human body in a real-life fashion. Furthermore, they are interactive, enabling medical practitioners to not only study images of the body, but to do so easily and from multiple perspectives. The capacity for enhanced visual engagement can benefit research, diagnostic efforts and treatments, as sophisticated 3D software, displays and holograms can be synthesized for a realistic, real time look at patient conditions. One issue in medical training that previously seemedinsuruntable was the lack of tools that allowed students to interact consistently with real human anatomy. If training is mostly confined to images seen in textbooks and on film, as well as occasional work with cadavers, many students have limited opportunities to engage directly with human anatomy. With 3D holograms, such as those Zebra Imaging produces, students can get better insight into the human form. The interactive, detailed human anatomy hologram lets students examine the actual 3D structure of the human body, rather than the 2D images that would be available in textbooks and computer based learning tools. One study found that students who use medical holograms perform better than their textbook informed counterparts, as they have a greater understanding of the myriad, minute

spatial relationships in the human bodyGlobe PlayScreen and Mapping Paper and such kind materials or plastic materialsare used to produce maps.Conventional materials have somelacks topresent the real geographic information such asterrain model and geographical features.Hologram as amap publishing material is at the point of covering these lacks. to now, cartographic display technologies havebeen concerned with developing for the computer based presentations.Producing holomaps would be possible once the fundamentals of computer aided cartography and holography are associated. Some handicaps of holography restrict the cartographic production to meet the end user's requirements. By the cooperation of General Command of Mapping Turkiye, and MTM corporation. Since 2008, an R and D project has beencarried out to produce holomaps and some of the basic principles of holographic cartography

IV]FUTURE OF HOLOGRAPHICPOJECTION
3D holographic video machine

In the mid of 2014, two artists from Scotland introduced a new technology. The machine has been identified as the first of its kind and it can generate a powerful and highly realistic 3D video. The machine debuted at the Edinburgh Art Festival and it showcases top quality 3D holographic effects.

The first video made by the duo featured the space investigation carried out by NASA Voyager 1. The voyager featured in the video wasn't real, it was a holographic image of the original voyager. The video also featured a conversation between a holographic baby and a 5-year-old child. The child is real, he is the son of Helson and Jackets, the Scottish artists. The holographic baby is the same child.

The artists were inspired by a piece called 'Help me Obi' from the legendary Star Wars. Details about the project are indeed astonishing. The two artists worked on the project for almost seven years and the objects, projected by them can have the length of up to 12-inches. The project has given a boost to 3D holographic image rendering industry.

3D holographic technologies

There are some really trendy technologies that belong to the 3D holographic niche. One of them is the electro-holographic display. This technology uses electro-holography to record 3D objects and reconstruct them. This display is distinct from other 3D displays. For example, when the technology reconstructs 3D images, it captures the parallax.

There's another technology, which is called touchable hologram. It runs a software that relies on ultrasonic waves, and the user who is touching the projected hologram, feels a pressure on his hand. Holographic TV is perhaps going to be the biggest of surprises. Researchers at MIT are anticipating holographic TV could enter our drawing room in just ten years down the line. If it turned into a valid anticipation, then today's 2D TV sets would be obsolete from the market.

The laser plasma technology could give 3D an altogether new shape. Aerial Burton has used plasma laser to have 3D images floated in the air. The technology is in its nascent stage currently but it has plenty of rooms to prosper in the future. Technologies such as plasma laser work in a fascinating way, it accounts for opaqueness. Using this technology, light could be viewed without it having to bounce off a surface.

Entertainment and usability

When identifying a technology that is really helpful, one needs to apprehend the fine-line difference between theatrics and usefulness. Not all technologies or solutions are useful. Some are only showpiece stuff while other 3D tools and solutions are renowned for their application.

3D holographic DJ performances could entertain audiences. It's already happening in various corners of the world. A project in Russia applied this technology in its copyright DVJ set. The project is called Well Done. Similar to entertainment, serious business operations may also make use of 3D holograms. For example, a company executive could conduct a brainstorming session simply by staying at his home and everyone could see his holographic image at office.

Since dynamic, 3D developments are taking place as you read this article. The best thing about the upcoming 3D tools is they combine both theatrics and usability. Those tools offer a unique solution, which can be applied to render high-quality digital art as well as practical solutions. 3D holography qualifies as such a solution. It could revolutionize certain industries like space research, medical research, real estate, architecture, non-photorealism and even entertainment.

V]CONCLUSION

Holographic projection or Holography is the only visual recording and playback processthat can record our 3 dimensional worldson a 2 dimensional recording medium playback the original object or scene to the unaided eyes as a 3 dimensional image. The image demonstrates complete parallax and depth of field and floats in spaceeither behind,in front of, or straddling the recording medium. In both the types whether it is reflection or transmission the formations of holograms have same nature and dimensions. Holography has a wide range of applications in the field of medical. Space science,military etc. Unlike photography the limitations in the case of a holographic projection and its devices are very limited and less.

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STUDY OF VARIOUS INDIAN LANGUAGETEXT CLASSIFICATIONSUSING MACHINE LEARNING:A REVIEW

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ABSTRACT: *The rapid expansion of the World Wide Web (WWW) and innovation in information technology in recent years has led to the large volumes of text documents. NLP applications such as information retrieval and information extraction have been developed to treat this information automatically. Text classification is absolutely essential in information technology to organize the text documents. Text classification is also known as text categorization or topic spotting. Topic spotting is the task of assigning a category to the document, among the predefined categories. It is the task of automatically sorting a set of documents into categories from a predefined set. The accuracy of modern text classification systems rival that of trained human professionals, thanks to a combination of information retrieval (IR) technology and machine learning (ML) technology. In this paper we discuss several approaches the automatic text categorization of Marathi documents. There are different techniques exist for the classification of Marathi text documents like Naive Bayes, Support Vector Machine (SVM) and Decision Trees etc. Also there are different clustering techniques used for Marathi text categorization like Label Induction Grouping Algorithm and K-means etc.*

KEYWORDS: Categorization, Clustering, Marathi text Documents, Naïve Bayes, K-Nearest Neighbor, Support Vector Machine, machine learning

I. INTRODUCTION

Classification is a well-known technique in information retrieval field. This helps to suitable management and retrieval of data. Text, images, electronic documents, music and video data are classified from many years. Classification when applied to text data is called text classification. Few real-time applications of text classification are opinion mining, spam mail filtering and web pages classification. It is performed manually or automatically. Manual classification has high accuracy, but is a time-consuming task. It is performed mostly by human experts by scanning each document [1]. Manual classification of large dataset requires a large amount of time. While automatic text classification requires less time. It is mostly performed using machine learning techniques. Automated text classification is a particularly challenging task in modern data analysis, both from an empirical and from a theoretical

perspective. There are mainly two types of machine learning techniques for automatic text classification: supervised and unsupervised machine learning techniques. Supervised machine learning techniques, assign pre-defined class labels to testing set documents using classification algorithms[2]. Prior to classification, classifier trains the classifier using training algorithm. Naive Bayes, Support Vector Machine, K nearest neighbor classifier and Decision Trees are few supervised machine learning algorithms for automatic text classification. Unsupervised machine learning techniques, group testing set documents into groups using techniques like clustering [1].

Regional language of Maharashtra state, in India is Marathi. It uses modified version of Devanagariscript and is phonetic. Classification of Marathi text documents is difficult task as Marathi is morphologically rich and inflectional [3]. A single root word forms many morphological variants by combining it with different inflections hence feature extraction from Marathi language documents is a difficult task.

Text Classification Process
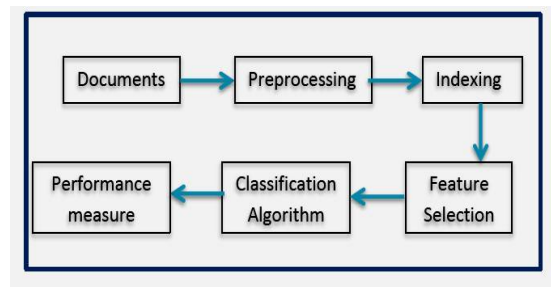
Figure : Document Classification Process

a. Documents Collection

In classification process, collecting the different types (format) of document like .html, .pdf, .doc, web content etc.

b. Pre-Processing

Pre-processing which is used to presents the text documents into clear word format. Pre-processing stage consist of three steps-

i. *Tokenization:* A document is treated as a string, and then partitioned into a list of tokens.

ii. ***Removing stop words:*** Stop words are frequently occurring, so the insignificant words need to be removed.

iii. ***Stemming word:*** Applying the stemming algorithm that converts different word form into similar canonical form.

c. Indexing

The documents representation is one of the pre-processing technique that is used to reduce the complexity of the documents and make them easier to handle, the document have to be transformed from the full text version to a document vector The Perhaps most commonly used document representation is called vector space model (SMART)

vector space model, documents are represented by vectors of words.

d. Feature Selection

The main idea of Feature Selection FS is to select subset of features from the original documents. FS is performed by keeping the words with highest score according to predetermined measure of the importance of the word. Feature Selection (FS) is to select subset of features from the original documents. FS is performed by keeping the words with highest score according to predetermined measure of the importance of the word.

e. Classification

The automatic classification of documents into predefined categories has observed as an active attention, the documents can be classified by three ways, unsupervised, supervised and semi-supervised methods. The task of automatic text classification have been extensively studied and rapid progress seems in this area, including the machine learning approaches such as Bayesian classifier, Decision Tree, K-nearest neighbor(KNN), Support Vector Machines(SVMs), Neural Networks, Rocchio's.

f. Performance Evaluations

This is Last stage of Text classification, in which the evaluations of text classifiers is typically conducted experimentally, rather than analytically. An important issue of Text categorization is how to measures the performance of the classifiers. Many measures have been used, like Precision and recall, fallout, error, accuracy etc [4].

II LITERATURE SURVEY

Rapid growth of the electronic documents from a variety of sources which include unstructured and semi structured information. The main goal of text mining is to enable users to extract information from textual resources and deals with the operations like, retrieval, classification (supervised, unsupervised and semi supervised) and summarization, Natural Language Processing (NLP), Data Mining, and Machine Learning techniques work together to automatically classify and discover patterns from the different types of the documents[4] [5] .

The automatic text categorization of Marathi documents are based on the user's profile which includes user's browsing history. The system provides text categorization of Marathi by using the LINGO (Label Induction Grouping) algorithm.

LINGO is based on VSM. The system uses the dataset containing 200 documents of 20 categories. The result represents that for Marathi text documents LINGO clustering algorithm is efficient [3].

An efficient method for extracting C-feature is classifying Tamil text documents. Using the C-feature extraction, we can easily classify the documents because C-feature will contain a pairof terms to classify a document to a predefined category[8].

The online text documents can be categorized using four supervised learning algorithms ,namely Decision Tree(C4.5), K-Nearest Neighbor(K-NN),Naive Bayes(NB), Support Vector Machine (SVM). The experimental results show that KNN and NB are more capable than SVM and Decision Tree (C4.5) in categorization of documents. Comparison of four classifiers in terms of training time indicates that all classifiers do not take the same learning time. Decision Tree (C4.5) takes time than other three algorithms for training, whereas SVM is quick in learning[6].

Knowledge based driven tool to automatically classify Hindi verbs in syntactic perspective. They also provide of developing the largest lexical resource for Hindi verbs along with the information on their class based on valency and some syntactic diagnostic tests as well as theirmorphological/inflectional type[7].

An existing classification algorithm such as Naïve Bayes, Centroid based techniques for Punjabi Text Classification. And one new approach is proposed for the Punjabi Text Document which is the combination of Naïve Bayes and ontology based classification. The third derived approach is Hybrid approach which is a combination of Naïve Bayes and ontology based classification techniques[9]. In this approach Naïve Bayes is used as Feature Extraction method for text classification and then ontology based classification algorithm is performed on extracted features. It is observed that Hybrid classification gives better result in comparison to Centroid based classifier and Naïve Bayes classifier that shows comparatively low results.

The method of preprocessing techniques, features selection for Punjabi language and classification algorithm to classify the Punjabi text documents. The authors proposed domain based ontology algorithm for classification of Punjabi documents related to sports domain[10].

In K-Nearest Neighbor (K-NN) algorithm, which is known to be one of the top performing classifiers applied for the English text. The results show that K-NN isapplicable to Telugu text[11].

Text classification usingVector Space Model and Artificial Neural Network are morphologically rich Dravidian classical language Tamil.The experimental results show that Artificial NeuralNetwork model achieves 93.33% on Tamil documentclassification[8].

The n-gram basedalgorithm for Bangla text classification and to analyze theperformance of the classifier Prothom-Alo news corpus isused. The result shows that as we increase the value of nfrom 1 to 3 performance of the text classification

alsoincreases, but from value 3 to 4 performance decreases[13]

In supervisedclassification using the Naïve Bayes classifier has beenapplied to Telugu news articles in four major categoriestotaling to about 800 documents category-wise normalizedtf-idf are used as feature values[14].

Anefficient Marathi text classification system is using NaïveBayes, Centroid, K-Nearest Classifier and Modified K-Nearest Classifier. The authors also compared these classifiers for Marathi text documents and concluded thatNaïve Bayes is the most efficient among the fourconsidering classification accuracy and classification time[1].

III. MACHINE LEARNING TECHNIQUES

Machine learning approach is used for classify the set of training data and automatically create the classifiers for the training data. Text classification is the task of automatically assign the texts into the predefined categories. In these text classification accomplished on the basis of endogenous collection of data. Text categorization mostly depends on the information retrieval technique such as indexing, inductive construction of classifiers and evaluation technique. In this machine learning, classifier learns how to classify the categories of documents based on the features extracted from the set of training data. Some of the key methods, which are commonly used for text classification, are as follows: neural network classifiers, support vector machines, Bayesian classifiers, boosting bagging classifiers.

a. Naive Bayes

A naïve Bayes classifier is a simple probabilistic classifier based on applying Bayes theorem with strong independent assumptions. A naïve Bayes classifier assumes that the presence or absence of a particular feature of a class is unrelated to the presence or absence of any other feature. Depending on the precise nature of the probabilistic model, naïve Bayes classifiers can be trained very efficiently in asupervised learning setting [2].

b. Support Vector Machines (SVM)

A Support Vector Machine is a supervised classification algorithm that has been extensively and successfully used for text classifiacion task. High dimensional input space: When learning text classifiers, one has to deal with large number of features. Since SVM use over fitting protection, which does not necessarily depend on the number of features, they have the potential to handle these large feature spaces. Most text categorization problems are linearly separable. All categories are linearly separable and so are many of the Reuters Tasks. The idea of SVMs is to find such linear separators [15].

c. Decision Trees

Decision trees are designed essentially for hierarchical decomposition of the data space. Based on the attribute value it determines the predicate or condition. In this decision trees, class labels in the leaf node used for classification purpose. In order to reduce the over fitting data, pruning is to be done. There are several different kinds of splits in the decision trees are available[16]. The listed splits are

- o Single attribute split
- o Similarity-based multi-attribute split
- o Dimensional- based multi-attribute split

d. LINGO Algorithm

Lingo algorithm is based on vector space model [1]. First it extracts the user readable and frequent words/phrases from the input documents. Further by performing the Reduction of Original Term Document Matrix with Singular Value Decomposition (SVD) method to reduce the term document matrix, and then it find the labels of clusters and then assigns documents to that cluster labels based on the similarity value [2].

e. K-means algorithm

This algorithm is an iterative algorithm where the number of input clusters is needed to be mentioned. In this algorithm dataset is split into K clusters and the data points are arbitrarily assigned to the clusters resulting. That has roughly the similar number of data points. For each data point the difference from the data point to each cluster is evaluated. If the data point is closer to its own cluster than keep it as it is. Suppose if the data point is not closer to its own cluster, copy it into the nearest cluster. The advantage is if the clusters are global than it produces tighter clusters than hierarchical clustering [3].

f. Suffix Tree Clustering

Suffix tree document model and Suffix Tree Clustering (STC) algorithm first were proposed and use in [2]. STC is a linear time clustering algorithm (linear in the size of the document set), which is based on identifying phrases that are common to groups of documents. A phrase is an ordered sequence of one or more words [3]. STC algorithm is different from the other kind of clustering algorithms. It is a data structure which contains all the suffixes of a given string, so as to run many important string operations more efficiently. This algorithm not treats documents as a collection of words but as a string of words. On that way thus operates using the proximity information between words. STC use suffix tree structure to efficiently identify sets of documents that share common phrases and terms, and uses this information to create clusters and to concisely present their contents to the users. STC meanly includes four logical steps: first, document "cleaning"; secondly, constructing a generalized suffix tree; thirdly, identifying base clusters; the last step is to combine these base clusters into clusters [17].

IV. APPLICATIONS OF TEXT CATEGORIZATION

The applications of text categorization are manifold. Common traits among all of them are

- The need to handle and organize documents in which the textual component is either unique, or dominant, or simplest to interpret component.
- The need to handle and organize large quantities of such documents, i.e. large enough that their manual organization into classes is either too expensive or not feasible within the time constraints imposed by the application.
- The fact that the set of categories is known in advance, and is variation over time is small [16].

V. CONCLUSION

Text categorization play very important role in information retrieval, machine learning, text mining and it have been successful in tackling wide variety of real world applications. Key to this success have been the ever-increasing involvement of the machine learning community in text categorization.

In this paper, we discussed the various techniques of text categorization for Indian regional language. From literature survey it is observed that three supervised learning methods Support Vector Machine (SVM), NaïveBayes (NB) and K-Nearest Neighbor (K-NN) are most suitable and give better results for document classification for Indian regional languages like Marathi, Bangla, Telugu, Punjabi and Tamil. Clustering technique LINGOis better suited and only implemented technique for Marathi language.

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A GRAPHICAL PASSWORD AUTHENTICATION SYSTEM

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ABSTRACT: *Authentication can be defined as the process by which the identity of the user is verified to determine whether the party is, in fact, who it claims to be. The most common authentication mechanism involves the use of alphanumeric passwords. But, alphanumeric passwords are easy to guess and they are not secure Graphical passwords comprises of giving images as passwords. Different graphical password schemes are employed for providing better security. This paper focuses on a novel authentication mechanism using various techniques for providing security. This authentication mechanism involves alphanumeric passwords, images as passwords.*

KEYWORDS: Graphical password authentication, Picture Password, Graphical password Usability and Security, Graphical Password Schemes, Graphical Password Issues.

1. INTRODUCTION

User authentication is a fundamental component in most computer security contexts. It provides the basis for access control and user accountability. While there are various types of user authentication systems, alphanumerical username/passwords are the most common type of user authentication. They are versatile and easy to implement and use. Alphanumerical passwords are required to satisfy two contradictory requirements. They have to be easily remembered by a user, while they have to be hard to guess by impostor. Users are known to choose easily guessable

and/or short text passwords, which are an easy target of dictionary and brute-forced attacks Enforcing a strong password policy sometimes leads to an opposite effect, as a user may resort to write his or her difficult-to-remember passwords on sticky notes exposing them to direct theft. In the literature, several techniques have been proposed to reduce the limitations of alphanumerical password. One proposed solution is to use an easy to remember long phrases (passphrase) rather than a single word. Another proposed solution is to use graphical passwords, in which graphics (images) are used instead of alphanumerical pass-words. This can be achieved by asking the user to select regions from an image rather than typing characters as in alphanumeric password approaches. In this extended

abstract, we propose a graphical pass-word authentication system. The system combines graphical and text-based passwords trying to achieve the best of both worlds.
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2. GRAPHICAL PASSWORDS

Graphical passwords refer to using pictures (also drawings) as passwords. In theory, graphical passwords are easier to remember, since humans remember pictures better than words. Also, they should be more resistant to brute-force attacks, since the search space is practically infinite.

In general, graphical passwords techniques are classified into two main categories: recognition-based, recall-based graphical techniques.

In recognition-based tech-niques, a user is authenticated by challenging him/her to identify one or more images he or she chooses during the registration stage.

In recall-based techniques, a user is asked to reproduce something that he or she created or selected earlier during the registration stage.

Pass faces is a recognition-based technique, where a users authenticated by challenging him/her into recognizing human faces. An early recall-based graphical password approach was introduced by Greg Blonder in 1996.In this approach, a user create a password by clicking on several locations on an image. During authentication, the user must click on those locations. Pass Points builds on Blonders idea.

3. PROPOSED SYSTEM

At the time of registration, a user creates a graphical password by first entering a picture he or she chooses. The user then chooses several point-of-interest (POI) regions in the picture. Each POI is described by a circle (center and radius). For every POI, the user types a word or phrase that would be associated with that POI. If the user does not type any text after selecting a POI, then that POI is associated with an empty string. The user can choose either to enforce the order of selecting POIs (stronger password), or to make the order in significant. In Figure 1, we show an example of a user creating graphical password. In this example, the user chooses picture of his or her kids by pressing "Load Image button". Then the user clicks on the kids faces in the

order of their ages (order is enforced). For each selected region, the user eyes the kid's name or nickname.

Figure 1. An example of creating a graphical password using the proposed system.

For authentication, the user first enters his or her user-name. The system, then, displays the registered picture. The user, then, has to correctly pick the POIs and type the associated words. At any time, typed words are either shown as asterisks (*) or hidden. In Figure 2, we show an
example of the login screen.

Figure 2. Login Screen

In the proposed system, a user freely chooses a picture, POIs and corresponding words. The order and number of POIs can be enforced for stronger authentication. Together ,these parameters allow for a very large password space. We believe that proposed approach is promising and
unique for at least two reasons:
• It combines graphical and text-based passwords try into achieve the best of both worlds.
• It provides multi-factor authentication (graphical, text, POI-order, POI-number) in a friendly intuitive system.

4.   IMPLEMENTATION AND DISCUSSION

The proposed system was implemented using PHP, CSS, JavaScript and Macromedia flash 2008(Action Script 2). This Graphical Password can be implemented in authenticating several systems and websites. The implementation has few focuses:
•Password: Contain image as reference & encryption algorithm.
•Grids: Contains unique grid values and grid clicking related methods.
•Login: Contains username, images, Graphical password and related methods
.•SSR shield: Contains shield for Shoulder surfing.
As shown in the figure below researchers are trying to stabilize the goal in text based system. However, the text based approach is not able to achieve the goal because as the password strength increases

usability decreases. Our main aim is to achieve this goal. In which the usability as well as the security of the system is maintained in such a way that we don't need to compromise on either of these constraints.
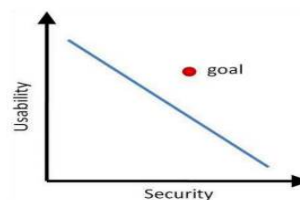
Fig.3: Usability VS Security
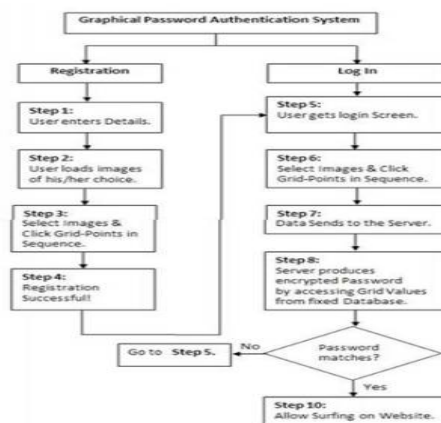
Fig.4: Flow graph.

5.   WHY GRAPHICAL PASSWORDS?

Graphical passwords were originally described by Blonder (1996). In his description of the concept an image would appear on the screen, and the user would click on a few chosen regions of it. If the correct regions were clicked in, the user would be authenticated.

Memory of passwords and efficiency of their input are two key human factors criteria. Memorability has two aspects:
 (1) how the user chooses and encodes the password.
 (2) what task the user does when later retrieving the password.

In a graphical password system, a user needs to choose memorable locations in an image. Choosing memorable locations depends on the nature of the image itself and the specific sequence of click locations. To support memorability, images should have semantically meaningful content because meaning for arbitrary things is poor (Norman, 1988). This suggests that jumbled or abstract images will be less memorable than concrete, real-world scenes. LTM does not store a replica of the image itself, but rather a meaningful interpretation (Mandler& Ritchey, 1977). To retrieve the locations a user will be dependent on the encoding used while learning. A poor encoding will hurt retrieval by failing to distinguish similar objects. Depending on the graphical password system, at retrieval time users will be presented with either recognition task or a cued recall task. In a graphical password system based on recognition, the user has to be able only to recognize previously seen images, making a binary choice of whether the image is known or not known. Recognition is an easier memory task than pure, unaided recall (Norman, 1988). In our password

system we use an intermediary form of recollection between pure recall and recognition, cued recall. Scanning an image to find previously chosen locations in it is cued recall because viewing the image reminds, or cues, users about their click areas. Psychologists have shown that with both recognition and recall tasks, images are more memorable than words or sentences (Sheperd, 1967; Paivio, Rogers &Smythe, 1972; Standing, 1973). This is encouraging in terms of memory for graphical passwords. Efficiency is important in password systems because users want to have quick access to systems. The time to input a graphical password by a highly skilled, automated user can be predicted by Fitts' Law (1954). The law states that the time to point to a target depends on the distance and size of the target – greater distance and smaller targets lead result in slower performance. Existing evidence suggests that alphanumeric passwords may be faster to input than graphical passwords (Dhamija&Perrig, 2000). However, the question remains how big the difference may be.

6. OVERVIEW OF THE AUTHENTICATION METHODS

Current authentication methods can be divided into three main areas:
- Token based authentication
- Biometric based authentication
- Knowledge based authentication

Token based techniques, such as key cards, bank cards and smart cards are widely used. Many token-based authentication systems also use knowledge based techniques to enhance security. For example, ATM cards are generally used together with a PIN number.

Biometric based authentication techniques, such as fingerprints, iris scan, or facial recognition, are not yet widely adopted. The major drawback of this approach is that such systems can be expensive, and the identification process can be slow and often unreliable. However, this type of technique provides the highest level of security.

Knowledge based techniques are the most widely used authentication techniques and include both text-based and picture-based passwords. The picture-based techniques can be further divided into two categories: recognition-based ,recall-based graphical techniques.

Using recognition-based techniques, a user is presented with a set of images and the user passes the authentication by recognizing and identifying the images he or she selected during the registration stage.

Using recall-based techniques, a user is asked to reproduce something that he or she created or selected earlier during the registration stage.

7. CONCLUSION

User authentication is a fundamental component in most computer security contexts.

Various techniques for graphical authentication was discussed and found that the graphical authentication is much more useful than the other types of authentication techniques. It is also very easy to use than the alphanumeric password or OTP technique. Due to the use of graphical based techniques a brute force attack are avoided and is the most important advantage of graphical based password. A graphical password system with a supportive sound signature is much more helpful as it helps to increase the remembrance of the password and has shown very good performance.

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DETECTION OF DOMINATED BRAIN REGIONS FOR EMOTION USING SONG INDUCED ACTIVITIES

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ABSTRACT. *In this study we build a mood recognition system using EEG signal of Song Induced activity. In this we have analyzed EEG signals related to left hemisphere, right hemisphere regions of brains. This has given the significance of different brain region related to emotions. This study successfully achieves the goal to design a system which offers offline mood recognition system. In this study we show that it is possible to recognize the different moods of person using EEG signal. We observe the different brain locations as Left Hemisphere and Right Hemisphere to recognize the significance according to different moods. We find the signals in the right hemisphere are more dominant over the left hemisphere for emotions. This means that the mood EEG signals are more powerful in right region as compared to left regions. Thus we conclude that the right region of brain gives more response to the emotions rather than left region.*

Keywords: EEG; Brain; Song; Emotions.

1.1 INTRODUCTION

Music is often referred to as language of emotions. The sub cortical emotion processing parts of the brain affect the rest if body through two basic mechanisms: the release of chemical molecules into blood that act on various parts of body and the spread of neural activation to various brain centers and muscles. Through these mechanisms, the experience of an emotion is connected with a myriad of physiological responses, from muscle contractions, to change in breathing and heart rate, to changes in blood flow in various parts of the body, to sweating. Music produce autonomic changes associated with emotional processing.

1.2 BACKGROUND AND MOTIVATION

Number of different researchers work to associate the music and EEG signal to develop mood recognition system. Ito, S.-I.; Mitsukura, Y.; Fukumi, M.; Akamatsu, N. (2003) processed the EEG pattern in 4 conditions, which are listening to Rock music, Schmaltzy Japanese ballad music, Healing music, and Classical music. They proposed the EEG analysis method by using the FA and the NN[1]. In 2005 Huisheng Lu; Mingshi Wang; Hongqiang Yu proposed a method whose aim is to study and confirm the character of EEG and the location in

brain when a person was enjoying different rhythm music. It made the subjects excited when they enjoyed different rhythm music, the EEG signals are collected with Phoenix Digital EEG with 128 channels, and compared with the ones before the subjects enjoying the music. Obvious differences have been found between them. And the character of EEG has a little differences when the subjects enjoyed different rhythm music [2].In the year 2006 Karthick, N.G.; Thajudin, A.V.I.; Joseph, P.K. studied two types of music on the electroencephalogram (EEG) activity. The scaling properties of the EEG are studied using the detrended fluctuation analysis (DFA) algorithm, and the complexity of the electroencephalogram signal is quantified by the multiscale entropy (MSE) method. It was found that both methods show significant difference in the values of the estimated parameters for the electroencephalogram with and without music.[3]. Ito, S.-i.; Mitsukura, Y.; Fukumi, M.; Jianting Cao proposed a method for detecting the mood much music for prefrontal cortex electroencephalogram (EEG) activity[4]. Yuan-Pin Lin; Chi-Hong Wang; Tien-Lin Wu; Shyh-Kang Jeng; Jyh-Horng Chen gives an approach to recognize the emotion responses during multimedia presentation using the electroencephalogram (EEG) signals[5]. Vijayalakshmi, K.; Sridhar, S.; Khanwani, P.analysed the acute central system effects of relaxation techniques[6]. Yuan-Pin Lin; Chi-Hong Wang; Tzyy-Ping Jung; Tien-Lin Wu; Shyh-Kang Jeng; Jeng-Ren Duann; Jyh-Horng Chen gives a practical system for noninvasive assessment of the emotional states in practical or clinical applications.

1.3 EXPERIMENTAL SETUP METHODOLOGY

Music induces emotion in mind. These emotions are dependent not only types of music, but also sensitivity of the person subjected to music. However, songs may be classified as per their general effect on mind. For our study these classification has been done on the basis of song's appeal with respect to patriotism, happiness, romantic or sadness. Understanding of induced brain signals due to hearing of music will be essential information for training computers to identify different types of music.

Subject Selection

EEG recordings of 10 male right-handed subjects in the age group of (20-25) were taken. The subjects were normal without any mental disorder. They did not have any problem in communicating and had normal vision. Subjects were made to sit comfortably on an arm chair facing the screen in electromagnetically shielded room. The subjects had given their written consent for recording EEG signals before participating.
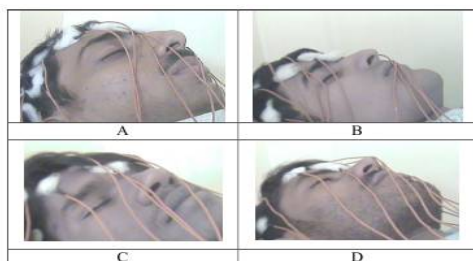
Fig 1. During Acquisition of EEG signals Procedure

All subjects were instructed that this experiment has been designed to be used for HCI as mood recognition system. They came to the laboratory and were instructed about the nature of task which was to be administered. In this study, we have designed EEG dataset containing data of five mental tasks of ten different subjects. Subject sleep was conducted on a normal bed, relaxed arms resting on their legs. The electrodes were placed on scalp of the subject as per the International 10-20 standard. The test was conducted for 25 minutes, with eye closed and each subject was asked to perform these tasks. For all modes, the subjects were asked to lie on the bed along with the head phones.
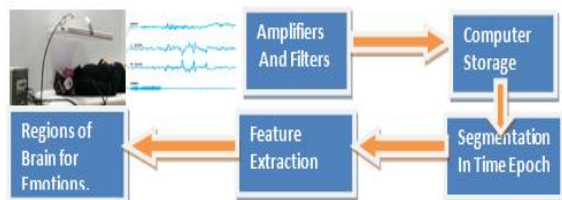
Fig 2. Overview of offline BCI system for mood recognition.

Apparatus and Recording procedure:

The EEG signals, for each mode, was captured by RMS (Recorders & Medicare Systems) EEG-32 Super Spac machine shown in figure 4.10, for 5 minutes with sampling rate of 250/s. The other parameters of the EEG machine were set as follows: low filter: 1Hz, high filter: 70Hz, sensitivity: 7μV, number of channels: 17, sweep speed: 30mm/s and Montage: BP PARA (R) .

Fig 3. Photograph of RMS-EEG -32 Super Spec Machine

The experiment was conducted on 10 subjects .The electrodes were placed on scalp of subjects as per the international 10-20 standard. The recording was captured for 5 minutes. This process was repeated for number of task times. The different parameters of the EEG machine were set as follows: low filter 1 Hz, High filter 70 Hz, sensitivity at 7μV, number of channel 19 , sweep speed 30mm/s, Montage set BPPARA (R) for all the experiments.

1.4 ANALYSIS OF EEG DATA

The following tables gives an example of data in relaxation mood, Happy Mood, Sad Mood , National Mood and Romantic mood. The table shows the data of all four frequency power band but we are mainly interested in alpha power. Here we also calculate the mean alpha power frequency. Here data is organized as left hemisphere, right hemisphere and center hemisphere.

Table 1. Alpha Power EEG data of all subjects in Left Hemisphere

Subject	Relax	Happy	Sad	National	Romantic
Subject1	4.763931	2.960641	3.822434	2.819911	3.156809
Subject2	12.34842	9.966793	10.53576	11.89535	9.743734
Subject3	1.816595	1.068355	1.499737	1.556776	2.154868
Subject4	15.18015	20.16189	19.44457	17.87863	20.13546
Subject5	7.822977	3.698947	4.228569	4.247039	2.867928
Subject6	0.419326	0.531201	0.616135	0.409704	0.544227
Subject7	4.300641	1.120938	2.64528	0.947023	1.488964
Subject8	1.689359	0.859984	0.713832	0.863931	0.739342
Subject9	2.255822	1.648109	2.036316	1.590066	1.84273
Subject10	2.995	0.990461	1.679556	0.905477	1.114153
Average	5.359222	4.300732	4.722219	4.311391	4.378822

Table 1 shows the mean values of alpha power of different electrodes of all subjects in left hemisphere region. The table contains the mean values of alpha power of different relax mode, Happy Mode, Sad Mode, National Mode and Romantic mode. We also calculate the average values for all subjects. From table it is clear that the alpha value for relax mode is more this means that less activity in brain for relax mode. It is also observed that we are less alert in sad mode as compared to Happy, National and Romantic mode. So it is possible to make clear distinction between the different activities in left hemisphere.

Table.2 Distance Matrix of Alpha Power EEG data of all subject in Left Hemisphere

Moodes	Relax	Happy	Sad	National	Romantic
Relax	0	1.0584	0.6370	1.0478	0.9804
Happy	1.0584	0	0.4214	0.0106	0.0780
Sad	0.6370	0.4214	0	0.4108	0.3433
National	1.0478	0.0106	0.4108	0	0.06743
Romantic	0.9804	0.0780	0.3433	0.06743	0

Table 2. shows the distance matrix for mean values of alpha power of different electrodes of all subjects in left hemisphere region. From distance matrix we observe that the value of sad mode is closer to relax mode that is less activity. It is also possible to distinguish the activity (sad , Happy) (Sad, National) and (Sad, Romantic) and the distance is >0.2. The values of Happy, National and Romantic are little close to each other. That is natural because the National Mode and Romantic mode always corresponds to Happy Mode. The person experiences the happy emotions in National and Romantic mode. Thus it is possible to distinguish all the activities.

Table 3 Alpha Power EEG data of all subjects in Right Hemisphere

Subject	Relax	Happy	Sad	National	Romantic
Subject1	4.8856	3.1313	4.3134	2.8305	3.4134
Subject2	18.96076	16.83107	17.21783	18.54388	17.68658
Subject3	1.472763	0.919523	1.237336	1.224112	1.719605
Subject4	17.19579	23.20265	20.06566	19.56446	22.33031
Subject5	5.509194	2.989638	3.007566	2.84051	2.278586
Subject6	0.445839	0.558536	0.636776	0.394474	0.605905
Subject7	6.919211	1.328635	3.149885	1.075395	1.689013
Subject8	7.912736	6.994478	7.089778	6.639047	7.103343
Subject9	3.766678	1.820313	3.890033	1.655428	2.436842
Subject10	5.839707	4.407395	5.489906	4.147237	4.770092
Average	7.290827	6.218354	6.609817	5.891504	6.403368

Table 3 shows the mean values of alpha power of different electrodes of all subjects in right hemisphere region. The table contains the mean values of alpha power of different relax mode, Happy Mode, Sad Mode, National Mode and Romantic mode. We also calculate the average values for all subjects. From table it is clear that the alpha value for relax mode is more, this means that less activity in brain for relax mode. It is also observed that we are less alert in sad mode as compared to Happy, National and Romantic mode. So it is possible to make clear distinction between the different activities in right hemisphere.

Table.4 Comparative EEG data of all subjects in Left and Right hemisphere.

	Relax	Happy	Sad	National	Romantic
Relax	Relax	Happy	Sad	National	Romantic
Happy	5.359222	4.300732	4.722219	4.311391	4.378822
%Dominance	7.290827	6.218354	6.609817	5.891504	6.403368
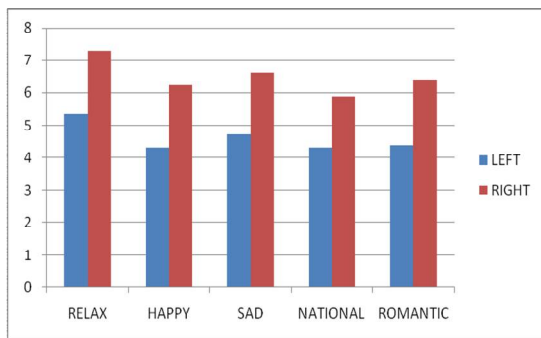
Fig4 Graph of Comparative EEG data of all subjects in Left and Right Hemisphere.

Table 4 and Graph 4 show the comparative EEG data of all subjects in left hemisphere and Right hemisphere. From the data it is cleared that the emotions are right dominant. The dominance is less for relax activity and it is maximum for romantic mode.

1.5 CONCLUSION

This study successfully achieves the goal to design a system which offers offline mood recognition system. In this study we show that it is possible to recognize the different moods of person using EEG signal.Here we observe the different brain locations as Left Hemisphere and Right Hemisphere to recognize the significance according to different moods. We find that the signals in the right hemisphere are more dominant over the left hemisphere for emotions. This means that the mood EEG signals are more powerful in right region as compared to left regions. Thus we conclude that the right region of brain gives more response to the emotions rather than left region. This study may be act as base to develop devices which operates according to moods of person.

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PREPROCESSING AND EXTRACTION OF CHARACTERS-NUMERALS FROM HANDWRITTEN BILINGUAL DATASHEET

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ABSTRACT: Preprocessing is a main phase in optical character recognition, where image is enhanced and noise is remove which should be used for further processing. In this paper we have developed an algorithm to extract Characters-Numerals from handwritten sample datasheet. To bridge the gap between characters 3x3 averaging filter is used followed by binarization and noise removal. In order to obtain a plain sheet contain Characters- Numerals, horizontal and vertical lines are removed using considered threshold. Finally in the resultant datasheet, we have used region-props property to draw bounding box for the extraction of Characters-Numerals. We have tested an algorithm on different handwritten datasheets and have obtained 80% to 95% accuracy.

KEYWORDS: Averaging filter, Threshold selection, Edge extraction, Bounding box

1. INTODUCTION

Due to vast use of internet and information technology, society is moving form manual work to digitized work where optical character recognition plays an important role. Recognition of handwritten numerals and characters are used for automatic bank cheque processing, Postal mail sorting, job application form sorting, number plate recognition and in school [1]. Optical character recognition (OCR) is a process of converting printed/ handwritten text into electronic/ digitized form. For developing an OCR, feature extraction and recognition is a necessary step. For the purpose of development of such OCR we have collected primary data from users by providing sample sheets. This paper presents the results of an attempt made to extract the Marathi and English Characters-Numerals from these offline handwritten data collection sample datasheets. We have used separate sample datasheets for Marathi/ English handwritten Characters and Numerals. Overall five categories are identified for this purpose.

Thaker et.al proposed a methodology to segregate Gujarati characters form offline handwritten datasheet [2]. U.pal et.al [3] used a

method in which Images are binarized using a histogram based local global binarization algorithm. R. Bajaj et.al [4] used median filter in order to remove noise from devanagri numerals. U. pal et. al**.** used water reservoir technique for segmentation of touching numerals [5]. The work on handwritten Devanagari numeral is carried by Hanmandlu et al [6] and R. Bajaj et al [7] proposed three kinds of feature which are moment features , density features and descriptive features for classification of Devanagari Numerals. G. S. Lehal [8] suggested a methodology for recognition of handwritten Devanagari and English Numerals.

2. PROPOSED ARCHITECTURE

Fig 1 shows proposed architecture for extraction of bilingual Characters- Numerals from sample datasheet.
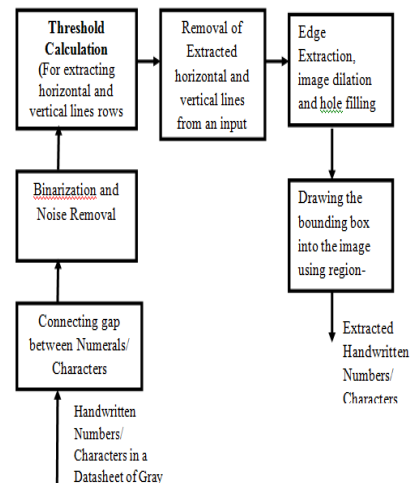
Fig 1: Extraction of Handwritten Bilingual Characters-Numerals

3. METHODOLOGY

As the Fig 1 shows the extraction of handwritten bilingual Characters-Numerals is performed with following steps:

3.1 Data Collection: We have prepared a sample data sheet for collecting data of Handwritten Characters-Numerals from various age groups. The datasheet in Fig 2 is presented for understanding. The datasheets

were scanned using scanner with 300 dpi then all sheets are stored in image file (jpeg format).

3.2 Preprocessing:

Preprocessing is a very important step in handwritten character recognition. In this paper, we have used preprocessing to bridge the gap between Characters-Numerals using 3 x 3 averaging operator on gray images [9]. Then Ostu's thresholding is used to binarized the images [10]. The small dots are removed using morphological opening operation. The corresponding result is shown in Fig 3.

3.3 Threshold Calculation and Extraction of Characters- Numerals :

For calculating threshold and extracting the handwritten Characters-Numerals following algorithm is used.

Algorithm

Input: Binary image with noise removal
Output: Extracted Characters -Numerals

Step 1: Threshold calculation for extracting vertical and horizontal lines from an image

Let [m n] = size(bw); where m is row, n is column & bw is binary image

Let $Th1 = (m*25)/100$; & $Th2 = 50$;

Let pixel1 = row –wise –sum of –black-pixel(bw);

Where Pixel1 = (row-no, total-pixels)

Let Pixel2 = column-wise-sum-of-black-pixel(bw);

Where Pixel2 = (Col-no, total-pixels)

Let row1 = row number which related black pixels are greater than equal to Th1

Let col1 = column number which related black pixels are greater than equal to Th2.

Step 2: Removal of Extracted lines from the image

Let c = col1 and r = row1

If (length (c) > length (r)) then

c1 = r(1:length(r));

bw2 = bwselect(bw,r,c1,8);

final = imsubtract(bw,bw2); % where bw is binary image (as shown in

Fig. 4)

else

r1 = c(1:length(c));

bw2 = bwselect(bw,r1,c,8);

final = imsubtract(bw,bw2); % where bw is binary image

Step 3: Cropping of Handwritten Characters- Numerals:

3.1)Edges were extracted from an image (final) using canny edge detector.

3.2)Images were dilated using square structuring element followed by hole filling.

3.3)Using Region-props properties bounding box are drawn on the sheet, as shown in Fig. 5.

3.4)   Finally the bounding boxes are extracted using imcrop () for feature extraction to recognized handwritten Characters- Numerals.
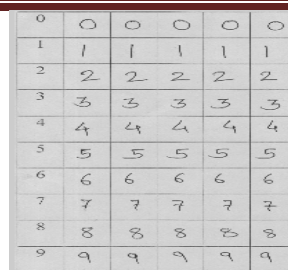
Fig 2: Sample Data Sheet of Handwritten English Numerals

Fig 3: Binary Image
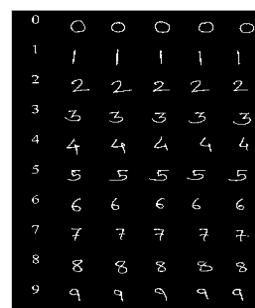
Fig 4:   Removal of horizontal and Vertical Lines from datasheet
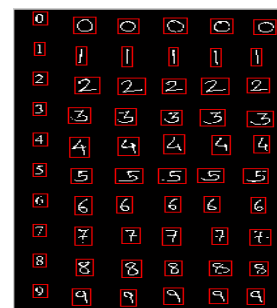
Fig 5: Bounding Boxes on Numerals
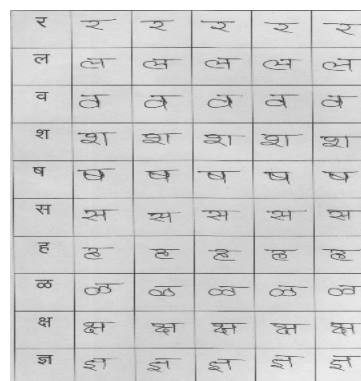
Fig 6: Handwritten Marathi Characters
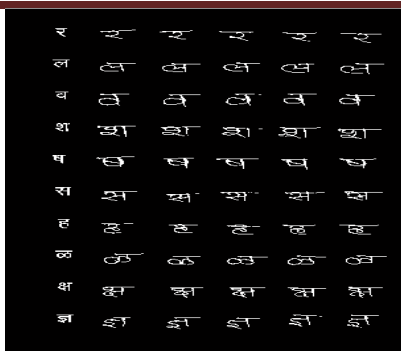
Fig 7: Removal of lines

Fig 8: Bounding Box on Characters

Fig 9: Handwritten English Numeral

Fig 10: Removal of lines
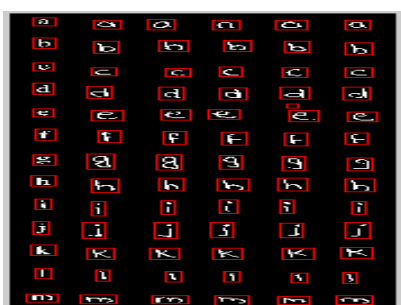
Fig 11: Bounding Box on numerals

Table 1: Accuracy of Extracted Charcters/ Numerals

Sr. No	Type of Sample sheet	Total number of Sample Datasheet	Accuracy (%)
1)	Handwritten Marathi Numerals	20 Sheets (19 correctly)	95.00%
2)	Handwritten English Numerals	20 Sheets (18 Correctly)	90.00%
3)	Handwritten English Capital Characters	10 Sheets (8 sheets)	80.00%
4)	Handwritten English Small Characters	10 Sheets (8 sheets)	80.00%
5)	Handwritten Marathi Characters	68 Sheets (55 sheet correctly)	80.88%

4. CONCLUSION:

For collecting handwritten Marathi and English Characters-Numerals, grid formatted datasheets were designed. It is found useful for accurate collection of data as appropriate grid is available for writing the specified characters. As compared to collecting data on plain paper this method is proved to be useful. The manual cropping of data requires more time. Thus to reduce the time of data extraction, an algorithm is developed to extract and crop the images of varying font sizes for these sample datasheets. We have received 95% and 90% of accuracy for extracting Marathi and English numerals respectively. For English and Marathi character extraction 80% accuracy was obtained.

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A CONCEPTUAL FRAMEWORK FOR FACIAL EXPRESSION RECOGNITION BASED ON CLASSIFICATION TECHNIQUES

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ABSTRACT: *The facial expression recognition of human has been witnessed a booming interest in recent years, due to the increased availability of techniques for automatically recognizing facial actions in sequences of images and the ensuing need to organize them. Face recognition systems plays significant function in video surveillance, human computer interface, and face image database management of security systems. Facial expression recognition focuses on how to find out the same expressions from different individuals. Since different people may show the same expression in different ways, the facial expression recognition problem is more challenging. To overcome these challenge, to study all-purpose structure of classification techniques for facial expression recognition system, which aim to identify the facial expression action units, mostly consist of normalization, feature extraction, feature selection and binary & multi-class classifications of the frontal face images. It has been assumed that facial expressions are classified into discrete classes for classification like happy, sad, angry, neutral, disgust etc. This framework presents a high-level overview of automatic expression recognition and also highlights the main system components with some research challenges.*

KEYWORDS: *Facial Expression Recognition, Feature Extraction, Feature Classification*

INTRODUCTION:

Human beings naturally and instinctively make use of facial expression as an important and authoritative modality to communicate their emotions or opinion socially. The recognition of a human being by their facial images can be done in a number of different ways such as by capturing an image of the face in the detectable range using an inexpensive camera or by using the infrared patterns of facial heat emission [1]. Development of a strong and consistent facial expression recognition system is still a challenging problem, largely because of various unpredictable facial variations and complicated exterior environmental conditions. These variations make it complex to pre-locate facial regions and carry out strong and accurate feature extraction.

The goal of facial expression recognition study is to survey the work done in automating facial expression analysis in facial images and image sequences[2]. To explore the issues in design and implementation of a system that could perform automated facial expression analysis. In general, three main steps can be distinguished in tackling the problem as shown in figure 1. First, before a facial expression can be analyzed, the face must be detected in a scene. Second is to feature extraction for extracting the facial expression information from the observed facial image or image sequence and third is to expression classification which requires supervised training that can recognize input images by assigning them a particular class label. The most commonly used facial expressions classification is done both in terms of Action Units, Facial Action Coding System (FACS) and in terms of six universal emotions: happy, sad, anger, surprise, disgust and fear.
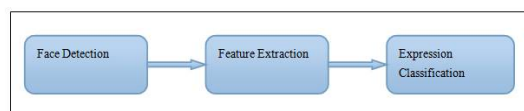
Figure 1: A Generic View of Facial Expression Recognition

The organization of the paper as first section describes in brief facial expression recognition. In section I reviews the literature survey. Section III study the conceptual framework facial expression recognition and its techniques In Section IV the detailed case study facial expression recognition. Finally, in Section VI, conclusions

LITERATURE SURVEY

There has been continued research interest in enabling computer systems to recognize expressions and to use the emotive information embedded in them in human-machine interfaces. Many efforts have been made to overcoming these variations, especially in pose and illumination condition. Till to now, there are different algorithm predominating in this research community, namely, Principal Component Analysis (PCA),Singular value decomposition (SVD), Independent Component Analysis (ICA), Linear Discriminate Analysis (LDA), Support Vector Machine(SVM) etc[3].. But

they have an inherent complexity which makes them opaque and are computationally expensive Although these studies have achieved promising results, to be best of our knowledge, no approach has been reported on handling face localization errors (e. g. changes in face scale and location), and relatively little attention on overcoming facial occlusions. Support vector machines have previously been successfully employed in a variety of classification applications including identity and text recognition as well as DNA microarray data analysis.

A number of classification methods that have been developed for representing faces for identity recognition may also be powerful for expression analysis. These approaches are also included in the present comparison. Hidden Markova model is developed to classify the higher level emotions states like interested, unsure, disagreeing, encouraging and discouraging from the lower level emotions like neutral, joy, surprise and sad[4].Neural networks as classifier model is a combination of two methods feature extraction and neural network and two stages are involved for face detection And classification[5].Support vector machine as classifier consider each video frame is first scanned in real-time to detect frontal faces, then the faces are scaled into image patches of equal size along with a bank of Gabor energy filters[].Gadabouts as classifier regards the frontal face in an image sequence misclassified into seven classes like an neutral, joy, sad, surprise, anger, fear, disgust[4].Table 1 gives brief survey of classification methods.

Table 1: A Brief Survey for Facial Feature Extraction and Classification

Sr. No.	Author / Journal	Title	Classification Method
1	Chellappa, R., Sirohey S., Wilson C.L., (1995) IEEE[1]	Human and Machine Recognition of Faces: a Survey	Face recognition from a video sequence using 2D recognition algorithm
2	Mandeep Kaur, Rajeev Vashisht, IJCA 2011 [2]	Comparative Study of Facial Expression Recognition Techniques	Shows the comparison between PCA and SVD algorithms. These algorithms are tested with real time and JAFEE database. This recognizes various facial expressions and emotions such as Happy, Sad, Angry, Disgust, Surprise, and Neutral.
3	Prashant K. Manglik el.at. 2004 IEEE [3]	Facial Expression Recognition	Describes in two phases The first phase is imageprocessing and the second phase is setting up andtraining of the neural network.
4.	Qurat - ul - Ain Kazmil S.B et.al's ICIET 2010 [4]	Texture analysis based facial expression recognition using a Bayesian classifier	Five parallel Bayesian classifier each is trainedto recognize aparticular facial expression, Multi-classification is achieved by combining multiple Bayesianclassifiers using JAFFE database.
5	Jiequan Li et.al's2010 IEEE [5]	Automatic Face emotion recognition system	Haar transform and adaptive Adaboost algorithm for face identification and Principal Component Analysis (PCA) inconjunction with minimum distance classifier for face recognition. PCA &K- nearest Neighbor(KNN) classification algorithm.
6	Rahulmathavan Y et.al's IEEE Transcation 2013 [6]	Facial ExpressionRec ognition in theEncrypted DomainBased on Local Fisher DiscriminantA nalysis	Challenge of performing facial expression when the test image is inencrypted domain without any decryption using JAFFE andMUG database.

CONCEPTUAL FRAMEWORK FOR FACIAL EXPRESSION RECOGNITION

In order to identify and extract the various expressions on face to be included within representation, e.g., as a whole unit (holistic representation), as a set of features (analytic representation) or as a combination of these (hybrid approach)[2]. The applied face representation and the kind of input images determine the choice of mechanisms for automatic extraction of facial expression information. Most approaches to automated expression recognition need to deal with the issues of face localization, facial feature extraction and the training as well as the classification stages of the learning method used. Figure 2 shows the conceptual framework for facial expression recognition.
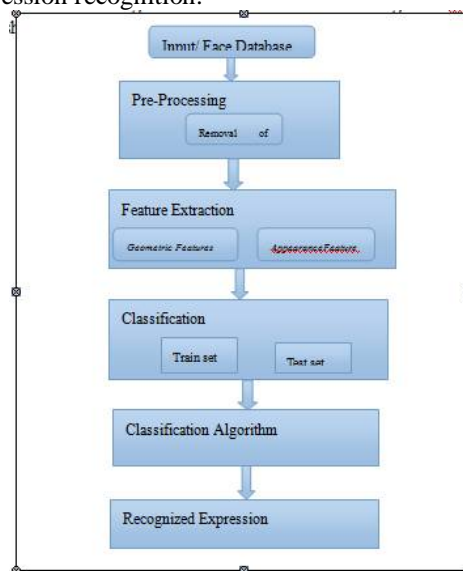
Figure 2: Block Diagram of Facial Expression Recognition Methodology

Following are the main steps in recognition process:
1) Input/ Face Database: The database consists of the training or the reference images which is interfaced with the required software with the help of coding for the further matching with the input images. This database could be one of the standard databases or the self prepared database.
2) Pre-Processing:This is the most computational expensive phase, because it requires the processing of unstructured images data.The input images of the testing database compatible with the developed code. For this purpose first convert the input colored image into the gray scale values. Later use the low pass filter to avoid the effect of blur and to reduce the noise if any from the input image to get the exact expected results.
3) Feature extraction: Consider certain features of the face to be compared with the existing database and extract them from input face image. two types of features depend on geometric and appearance. Geometric features is measure the displacements of certain parts of the face such as eyebrows or mouth corners. Appearance features is describe the change in face texture when particular action is performed such as wrinkles, bulges, forefront, regions surrounding the mouth and eyes.
4) Classification: After the set of features are extracted from the face region are used in classification stage. The set of features are used to describe the facial expression. Classification requires supervised training, so the training set should consist of labeled data. For creating any

type of database some images used for training and some for testing, both of which include number of expressions.

5) Classification Algorithm in Eigen face library the database image set divides into two sets - training dataset and testing dataset. The train images are utilized to create a low dimensional face space. There are different algorithm predominating in this research community, namely, Principal Component Analysis (PCA),Singular value decomposition (SVD), Independent Component Analysis (ICA), Linear Discriminate Analysis (LDA), Support Vector Machine(SVM)[3].

6) This block accepts the results from the classifier and displays it into the required GUI format and also generates a text file which gives a list of the images classified into the required expression sets.

CASE STUDY

To an example, facial expression recognition system attempt to recognize a small set of prototypical emotional expressions. According to the Ekman's theory, there are six basic emotion expressions that are universal for people of different nations and cultures. Those basic emotions are anger, neutral, disgust, fear, happy, sad and surprise. There are a lot of different machine learning techniques for classification task, namely: K-Nearest Neighbors, Artificial Neural Networks, Support Vector Machines, Hidden Markov Models and Boosting Techniques like Ad boost classifier. Two feature areas are selected to find out expression of image. Figure 3 shows the illustrative example for facial expression recognition based on conceptual framework which is given in section 3.
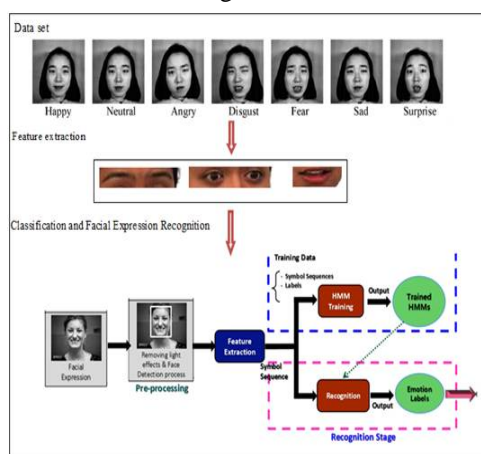
Figure 3: Example of facial expression Recognition

The accomplishments in the related areas such as psychological studies, human movement analysis, face detection, face tracking, and recognition make the automatic facial expression analysis possible. Automatic facial expression analysis can be applied in many areas such as emotion and paralinguistic communication, clinical psychology, psychotherapy, neurology, pain assessment, lie detection, intelligent environments, and multimodal human computer interaction[5]. The computer-based recognition of facial expression has received a lot of attention in recent years because the

analysis of facial expression or behavior would be beneficial for different fields such as lawyers, the police, and security agents, who are interested in issues concerning dishonesty and attitude.

CONCLUSION

The survey shows that there is a requirement of improvement of state-of-the-art techniques. Although the existing methods proved to be faster, less complex but still there is a need of an intelligent system which can automatically consider the most important key frame based on user's expression or opinion. To attain successful recognition performance, most present expression recognition approaches need some control over the imaging conditions because many real-world applications need prepared stiffness. In particular, research into automatic expression recognition systems capable of adapting their knowledge periodically or continuously has not received much attention. The authors are of the opinion that strength of expression recognition, against the inconsistency of facial characteristics, would be more complex to achieve without incorporating variation in the recognition framework in future.

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Paper ID: 36

STUDY OF NOISE AND FILTER IN IMAGE RESTORATION USING MATLAB

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ABSTRACT: *Image restoration improves the appearance of image by using image restoration techniques. Image restoration is the process which brings back the degraded image to its original form by removing noise from image.*

This paper focuses on the how image restoration takes place, the methods used in image processing restoration techniques using different MATLAB functions. These matlab functions are helpful for adding and removing noise. This paper also discussed importance of image restoration and how these methods are applied. These methods are important and applicable in different technologies. The different image filters and image noise discussed in the spatial Domain. The aim of the paper is to review the image restoration techniques and their applications. The goal is to raise awareness and stimulate research in these areas.

KEYWORDS: *Restoration Technique, Matlab, Image Filter, Image noise, Spatial Domain.*

1. INTRODUCTION

An image can be defined as a two dimensional function f(x, y) where x and y are spatial coordinates, and the amplitude of 'f' at any pair of coordinates (x, y) is called the intensity or gray level of the image at that point. When x, y and the amplitude values of '*f* 'are all finite, discrete quantities, we called the image a digital image[1]. An image is an array, or a matrix, of square pixels (picture elements) arranged in columns and rows. Image processing is any form of signal processing for which the input is an image, such as photograph or video frame. The output of image processing may be either an image or set of characteristics or parameter related to the image. Most image processing techniques involve treating the image as two-dimensional signal. Image processing is the study of any algorithm that takes an image as input and returns an image as output. Various methods and algorithm are useful in different research area i.e. medical science, photography, agriculture field, space science etc. The Image is corrected using different correction methods like Median filtering, Mean Filtering, Adaptive Filtering etc in order to restore an image to its original forms. MATLAB is a high-performance language for technical computing. It integrates computation, visualization, and

programming in an easy-to-use environment where problems and solutions are expressed in familiar mathematical notation. MATLAB based image processing is a very convenient platform and very easy to construct an algorithm. An image is a matrix of pixel values. MATLAB considers every input as a matrix. For this reason MATLAB provides an easy tool for image processing as a user can easily access each and every pixel value from the image matrices and edit it. Moreover there is an 'image processing tool box' built in MATLAB for this purpose

2. STEPS OF IMAGE PROCESSING

- *Image Acquisition* can be action of retrieving an image from some image capturing sources.
- *Image Preprocessing* improves the image quality.
- *Image Enhancement* is a very subjective area of image processing.
- *Image Restoration* improving the appearance of an image. In restoration techniques tend to be based on mathematical or probabilistic models of image processing.
- *Compression* reducing the storage required to save an image, or to transmit it over the network.
- *Recognition* It is the process that assigns label to an object based on its descriptors.

3. IMAGE RESTORATION
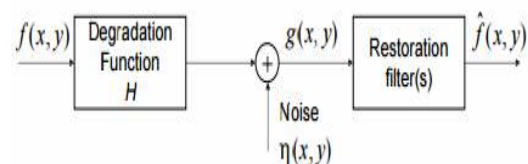
Fig.1 Image Restoration Model

Degraded image is given in spatial domain by

$$g(x,y) = h(x,y) * f(x,y) + n(x,y)$$

where h(x,y) is degradation function,the symbol '*'indicate convolution, f(x,y) is input image,

f'(x,y) is output image[1].The purpose of image restoration is to "compensate for" or "undo" defects which degrade an image[5]. Degradation may come in many forms such as motions blur and noise[2]. A noise may be included in a digital image from the environment around it while taking a picture using a camera. A noise is added by the camera fault, the image sensor or from the environment where the image is taken. Therefore it is important to restore the images to their original features by removing the noise by using MATLAB function of filter. Blur and Noise remove using mean filter, median filter, adaptive filter.
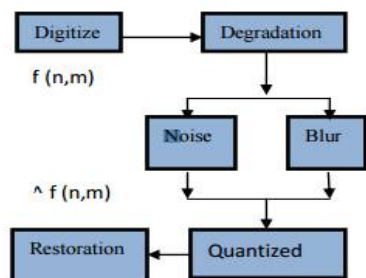
fig.2 formulation of restoration model

4. NOISE

Noise is the result of errors in the image acquisition process that result in pixel values that do not reflect the true intensities of the real scene. There are several ways that noise can be introduced into an image, depending on how the image is created. Noise reduction methods are based on the probability density function (pdf) of the type of noise present[7].

```
I = imread('2.jpg');
J = rgb2gray(I);
J = IMNOISE(J,'poisson');
```

4.1 Gaussian Noise:

Gaussian noise is an idealized form of white noise, which is caused by random fluctuations in the signal. We can seen white noise by watching a television which is slightly mistuned to a particular channel. Gaussian noise is white noise which is normally distributed. .The effect can again be demonstrated by the imnoise function in Matlab.

```
I = imread('2.jpg');
J = rgb2gray(I);
K = imnoise(J,'gaussian', 0.05);
figure, imshow(J), figure, imshow(K);
```
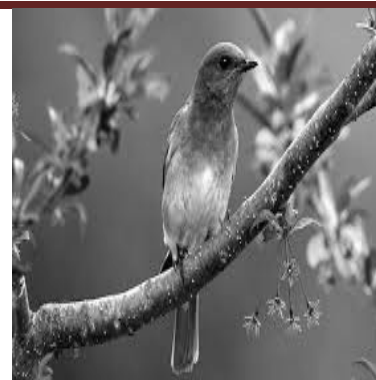

4.2 Salt and Pepper Noise

The salt-and-pepper noise are also called shot noise, impulse noise or spike noise that is raised from faulty memory locations, broken pixel elements in the camera sensors, or there can be timing errors in the process of digitization[6]

```
I = imread('2.jpg');
J = rgb2gray(I);
K = IMNOISE(J,'salt & pepper',0.05);
figure, imshow(J), figure, imshow(K);
```


4.3 Speckle Noise

Gaussian noise can be modeled by random values added to an image; speckle noise can be modeled by random value multiplied by pixel values, so called as multiplicative noise. Speckle noise is a major problem in some radar applications. As above, imnoise can do speckle,

```
I = imread('2.jpg');
J = rgb2gray(I);
K = imnoise(J,'speckle', 0.5);
figure, imshow(J), figure, imshow(K)
```

5. FILTER

Filters are used to increase brightness and contrast as well as to add a wide variety of textures, tones and special effects to a picture. Filters are linear and nonlinear types. We focus on non linear types of filters. Task of filter is not only to remove noise and blur from an image but also doing image as original appearance of an image.

5.1 Spatial Domain Filter

5.1.1 Mean Filter

It is used as a method of smoothing images, reducing the amount of intensity variation between one pixel and the next resulting in reducing noise in images. The key idea of mean filtering is to replace each pixel value in an image with the mean (`average') value of its neighbors, including itself. This has the effect of eliminating pixel values which are unrepresentative of their surroundings. Mean filtering is usually thought of as a convolution filter. Like other convolutions it is based around a kernel, which represents the shape and size of the neighborhood to be sampled when calculating the mean.

5.1.2 Median filter

Median filtering is a nonlinear method used to remove noise from images. It is widely used as it is very effective at removing noise while preserving edges. It is effective to removing 'salt and pepper' type noise. The median filter works by moving through the image pixel by pixel, replacing each value with the median value of neighboring pixels.

The pattern of neighbors is called the "window", which slides, pixel by pixel over the entire image 2 pixels, over the entire image.

5.1.3 Max and Mean Filter

This filter is useful for finding the brightest points in an image. Also, because pepper noise has very low values, it is reduced by this filter as a result of the max selection process in the sub image area Sxy.

$$\hat{f}(x, y) = \max_{(s, t) \in S_{xy}} \{g(s, t)\}.$$

This filter is useful for finding the darkest points in an image. Also, it reduces salt noise as a result of the min operation.

$$\hat{f}(x, y) = \min_{(s, t) \in S_{xy}} \{g(s, t)\}.$$

5.1.4 Midpoint filter

The midpoint filter simply computes the midpoint between the max and min values in the area encompassed by the filter:

$$\hat{f}(x, y) = \frac{1}{2}\Big[\max_{(s, t) \in S_{xy}} \{g(s, t)\} + \min_{(s, t) \in S_{xy}} \{g(s, t)\}\Big].$$

5.1.5 Adaptive Filters.

An adaptive filter does good job of denoising images as compared to the averaging filter. The basic difference between the mean filter and the adaptive filter lies in the fact that the weight matrix varies after each iteration in the adaptive filter, while it remains constant throughout the iterations in the mean filter[7].

6. APPLICATIONS

- Image restoration in the engineering in the area of astronomical imaging
- In the area of medical imaging used for mammograms, and digital angiographic images, and for the removal of additive noise in Magnetic resonance Imaging.
- Image restoration in the field of image and video coding.
- Digital image recovery to restore blurred X-ray images of aircraft wings to improve aeronautical federal control procedures.

CONCLUSION:-

This paper briefly explained the noise model. Filter. These models are removing the noise as well as blur in an image for an image look clear. An image restoration algorithm is an active research area and various researchers work to improve the efficiency of the different algorithms by developing more efficient algorithms. A mean filter and adaptive filter are used for denoising the image specially for salt and pepper noise .MATLAB has several two-dimensional and multidimensional filtering functions. MATLAB provide good function for denoising the image. This paper help to newcomers

for ideas of image noise and image filter techniques. There are several application domains of image restoration like astronomical imaging, medical imaging, image and video coding, X-ray images of aircraft etc.

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STUDY ON IMAGE FUSION TECHNIQUES: A CRITICAL REVIEW

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ABSTRACT: *Image fusion techniques can improve the quality of image. Different performance parameters give better image quality such as, SF, RMSE, EN, IQI, PSNR, SD. Authors review on some image fusion techniques and compares them to give better approach to its future research. Authors discuss about the Formulation, Process Flow Diagrams and algorithms of PCA (principal Component Analysis) and DWT (Discrete Wavelet Transform) based image fusion techniques. The results are also furnished in picture and table format for comparative analysis of above techniques. This paper presents the two different image fusion techniques and their comparative analysis, as the conventional fusion techniques PCA and DCT has some drawbacks .The comparative study concludes that DWT is the best approach for image fusion. In this paper DWT based two algorithms are proposed, these are maximum pixel replacement and pixel averaging approach.*

KEYWORDS: *Principal Component Analysis (PCA), Discrete Wavelet Transform (DWT), Image Quality Index (IQI), Standard deviation (SD).*

I.   INTRODUCTION

Combining two images to provide much more information content that is not existed in given images using image fusion has become the focus of image research and processing. With the rapid development in image processing techniques, it is possible to produce high quality image from information obtained using multiple source images. Different techniques are used for image fusion through the evolution. They are of Transformation domain like wavelet, curvelet, pyramid transformation etc. and other type is Spatial domain like PCA, IHS, averaging, bravery etc.

The Discrete Wavelet Transform (DWT) is a relatively recent and computationally efficient technique in computer science. Wavelet analysis is advantageous as it performs local analysis and multi-resolution analysis. To analyze a signal at different frequencies with different resolutions is called multi-resolution analysis (MRA). Wavelet analysis can be of two types: continuous and discrete. In this paper, discrete wavelet transform technique has been used for image steganography. This method transforms the object in wavelet domain, processes the coefficients

and then performs inverse wavelet transform to represent the original format of the stego object [5].

II.   IMAGE FUSION TECHNIQUES

Basically image fusion techniques are fall under two categories first is Spatial domain and other is Transformation domain fusion method. Spatial domain fusion techniques directly deal with pixel. Pixel values are manipulated to acquire desired result. In Transformation domain methods the image is transformed into frequency domain [1][2].

Fourier transform of the image is computed first. All fusion methods are applied on Fourier transform of the image and then inverse Fourier transform is applied to get desired image. Other than PCA, IHS, averaging, bravery fusion methods, and another important spatial domain fusion method is high pass filtering method. The disadvantage of spatial domain approaches is that they produce spatial distortion in the fused image. Spectral distortion becomes a negative factor while we go for further processing, such as classification problem [3].

2.1   DISCRETE WAVELET TRANSFORM (DWT)

Discrete wavelet transform is any wavelet transform that have discrete wavelet samples. The key advantage of this form over Fourier transform is temporal resolution. This captures both frequency and location in time [5]. Wavelets can be described in terms o two functions viz. the scaling function (f), known as 'Father Wavelet' and wavelet function (t), known as 'Mother Wavelet'. Mother wavelet undergoes translation and scaling operations to give similar wavelet families as,

$$\Psi_{a,b}(t) = \frac{1}{\sqrt{a}} \Psi\left(\frac{t-b}{a}\right), (a, b \in R), a > 0$$

The fused image can be obtained by applying inverse transform. At each level two sets of coefficients are obtained; approximation (LL) and detail (LH, HL and HH). After first decomposition, there are 4 sub-bands: LL1, HL1, LH1 and HH1. Steps involved in image fusion are given in fig. 1.

Figure 1: Preprocessing of image fusion

For each successive level of decomposition, the LL sub band of the previous level is used as the input. To perform DWT on 2 level applied DWT on LL1 & for 3Level decomposition applied DWT on LL2 & finally get 4 sub-band of 3 level that are LL3, LH3, HH3, HL3 shown in Fig. 2.
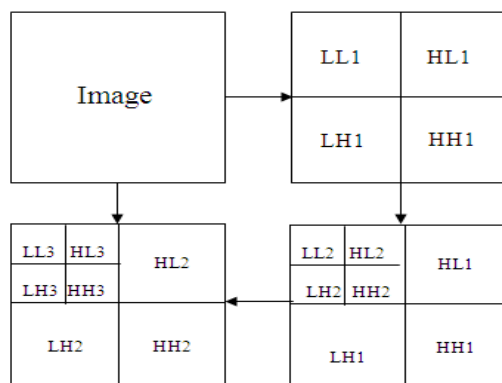
Figure 2: 2D DWT Image Decomposition

The subdivided squares depict the use of pyramid subdivision algorithm for image processing, as it is used on pixel squares. At each subdivision step the top left-hand square represents averages of nearby pixel numbers, averages taken with respect to the chosen low-pass filter; while the three directions, horizontal, vertical, and diagonal represent detail differences, with the three represented by separate bands and filters. We can continue decomposition of the coefficients from low pass filtering in both directions further in the next step.

Figure 1: Original Image

Figure 2: After 1 step of decomposition of 2D DWT

1.1 PRINCIPAL COMPONENT ANALYSIS (PCA)

It is a mathematical tool from applied linear algebra. It is a simple non-parametric method of extracting relevant information from confusing data sets. PCA is a useful statistical technique that has found application in fields such as face recognition and image compression, and is a common technique for finding patterns in data of high dimension. The origins of PCA lie in multivariate data analysis, it has a wide range of other applications PCA has been called one of the most important results from applied linear algebra and perhaps its most common use is as the first step in trying to analyses large data sets. In general terms, PCA uses a vector space transform to reduce the dimensionality of large data sets. By Mathematical projection, the original data set, which may have involved many variables, can often be interpreted in just a few variables

The process flow diagram of PCA algorithm is shown in below figure 1. The input images I1(x, y) and I2(x, y) are arranged in two column vectors and their empirical means are subtracted. The resulting vector has a dimension of n x 2, where n is length of the each image vector. Compute the eigenvector and Eigen values for this resulting vector are computed and the eigenvectors corresponding to the larger Eigen value obtained.

Figure 5: Image Fusion Process using PCA

III.   IMAGE QUALITATIVE METRICS

The main objective of fusion technique is to combine several images into good quality resultant image. This quality is verified using some performance parameters like Peak Signal To Noise Ratio (PSNR), Normalized Cross Correlation (NCC), Root Mean Square Error (RMSE), Entropy (EN), Image Quality Index (IQI), Fusion Symmetry (FS) etc.

3.1 ROOT MEAN SQUARE ERROR (RMSE)

The root mean square error (RMSE) measures the amount of change per pixel due to the processing. The RMSE between a reference image R and the fused image F is given by,

$$RMSE = \sqrt{\frac{1}{MN}\sum_{i=1}^{M}\sum_{j=1}^{N}(R(i,j) - F(i,j))}$$

3.2 PEAK SIGNAL TO NOISE RATIO (PSNR)

Peak signal to noise ratio (PSNR) can be calculated by using the formula

$$PSNR = 20\log_{10}\left[\frac{L^2}{MSE}\right]$$

Where MSE is the mean square error and L is the number of gray levels in the image.

3.3 FUSION SYMMETRY (FS)

Fusion symmetry (FS) is the measure of the degree of symmetry in the information content from both the images. The Fusion Symmetry can be computed as,

$$FS = abs\left[\frac{I_{AF}}{I_{AF}+I_{BF}} - 0.5\right]$$

Where, IAF and IBF are the MIM values between input images and fused image. The quality of fusion technique depends on the degree of Fusion symmetry. Low FS factor depicts good quality sensors.

3.4 IMAGE QUALITY INDEX (IQI)

IQI measures the similarity between two images (I1 & I2) and its value ranges from -1 to 1. IQI is equal to 1 if both images are identical. IQI measure is given by [4]

$$IQI = \frac{m_{ab}}{m_a\,m_b}\frac{2xy}{x^2+y^2}\frac{2m_a}{m_a^2}$$

3.5 ENTROPY (EN)

Entropy is a statistical measure of randomness used to characterize the texture of the image. Higher value of entropy after fusion indicates increased information. Entropy EN depicts a scalar value indicating entropy of grayscale image.

$$EN = -\sum_{i=0}^{L-1} p_i \log_2 p_i$$

Where, L is total number of grey levels, p contains the histogram counts from imhist.

3.6 STANDARD DEVIATION (SD)

Standard Deviation measures the contrast in the fused image. Fused image with high contrast would have high standard deviation [5].

$$SD = \sqrt{\frac{1}{MN}\sum_{y=0}^{N-1}\sum_{x=0}^{M-1}\left[I_f(x,y) - U_{If}\right]^2}$$

Where, the mean is given as,

$$U_{If} = \frac{1}{MN}\sum_{y=0}^{N-1}\sum_{x=0}^{M-1}\left|I_f(x,y)\right|$$

IV. RESULTS

In the reference [9] ,[12] we found that the value of the PSNR and Entropy in average method is less than as compared to value of other frequency domain method like SWT and laplacian method which means fused image are not exactly to registered image. That is why transform domain method are more suitable as compared to spatial domain method. But in some case spatial domain play a very important role in image fusion that contain high spatial information in fused image. Same thing is also noticed in [2] and [4]. Table is given below.

Fusion Methods	Qualitative Metrics		
	PSNR	EN	IQI
Average	25.4810	0.9848	7.2228
Select Maximum	26.8663	0.9939	7.2071
Laplacian Pyramid	57.1387	0.9854	7.2297
Morphological Pyramid	54.1061	0.9788	7.2053
SWT	59.1387	0.9851	7.2322
Proposed Method	67.0832	0.9977	7.2494

Table 1: Statics result of different fusion methods for lenna image [9].

Discrete Wavelet Transform have less RMSE, PSNR and SF [6][7] than Principal Component Analysis. Lenna is Sample image used to study these parameters. These values are compared in following table no.1.

Fusion Methods	Qualitative Metrics					
	RMSE	PSNR	EN	SF	IQI	NCC
PCA	3.2964	35.8316	7.46	145.59	0.96	0.9975
DWT	2.1105	41.6429	7.42	142.19	0.96	0.9990

Table 2: Image Quality Evaluation

I. CONCLUSION

From the above output images and the values of quality measures presented in the table 1, it can be concluded that, PCA & DCT based image fusion technique can be used for applications which does not require high quality & precision. Whereas DWT based fusion techniques provide us good quality fused images than PCA & DCT based techniques. Pixel-level image fusion using wavelet transform and principal component analysis are implemented in PC MATLAB. Different image fusion performance metrics with and without reference image have been evaluated. The simple averaging fusion algorithm shows degraded performance. Image fusion using wavelets with higher level of decomposition shows better performance in some metrics while in other metrics, the PCA shows better performance. Some further investigation is needed to resolve this issue.

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STRATEGY AND INTERNET.

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ABSTRACT: *Internet can be used as a Tool (Any Industry, Part of Any Strategy) .To stay competitive companies need to deploy Internet, but how to deploy it? New forms of objectives to be set, New Communication strategies to be developed, Staff with new skills and responsibilities. Meld Internet and Traditional Approaches that supports existing advantage.*

*Keyword***:** strategy, internet.

INTRODUCTION:

The Internet is an extremely important new technology, and it is no surprise that it has received so much attention from entrepreneurs, executives, investors, and business observers. Many have argued that the Internet renders strategy obsolete. In reality, the opposite is true. Because the Internet tends to weaken industry profitability without providing proprietary operational advantages, it is more important than ever for companies to distinguish themselves through strategy. The winners will be those that view the Internet as a complement to, not a cannibal of, traditional ways of competing. The time has come to take a clearer view of the Internet. We need to move away from the rhetoric about "Internet industries," "e-business strategies," and a "new economy" and seethe Internet for what it is: an enabling technology—a powerful set of tools that can be used, wisely or unwisely, in almost any industry ands part of almost any strategy. We need to ask fundamental questions: Who will capture the economic benefits that the Internet creates? Will all the value end up going to customers, or will companies be able to reap a share of it? What will be the Internet's impact on industry structure? Will it expand or shrink the pool of profits? And what will be its impact on strategy? Will the Internet bolster or erode the ability of companies to gain sustainable advantages over their competitors?

DISTORTED MARKET SIGNALS:

Companies that have deployed Internet technology have been confused by distorted market signals, often of their own creation. It is understandable, when confronted with a new business phenomenon, to look to marketplace outcomes for guidance. But in the early stages of the rollout of any important new technology, market signals can be unreliable. New technologies trigger rampant experimentation, by both companies and customers, and the experimentation is often economically un- sustainable.

- Early Stages: Signals are unreliable.

- Subsidized products Services – to attract customers.

- Artificially Low prices :: Artificially High demand

- Curiosity to shop online.

- Supplier practices to accept equity, warrants or stock options in payment for services or products

- Stock Valuations don't provide real economic value.

- Revenues are from stock rather than cash(eg: Amazon)
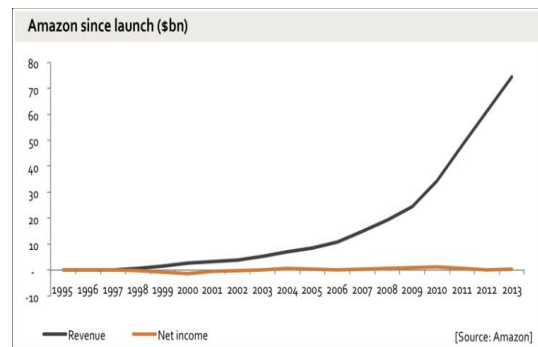
Fig:Revenues from stock rather than cash

RETURN TO FUNDAMENTALS:

- Economic Value of a company- Price vs Cost
- Shareholder Value is reliable measure (Earnings, Dividend, Share price, Increase in Revenues, ROI)

Internet is an enabling technology a powerful set of tools that can be used, wisely or unwisely, in almost any industry and as part of almost any strategy.

INTERNET & INDUSTRY STRUCTURE:

- Two fundamental factors that determine profitability

    1. Industry Structure
    2. Sustainable Competitive Advantage

- Whether the company is new or old, it is affected by 5 underlying forces

1. The intensity of rivalry among existing competitors
2. The barriers to entry for new competitors
3. The threat of substitute products or services
4. The bargaining power of suppliers
5. The bargaining power of buyers

HOW INTERNET INFLUENCES INDUSTRY STRUCTURE:
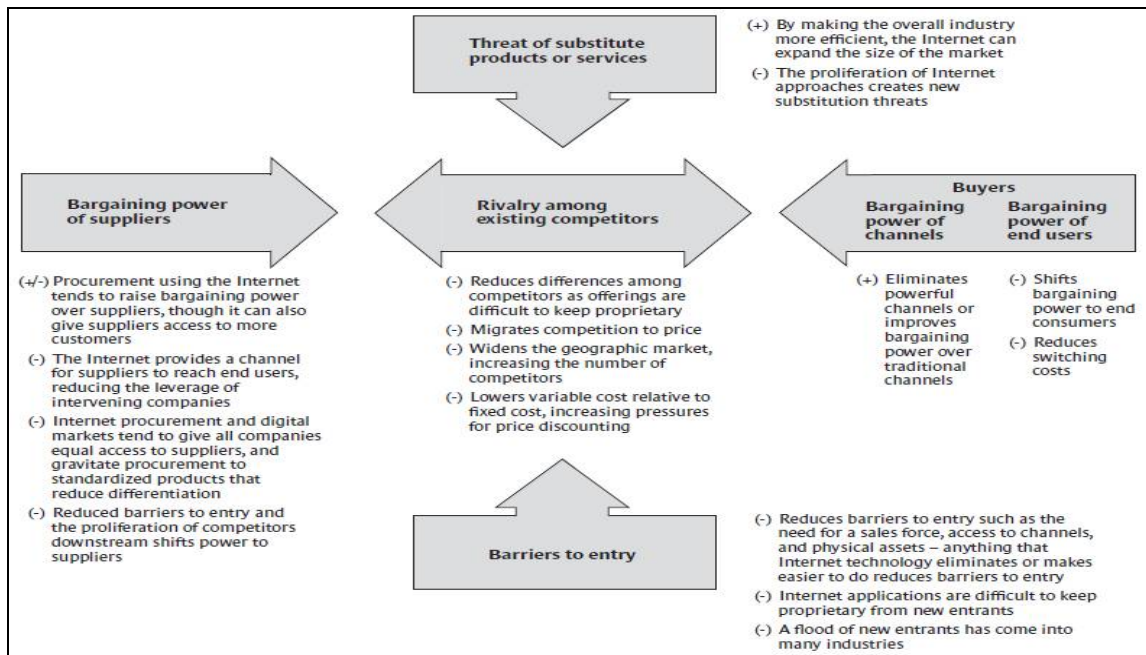
THE MYTH OF THE FIRST MOVER:

What the Internet would do and how quickly its use was expanding rather than how it was affecting industry structure:

− Increase the switching cost will reduce the customer bargaining power

(A buyer would grow familiar with one company)

− In reality switching cost are likely lower on the internet than they are for traditional business.

(PayPal provide settlement currency – so called e-wallets)

− Create strong network effect through which product or services become more valuable when more and more people use them

(E-Mail, instant messaging, auction, online marketing)

Creating network effect requires large investment

MYTH ABOUT INTERNET:

Partnering is win win means to improve the economics.

− Complements: products that are used in tandem with another industry's product. Computer software, for example, is a complement to computer hardware.

− Another common form of partnering is outsourcing. Internet technologies have made it easier for companies to coordinate with their suppliers, giving widespread currency to the notion of the "virtual enterprise"

− extensive outsourcing can reduce near-term costs and improve flexibility

− Outsourcing also usually lowers barriers to entry because a new entrant need only assemble purchased inputs rather than build its own capabilities.

FUTURE OF INTERNET COMPETITION:

Deployment of Internet technology will likely continue to put pressure on the profitability of many industries. Consider the intensity of competition, for example. Many dot-com

− The power of customers will also tend to rise.

− As customers become more familiar with the technology, their loyalty to their initial suppliers will also decline; they will realize that the cost of switching is low
− Some technological advances will provide opportunities to enhance profitability
− New Internet technologies will continue to erode profitability by shifting power to customers.

- Business of digital marketplaces means to automate corporate procurement by linking many buyers and suppliers electronically
- Suppliers and customers can begin to deal directly on-line without the need for an intermediary

Competitive Advantage & Principles of Strategic Positioning:

Competitive Advantage:
- To be the more profitable than average performer companies should have focus on internet presence.
- By operating at lower cost
- By commanding the premium price or by both way.
- Cost and price advantage can be achieved in two ways.
  - Operational effectiveness.
    - Doing same thing in better way than competitors.
    - Or by including better technologies, superior inputs, trained people or by more effective management structure.
  - Strategic positioning
    - Create unique value to customers.
    - By providing different set of features and services with innovation

The Absence of Strategy:
- Many of the pioneers of Internet business, both dot-coms and established companies, have competed in ways that violated the precept of good strategy.

- They have pursued to maximize revenue and market share at all costs, pursuing customers indiscriminately through discounting, giveaways, promotions, channel incentives, heavy advertising and click on fees (indirect).

- Rather than

  - Delivering real value that earns an attractive price from customers.
  - Making trade-offs
  - Tailor the value chain in a unique way, they have copied the activities of rivals
  - build and maintain control over proprietary assets and marketing channels, they have entered into a rash of partnershipsand outsourcing relationships.

The Six Principles of Strategic Positioning:
1. It must start with the right goal

   - Set goals towards customers expectations where customers are willing to pay a price for a product or service
2. A company's strategy must enable it to deliver a value proposition, or set of benefits, different from those that competitors offer.
   - It should create value to the specific/targeted set customers.

3. Strategy needs to be reflected in a distinctive value chain
   - Company must perform different activities in different ways than rivals
4. Robust strategies involve tradeoffs
   - A company must abandon or relinquish some product features, services, or activities in order to be unique at others
5. Strategy defines how all the elements of what a company does fit together.
   - All possible company's activities must be mutually supporting
6. Strategy involves Continuityof direction.
   - Continuous improvement is a necessity, but it must always be guided by a strategic direction.

The Internet as Complement:
- While internet will replace certain elements of industry value chain; the complete cannibalization of the value chain is rare.
  - Internet can address non decisive activities like informing customers, processing transactions and procuring
  - Skilled personnel, proprietary product technology, efficient logical systems remain intact (Competitive advantage enablers)
- Example 1. Walgreen pharmaceuticals: online prescriptions, pickup at nearby store (no shipping at homes)
- Example 2. W. W. Grainger: Web ordering of spare parts and pickup at local Grainger outlet.
- Complimentarily between internet activities & traditional activities
  - Web direct ordering makes warehousing & shipping more important
  - Systemic consequences e.g. employers flooded with web applications
  - Internet applications and traditional activities complement each other's limitations.

End of New Economy:
- The value of integrating traditional and internet methods create potential advantages for established companies.
- Dot coms need to break away from competing solely on price and focus on product selection, product design, service & image.
- New economy is more like an old economy that has access to new technology
  - Old economy of established companies and new economy of dot coms are merging.
  - Key is not to imitate rivals but to tailor internet applications to a company overall strategy that extends its customer value and competitive advantage

- The next stage of Internet's evolution will evolve shift in thinking from e-business to business and from e-Strategy to strategy.

CONCLUSION:

Internet technology provides better opportunities for companies to establish distinctive strategic positioning than did previous generations of information technology. This paper we clearly see market behavior is distorted and must be interpreted with caution.We can see this dynamic at work in automobile retailing.

The Internet allows customers togather extensive information about productseasily, from detailed specifications and repairrecords to wholesale prices for new cars andaverage values for used cars. Customers canalso choose among many more options fromwhich to buy, not just local dealers but also various types of Internet transfernetwork. Also using Internet technologies to gain efficiency improvements invarious aspects of those relationships.the Internet into overall strategywill this powerful new technology become anequally powerful force for competitive advantage.

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SEARCH AND DISCOVERY SERVICES

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ABSTRACT: *In recent years, library users have shifted from searching in library catalogs and scholarly databases to searching in library discovery systems. This shift has introduced a fundamental change in the information-seeking process. Discovery systems provide access to a large, diverse information landscape of scholarly materials regardless of where the materials are located, what format they are in, and whether the library owns them or subscribes to them for this I study in search and discovery services. At the same time, these systems typically offer simple, Google-like searching as the default option, to accommodate the expectations of today's users. With this type of searching, users do not spend much time formulating queries, and their queries often yield large result sets therefore, discovery systems focus on relevance ranking and on tools that help users easily navigate and refine result sets.*

KEYWORDS: *Discovery systems, user experience, information seeking, search, service, discovery.*

INTRODUCTION

The immediacy of information, availability of communication channels, abundance and diversity of tasks that people routinely accomplish online, and the effects of social networks shape the expectations of users when they are looking for scholarly materials. Surveys and reports published since 2005 clearly demonstrate that traditional library systems are lagging in popularity behind non-library information systems. These surveys and reports describe a reality in which library users have shifted from searching and accessing content via library services to attempting to satisfy their information needs through non-library services, such as web search engines, online bookstores, blogs, online news, and e-mail. Statistical data support these trends.

The rise of "next-generation catalogs," which were introduced in January 2007 with the Endeca-based system at North Carolina State University marked a significant change in the way in which libraries engage with their users. Initially aiming to provide a modern, friendly user experience for library patrons, these systems, termed discovery systems or discovery and delivery systems,

transformed the way in which users search in library catalogs and other local library collections such as institutional repositories, course materials, and even library web pages. However, only in 2009, when discovery systems shifted gear with the introduction of a central index, could these systems serve as a single point of access to the entire library collection.

I. Search And Discovery Service

Discovery Services are capable of searching quickly and seamlessly across a wide range of periodically indexed content provided by participating publishers and may include a library's catalog and other local content in the index.

II. Discovery as opposed to search

The traditional library information systems, such as library catalogs and databases, are referred to as search systems. Search systems offer structured search interfaces that are tailored to the specific data that they hold, the records are homogenous they are catalogued in the same way, have the same data structure, and often relate to one topic. Search systems typically expect users to possess medium-to-high searching literacy and enable users to accurately define their information need. Although in recent years such systems have also simplified their search interface and incorporated post-search refinement options, librarians encourage users to develop searching strategies and take advantage of the rich options of the systems search interface.

a) Search process

Discovery systems were designed at a time when Google had already set the standard for searches, with its very simple search interface, excellent relevance ranking, rapid performance, and extensive content coverage. Rather than expecting the user to develop search strategies, Google accommodates a trial-and-error approach: the interaction with the search engine is so simple and quick and the relevance ranking is perceived by users as so good that if one of the first

results does not satisfy the information need, the user typically rephrases the query and tries again.

Developers of library discovery systems aim to provide a similar experience. To that end,such systems leverage the specific nature of scholarly publishing practices and of the indexed data. Several factors contribute to the systems' success at meeting the needs of library users. First, the content indexed by discovery systems is formatted much better than that indexed by Google. Such content consists of bibliographic records and textual information.

Structured data allows for a more efficient discovery: for example, the search engine can easily differentiate between information that is more significant such as an articles title, subject, or author and information that has a smaller impact on the search process.Discovery systems leverage the data structure by offering options for searching in specificfields10 and by assessing the relevance of items based on the fields in which the query termswere found.

b) User experience

The need to improve the user experience was the trigger for the development and deployment of discovery systems and has become the cornerstone of these systems. The introduction of the term user experience in the library realm means replacing the traditional term userinterfacebears great significance. Although the term has been defined in various ways, the following definition by Nielsen Norman Group is a good fit in the context of software systems:

"User experience" encompasses all aspects of the end-user's interaction with the company, its services, and its products. The first requirement for an exemplary user experience is to meet the exact needs of the customer, without fuss or bother. Next comes simplicity and elegance that produce products that are a joy to own, a joy to use. True user experience goes far beyond giving customers what they say they want, or providing checklist features. In order to achieve high-quality user experience in a company's offerings there must be a seamless merging of the services of multiple disciplines, including engineering, marketing, graphical and industrial design, and interface design.

c) Discovery offer

Like every new technology, library discovery systems started by increasing the efficiency of existing practices. Users were able to satisfy their information need before a discovery system was available. They had to use multiple information resources and were often challenged with complex workflows when trying to find relevant materials, but they would usually succeed in obtaining the required items. From the outset, discovery systems enabled searchers to use only one information resource through a user-friendly interface and streamlined the searchers workflows from the initial search to the obtaining of the item. However, once this basic framework was set in place, the developers of discovery systems started introducing

new capabilities that were not previously feasible.

Common practices in other systems, such as web search engines and retail websites, library discovery systems accumulate usage data. Information such as user queries,workflows, and selections is logged however, unlike systems in other domains, library discovery systems do not associate usage information with individuals. Such information,which is now available in the library realm for the first time at such a scale and across such a large range of information providers and institutions, enables discovery systems to provide a variety of new capabilities.

III. System improvements

There is no doubt that usage data may help developers improve their system by shedding light on the ways in which people use the system. Information such as the number of searches over time, with an indication of peak hours, the frequency at which various system functions are used, the success rate of search interactions, the time it takes a searcher to satisfy an information need, the entry point to the search functionality and the physical device used by the searcher are all important clues. The success of relevance-ranking technology, to name a specific example, can be measured and the algorithm further tuned through the monitoring of key performance indicators that relate to ranking.

a)   Support of collection development

Usage data gathered by a discovery system and fed into a library management system greatly improves the collection development process. Furthermore, in an integrated environment where usage is analyzed and presented together with a cost analysis, librarians can more effectively make decisions regarding the materials that are required, the sources for obtaining these materials, and the most appropriate acquisition models. New trends such aspatrondrivenacquisition are also supported by discovery systems that offer searchers an information landscape that is greater than that available to the library, while the actual acquisition may take place only upon demand.

b)   Personalization

Another feature that has begun appearing in library discovery systems is their ability to tailor the search results to a specific searchers needs. Although common in non-academic information systems, academic systems have kept away from making any judgment based on the searchers attributes. However, with the ever-increasing number of publications that are available to users and the dismantling of subject-specific silos, a discovery system that takes into account a users discipline and academic level is able to address the users information need more accurately, especially when the user conducts an exploratory search.

The availability of a very large corpus of data in a single system is one of the greatestadvantages of a discovery system. The implementation of smart linking between itemsleverages this data and helps the system provide the searcher with usable information rather than lists of items. For example, the clustering of various aspects of a scientific work, including the research data, project reports, and published articles, is likely to provide searchers with a rich user experience and help them grasp the information in a more completeway. Furthermore, because institutional repositories are also harvested by discovery systems, the linking of various versions of a work, such as the preprint and post-print versions, becomes feasible. Another example relates to other entities, such as authors and institutions, which can be rendered into hubs of information, enabling searchers to discover other individuals and teams conducting research in their area and other departments that are dealing with similar projects.

IV. Web-scale discovery services

Vaughan summarizes what web-scale discovery services offer as content, discovery, delivery, and flexibility. Using any of these services the user can search beyond what is owned/licensed by the library - which presents both pros and cons. All of the web-scale services offer integrated chat widgets, icons to represent content types, full-text searching, relevancy ranking, limiting and sorting and permalinks. All allow search boxes to be embedded in other websites. In all cases, cataloguing takes place in the LMS – metadata is not created directly in the discovery service. Hence, all the web-scale discovery services treat metadata from different sources differently, which can cause issues with search and retrieval. Han points out that to maximize functionality of discovery services, libraries should review current cataloguing practices to better serve users needs.

V. e-strategy of search and discovery

The service we provide for searching, discovering and accessing Library owned and licensed content will demonstrate the following characteristics:-Simplicity, Openness, Currency

i.   Simplicity
The principle of simplicity will be met through adopting the following strategic goals:

a.   Providing a unified search environment to all content owned or licensed by the Library
We will promote and help our users to discover all formats of material relevant for their research without having to access different systems or identify which formats these might be before performing a search. Users will be able to find resources relevant to their research from within a single search environment with the ability to refine and control what is included to meet their requirements.

b.   Providing a single search interface that meet a multiplicity of needs
Our services will present a simple and quick to use search interface while allowing for more sophisticated searching when required. They will allow for searching of specific collections and interest areas, for example just physical books or medical resources and subject matter.

c.   Providing different search interfaces that serve a diversity of users
While providing a consistent overall experience, the systems will allow for different interfaces to support the specific requirements of different groups of users, such as distance learners, or specific needs such as only searching for a particular subject or format of material. Alongside a unified search interface, we will continue to provide and support specialist abstracting and indexing services and other databases.

d.   Providing quick and direct access to content
We will simplify the journey between discovery and access, reducing the number of clicks required before gaining access to content.

e.   Being intuitive to use
We acknowledge that users expect to use online services with a minimum of guidance. Our aim therefore is that users should be able to make use of our resource discovery services without requiring initial training. However, we do recognise the need to support our users in the use of new systems and this will be provided in a variety of ways, through service points, online guidance and as part of our information skills/literacy provision.

f.   Using a standard integrated authentication system when required
Users will not be faced with multiple authentication processes and passwords. The systems which deliver our resource discovery service will integrate with Sussex based authentication systems (e.g. Shibboleth, Active Directoryetc).

ii. Openness
The principle of openness will be met through adopting the following strategic goals:

a.   Using open standards, APIs and flexible architecture
The underlying systems will be open with documented and free to use APIs to allow the University, users and third parties to develop innovative services tailored to their requirements. This will include web standards such as RSS, JSON and RDF and search and bibliographic specific standards including SRU, COinS, OpenURL and Z39.50. Common exporting formats such as Endnote, Refman and BibTeX will also be supported together with APIs specific to the service they provide. The underlying architecture will allow the front end of a system to be bypassed so that custom solutions can be provided.

b.   Underlying systems will be delivered as *software as a service* **where possible to ensure high availability and allow the Library to focus on improving the user experience and facilitate regular updates using widgets and apps**

The Library will seek to develop widgets for popular online services, allowing our services to be used within third party systems. We will work with others to develop apps, especially for mobile devices.

c.   Ensuring our data is exposed as widely as possible

We will ensure that it is possible to access our services through third party applications such as Google, Google Scholar and PubGet as well as supporting information seeking the Library is also a producer of information. This ranges from traditional web based information to the opening up of our bibliographic and circulation data, and information such as resource lists created by our academics. To ensure the maximum use of our collections and to enable others to develop new tools and services we will endeavour to release our own data, including circulation data, reading lists and bibliographic metadata. We will also aim to expose our bibliographic records through Linked Data. This will help us work with the wider community and allow third parties to create services for our users. High quality metadata is essential to support these services.

d.   Being able to link in and draw information from other systems and services

To enrich our services, we will draw in information from other respected third party services and link out to those providing additional information or related services.

e.   Being able to participate in Shared Service initiatives

We will participate in Shared Service initiatives with other universities and national bodies - for example, shared catalogues.

iii. Currency

The principle of being current will be met through adopting the following strategic goals:

a.   Being familiar to those accustomed to using Google and social networking sites

The search environment will have a contemporary look and feel which will include features such as a single search box, relevance ranking, faceted search and results clustering as well as link through to relevant services and the facility to provide feedback and make enquiries using popular web sites such as Facebook and Twitter.

b.   Facilitating customisation and personalisation

Our service will allow users to create lists of saved items and resources for working with and exporting. Functionality will be customisable to meet varying requirements amongst users.

c.   Allowing and promoting user generated content

We acknowledge that users are no longer consumers of services but are active participants and collaborators. We will support and encourage user generated content such as tags, ratings and reviews provided it can be clearly distinguished from Library generated and purchased content.

d.   Supporting mobile devices and other non-traditional search tools

Our services will support mobile interfaces. Other access routes away from the traditional computer are likely to emerge in the next few years and the underlying architecture will support developments for such systems.

e.   Supporting integration with the University's learning, teaching and research environment

Where possible, search and discovery tools will be seamlessly available from within the University's learning, teaching and research environment.

f.   Supporting serendipity and innovative browsing systems, such as recommender services

We acknowledge that search is only one facet of discovering content. Traditionally users have always relied on personal recommendations and browsing to find relevant material. The Library aims to cater for this in the digital environment by providing personal recommendations, ratings, related content, sharing and innovative browsing options.

VI.   EBSCO Information Services Industry

EBSCO is discovery service industries thatis one of the largest privately held companies in Alabama and one of the top 200 in the United States, based on revenues and employee numbers. This *EBSCO Discovery Service* Takes Discovery to the Next Level.

EBSCO Discovery Service takes research to the next level through a perfect combination of content and technology, taking into account all of the critical elements in the research process, and changing the expectations of how a discovery solution can and should address the needs of its users, whether it's:

- A simple search by an undergraduate student
- A sophisticated search by a post-graduate researcher
- A library administrator looking to quickly and conveniently streamline resources

EDS provides a fast, streamlined search through a single search box, but within the context of a greater experience that pulls together intuitive features and functionality, high-end indexing via Inclusion of Subject Indexes, and instant access to critical full text, leveraged from the leading EBSCO*host* research platform and databases, as well as from

key information providers. And as EDS continues to evolve, the end goal remains the same—helping users to find and access the highest-quality content for the best-possible research experience.

Conclusions

The rapid pace of adoption of discovery systems demonstrates the appeal of such systems to institutions and searchers. Discovery systems have transformed the academic search process, making it more intuitive and interactive and integrating it with other user activities. To support the broad, heterogeneous information landscape that is available today, the current discovery process puts more emphasis on the post-search activities and better supports serendipitous finding, leading users to a richer and more diverse learning experience. The promise of discovery continues to evolve with the introduction of new services that could not have been implemented in the rediscovery era. In the future, we are likely to see other innovations, such as the expansion of semantic search capabilities and the generation of tools that address additional aspects of the scholarly publishing and dissemination process.

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BLUE EYES TECHNOLOGY

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***ABSTRACT :** The world of science cannot be measured in terms of development and progress. It has reached to the technology known as "Blue Eye Technology" which is capable to recognize and control human emotions as well as feelings with help of gadgets.*

The elements eyes, fingers, speech are the body parts which helps to sense the emotions of humans. The paper is going to implement a new technology known as Emotion capturing world of blue eyes technology which recognize human emotions(sad, happy, surprised) using image processing techniques by extracting eye portion from the captured image which is then matched with stored images of database After recognizing mood the songs will be played to make human emotion level normal.

***KEYWORDS-** CSU(central system unit),DAU(data acquisition unit),Emotion mouse, MAGIC(manual and gaze input cascading),SUITOR(simple user interest tracker).*

1.INTRODUCTION

Blue in which term refer to Bluetooth, which makes possible robust wireless communication and the Eyes which refer to the eye movement which helps us to get a lots of exciting and useful information. The basic motivation behind this technology is giving power to computer like human. Consider that you are in a environment where humans coordinates with computer system. You are in front of your computer system that can listen, speak, or even interact with you. It is able collect information about you and coordinate with you in the way of special types of recognition like facial recognition, speech recognition, etc. It is also able to learn your emotions with help of simply touch of the mouse. It verifies you, feels your handlings, and starts coordinating with you .

The BLUE EYES technology aims at creating computational machines that have perceptual and sensory ability like those of human beings. It uses non-obtrusige sensing method, employing most modern video cameras and microphones to identifies the users actions through the use of imparted sensory abilities. The machine can understand what a user wants, where he is looking at, and even realize his physical or emotional

states. In the name of BLUE EYES Blue in this term stands for Blue tooth (which enables wireless communication) and eyes because eye movement enables us to obtain a lot of interesting and information.

Theory

Blue Eyes system consists of a mobile measuring device and a central analytical system. The mobile device is integrated with Bluetooth module providing wireless interface between sensors worn by the operator and the central unit. ID cards assigned to each of the operators and adequate user profiles on the central unit side provide necessary data personalization so the system consists of

A) Mobile measuring device (DAU)
B) Central System Unit (CSU)
C) The Hardware

A)Data Acquisition Unit

Data Acquisition Unit is a mobile part of the Blue eyes system. Its main task is to fetch the physiological data from the sensor and send it to the central system to be processed.

To accomplish the task the device must manage wireless Bluetooth connections (connection establishment, authentication and termination). Personal ID cards and PIN codes provide operator's authorization. Communication with the operator is carried on using a simple 5-key keyboard, a small LCD display and a beeper. When an exceptional situation is detected the device uses them to notify the operator. Voice data is transferred using a small headset,
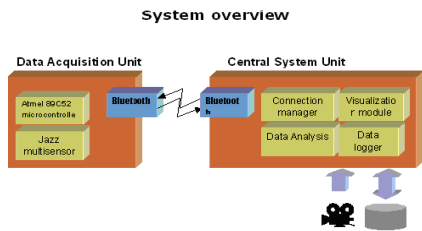
Fig. 1: System Overview

B)Central System Unit

Central System Unit hardware is the second peer of the wireless connection. The box contains a

Bluetooth module (based on ROK101008) and a PCM codec for voice data transmission. The module is interfaced to a PC using a parallel, serial and USB cable. The audio data is accessible through standard mini-jack sockets To program operator's personal ID cards we developed a simple programming device.

2. Emotion Computing

Rosalind Picard (1997) describes why emotions are important to the computing community. There are two

aspects of affective computing: giving the computer the ability to detect emotions and giving the computer the ability to express emotions. Not only are emotions crucial for rational decision making, but emotion detection is an important step to an adaptive computer system. An important element of incorporating emotion into computing is for productivity for a computer user. A study (Dryer & Horowitz, 1997) has shown that people with personalities that are similar or complement each other collaborate well. For these reasons, it is important to develop computers which can work well with its user.

Theory

Based on Paul Ekman's facial expression work, we see a correlation between a person's emotional state and a person's physiological measurements. Selected works from Ekman and others on measuring facial behaviours describe Ekman's Facial Action Coding System . One of his experiments involved participants attached to devices to record certain measurements including pulse, galvanic skin response (GSR),temperature ,somatic movement and blood pressure. He then recorded the measurements as the participants were instructed to mimic facial expressions which corresponded to the six basic emotions. He defined the six basic emotions as anger, fear, sadness, disgust, joy and surprise.

Result

The results show the theory behind the Emotion mouse work is fundamentally sound. The physiological measurements were correlated to emotions using a correlation model. The correlation model is derived from a calibration process in which a baseline attribute-to emotion correlation is rendered based on statistical analysis of calibration signals generated by users having emotions that are measured or otherwise known at calibration time.

2.1.Types Of Emotion Sensor
a)For Hand:
    1) Emotion Mouse
    2) Sentic Mouse
b)For Eyes:
    1) Expression Glasses
    2) Magic Pointing
    3) Eye Tracking

c)For Voice:
    1) Artificial Intelligence Speech Recognition

a).For Hand
1) Emotion Mouse
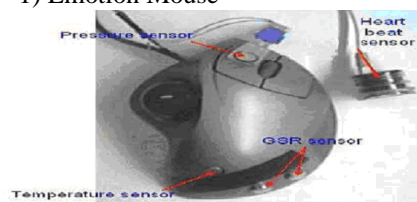
Fig.2 Emotional Mouse

One goal of human computer interaction (HCI) is to make an daptive, smart computer system. This type of project could possibly include gesture recognition, facial recognition, eye tracking, speech recognition, etc. Another non-invasive way to obtain information about a person is through touch. People use their computers to obtain, store and manipulate data using their computer. In order to start creating smart computers, the computer must start gaining information about the user. Our proposed method for gaining user information through touch is via a computer input device, the mouse.
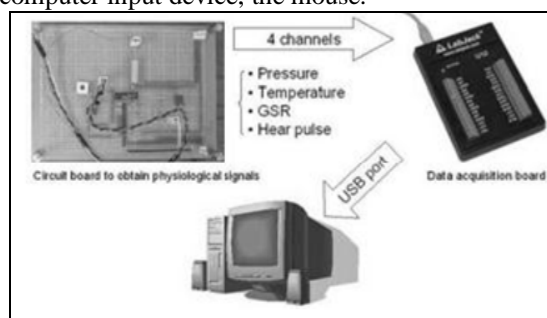
Fig. 3 System configuration for Emotional Mouse

The scope of the project is to have the computer adapt to the user in order to create a better working environment where the user is more productive.

2)Sentic Mouse

The Sentic Mouse is an experiment inspired by the work of Peter J. Lang, Ward Winton, Lois Putnam, Robert Kraus and Dr. Manfred Clynes, that provides a first step toward designing a tool to measure a subject's emotional valence response. The goal of the experiment is to begin to apply quantifying values to emotions and ultimately to build a predictive model for emotion theory. Peter J. Lang and others showed subjects a series of pictures and asked them to self-rate their emotional response. Dr. Manfred Clynes conducted a series of sentic experiments, gathering data from the vertical and horizontal components of

Fig.4   Sentic Mouse

finger pressure. Under the auspices of the Affective Computing research group, these three models were applied to the interaction between humans and computers. Using a computer to provide the affective stimulus to the human subject, an

experiment was conducted which combined all three emotion studies. An ordinary computer mouse was augmented with a pressure sensor to collect sentic data as in Dr. Clynes experiments.The three measured results: sentic data, heart rate, and self-assessment, were then readily compared against each other as well as against the theoretically predicted results to assess the subject's emotional valence for each slide.

For Eyes

 1)Expression Glasses

Expression Glasses provide a wearable "appliance-based" alternative to general-purpose machine vision face

recognition systems. The glasses sense facial muscle movements, and use pattern recognition to identify

meaningful expressions such as confusion or interest.

Fig.5 Expression Glasses

2)Manual and Gaze Input Cascaded (Magic) Pointing

We propose an alternative approach, dubbed MAGIC (Manual And Gaze Input C) as caded pointing. With such an approach, pointing appears to the user to be a manual task, used for fine manipulation and selection. However, a large portion of the cursor movement is eliminated by warping the cursor to the eye gaze area, which encompasses the target. Two specific MAGIC pointing techniques, one conservative and one liberal, were designed, analyzed, and implemented with an eye tracker we developed. They were then tested in a pilot study.

The user can then take control of the cursor by hand near (or on) the target, or ignore it and search for the next target. Operationally, a new object is defined by sufficient distance (e.g., 120 pixels) from the current cursor position, unless the cursor is in a controlled motion by hand. Since there is a 120-pixel threshold, the cursor will not be warped when the user does continuous manipulation such as drawing. Note that this MAGIC pointing technique is different from traditional eye gaze control, where the user uses his eye to point at targets either without a cursor or with a cursor that constantly follows the jittery eye gaze motion. Once the manual input device has been actuated, the cursor is warped to the gaze area reported by the eye tracker. This area should be on or in the vicinity of the target.
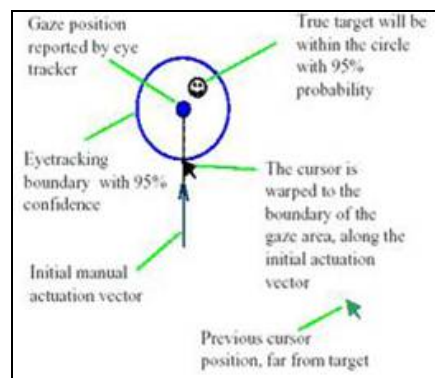
Fig.6 The conservative MAGIC pointing technique with "intelligent offset"

Both the liberal and the conservative MAGIC pointing techniques offer the following potential advantages

1. Reduction of manual stress and fatigue, since the cross screen long-distance cursor movement is eliminated from manual control.
2. Practical accuracy level. In comparison to traditional pure gaze pointing whose accuracy is fundamentally limited by the nature of eye movement, the MAGIC pointing techniques let the hand complete the pointing task, so they can be as accurate as any other manual input techniques.
3. A more natural mental model for the user. The user does not have to be aware of the role of the eye gaze.
4. Speed. Since the need for large magnitude pointing operations is less than with pure manual cursor control, it is possible that MAGIC pointing will be faster than pure manual pointing.

 3) The Ibm Almaden Eye Tracker

Since the goal of this work is to explore MAGIC pointing as a user interface technique,

Bright (left) and dark (right) pupil images resulting from on- and off-axis illumination. The glints, or corneal reflections, from the on- and off-axis light sources can be easily identified as the bright points in the iris.

When the light source is placed on-axis with the camera optical axis, the camera is able to detect the light reflected from the interior of the eye, and the image of the pupil appears bright . This effect is often seen as the red-eye in flash photographs when the flash is close to the camera lens. Bright (left) and dark (right) pupil images resulting from on- and off-axis illumination. The glints, or corneal reflections,

from the on- and off-axis light sources can be easily identified as the bright points in the iris. The Almaden system uses two near infrared (IR) time multiplexed light sources, composed of two sets of IR LED's, which were synchronized with the camera frame rate. One light source is placed very close to the camera's optical axis and is synchronized with the even frames. Odd frames are synchronized with the second light source, positioned off axis. The two light sources are calibrated to provide approximately equivalent whole-scene illumination.

3.ARTIFICIAL INTELLIGENT SPEECH RECOGNITION

It is important to consider the environment in which the speech recognition system has to work. The grammar used by the speaker and accepted by the system, noise level, noise type, position of the microphone, and speed and manner of the user's speech are some factors that may affect the quality of speech recognition .When you dial the telephone number of a big company, you are likely to hear the sonorous voice of a cultured lady who responds to your call with great courtesy saying "Welcome to company X. Please give me the extension number you want". You pronounce the extension number, your name, and the name of person you want to contact. If the called person accepts the call, the connection is given quickly. This is artificial intelligence where an automatic call-handling system is used without employing any telephone operator.

THE TECHNOLOGY

Artificial intelligence (AI) involves two basic ideas. First, it involves studying the thought processes of human beings. Second, it deals with representing those processes via machines (like computers, robots, etc). AI is behavior of a machine, which, if performed by a human being, would be called intelligent. It makes machines smarter and more useful, and is less expensive than natural intelligence. Natural language processing (NLP) refers to artificial intelligence methods of communicating with a computer in a natural language like English. The main objective of a NLP program is to understand input and initiate action. The input words are scanned and matched against internally stored known words. Identification of a key word causes some action to be taken. In this way, one can communicate with the computer in one's language. No special commands or computer language are required. There is no need to enter programs in a special language for creating software.

.4 APPLICATIONS

1) One of the main benefits of speech recognition system is that it lets user do other works simultaneously. The user can concentrate on observation and manual operations, and still control the machinery by voice input commands. Another major application of speech processing is in military operations. Voice control of weapons is an example. With reliable speech recognition equipment, pilots can give commands and information to the computers by simply speaking into their microphones—they don't have to use their hands for this purpose.

2) Another good example is a radiologist scanning hundreds of X-rays, ultra sonograms, CT scans and simultaneously dictating conclusions to a speech recognition system connected to word processors. The radiologist can focus his attention on the images rather than writing the text.

3) Voice recognition could also be used on computers for making airline and hotel reservations. A user requires simply stating his needs, to make reservation, cancel a reservation, or making enquiries about schedule.

4) Prevention from dangerous incidents

5) Minimization of ecological consequences financial loss a threat to a human life

6) BlueEyes system provides technical means for monitoring and recording human-operator's physiological condition. The key features of the system are:

7) Visual attention monitoring (eye motility analysis)

8) Physiological condition monitoring (pulse rate, blood oxygenation)

9) Operator's position detection (standing, lying)

10) Wireless data acquisition using Bluetooth technology

11) Real-time user-defined alarm triggering

12) Physiological data, operator's voice and overall view of the control room recording

THE SIMPLE USER INTEREST TRACKER (SUITOR)

Computers would have been much more powerful, had they gained perceptual and sensory abilities of the living beings on the earth. What needs to be developed is an intimate relationship between the computer and the humans. And the Simple User Interest Tracker (SUITOR) is a revolutionary approach in this direction. By observing the Webpage at netizen is browsing, the SUITOR can help by fetching more information at his desktop. By simply noticing where the user's eyes focus on the computer screen, the SUITOR can be more precise in determining his topic of interest. It can even deliver relevant information to a handheld device. The success lies in how much the suitor can be intimate to the user. IBM's Blue Eyes research project began with a simple question, according to Myron Flickner, a manager in Almaden's USER group: Can we exploit nonverbal cues to create more effective user interfaces? One such cue is gaze the direction in which a person is looking. Flickner and his colleagues have created some new techniques for tracking a person's eyes and have incorporated this gaze-tracking technology into two prototypes. One, called SUITOR (Simple User Interest Tracker), fills a scrolling ticker on a computer screen with information related to the user's current task. SUITOR knows where you are looking, what applications you are running, and what Web pages you may be browsing. "If I'm reading a Web page about IBM, for instance," says Paul Maglio, the

Almaden cognitive scientist who invented SUITOR, "the system presents the latest stock price or business news stories that could affect IBM. If I read the headline off the ticker, it pops up the story in a browser window. If I start to read the story, it adds related stories to the ticker.

That's the whole idea of an attentive system—one that attends to what you are doing, typing, reading, so that it can attend to your information needs."

6. CONCLUSION

The BLUE EYES technology ensures a convenient way of simplifying the life by providing more delicate and user friendly facilities in computing devices. Now that we have proven the method, the next step is to improve the hardware. Instead of using cumbersome modules to gather information about the user, it will be better to use smaller and less intrusive units. The day is not far when this technology will push its way into your house hold, making you more lazy. It may even reach your hand held mobile device. Any way this is only a technological forecast.

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A REVIEW: MOBILE AD HOC NETWORKS

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ABSTRACT: *Mobile means moving and ad hoc means temporary without any fixed infrastructure so mobile ad hoc networks are kind of temporary networks in which nodes are moving without any fixed infrastructure or centralized administration[1].Mobile Ad Hoc Networks(MANETs) are fundamental element of pervasive networks, where user communicate anywhere, any time and on fly. MANETs introduce a new communication paradigm, which does not require a fixed infrastructure they rely on wireless terminals for routing and transport services .Routing in Mobile Ad-hoc Networks is a challenging task due to its frequent changes in topologies. In this paper authors review routing protocol, challenges and security of ad-hoc networks. Mobile ad hoc networking is one of the most important and essential technologies that support future computing scheme. The characteristics of MANET bring this technology as a great opportunity together with many challenges.*

KEYWORDS –Characteristics, Challenges, Routing protocols, Mobile Ad-hoc Networks,
Security.

I. INTRODUCTION

A mobile computing and communication device (e.g., cell phones, laptops, handheld digital devices, personal digital assistants) is driving a revolutionary change in our information society. We are moving from the traditional wired communications to wireless communications. Wireless networks consist of a number of nodes which communicate with each other over a wireless channel. There are currently two variations of mobile wireless networks: infrastructure and infrastructure less networks. The infrastructure networks, in which mobile devices communicate with base stations that are connected to fixed network infrastructure. Each node in the infrastructure networks is within the range of a fixed access point like base station. Applications of this type include mobile phone and wireless local area networks.

The other type of wireless network, infrastructure less networks, is knows as Mobile Ad-hoc Networks (MANET)[2]. Mobile ad-hoc network is a collection of wireless mobile host without fixed infrastructure and centralized administration (figure1).Communication in MANET is done via multi hope paths. These networks have no fixed

access points while every node could be host or router. All nodes are capable of movement and can be connected dynamically in arbitrary manner. These networks are self-configurable and autonomous systems consisting of routers and hosts. MANET require an extremely flexible technology for establishing communications in situations which demand a fully decentralized network without any fixed base stations, such as battlefields during wars, military applications, and other emergency search and rescue situations at the time of disasters. MANETs lack central administration and prior organization, so the security issues are different and thus requires different security mechanisms than in conventional networks. Wireless links in MANETs make them more prone to attacks. It is easier for hackers to attack these networks easily and thus gain access to confidential information. They can also directly attack the network to delete messages, add malicious messages, or masquerade as a node. This violates the network goals of availability, integrity, confidentiality, authenticity and authorization. Routing in ad-hoc networks faces additional problems and challenges.
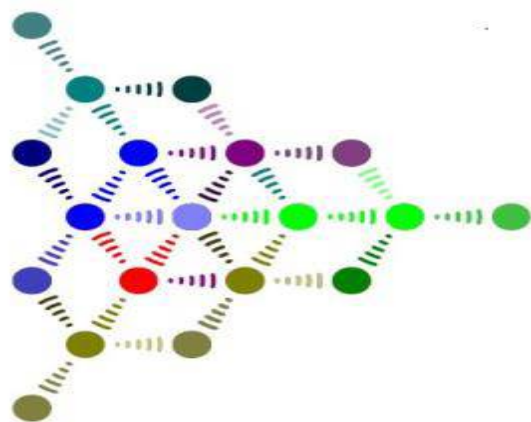
Figure 1: A mobile Ad Hoc Network

II. CHARACTERSTICS AND APPLICATION

A. MANET has the following characteristics

1) Autonomous behaviour - In MANET, each node acts as both host and router[9]. It means that a node has ability of host and can also perform switching functions as router so endpoints and switches are indistinguishable.

2) Multi-hop transmission - When a source node and destination node for a message is out of the transmission range, the MANETs are capable of multi-hop transmission. When delivering data packets from a source to its destination out of the direct wireless transmission range, the packets have to be forwarded through one or more intermediate nodes.

3) Distributed nature of operation - As a centralized control is absent here, the control and operation of the network is distributed among the nodes. The nodes should collaborate to implement many functions mainly security and routing.

4) Dynamically changing topology - Due to mobile nodes, the change in topology is frequent and dynamic in nature[9]. The connectivity among the nodes may vary with time and dynamically establish routing among them as they move about.

5) Inferior link capacity - The reliability, scalability, efficiency and capacity of wireless links are often inferior when compared with wired links. One end to end path can be shared by several sessions. The terminals communicate through which channel is subject to noise, fading, interference and has less bandwidth than a wired network. This shows the fluctuating link bandwidth of wireless links.

6) Symmetric environment - All nodes have identical features with similar responsibilities and capabilities. Every node can function as a router or host and hence it forms completely symmetric environment.

7) Light weight features - MANET nodes are mobile devices with less CPU processing capability, small memory size, and low power storage.

8) Absence of Infrastructure - Ad-hoc networks are supposed to operate independently of any fixed infrastructure.

B. Typical applications include

1) Military battlefield- Military equipment now routinely contains some sort of computer equipment. Through ad-hoc networking, the military could take the advantage of commonplace network technology to maintain an information network among the vehicles, soldiers and military head quarters. Basically the techniques of ad-hoc networks came from this field.

2) Commercial sector- Ad hoc can be used in emergency/rescue operations for natural calamities relief efforts, e.g. in fire, flood, or earthquake. Rescue operations must take place where non-existing or damaged communications infrastructure and rapid deployment of a communication network is needed. Information is delivered from one rescue team member to another.

3) Local level- Ad hoc networks can autonomously link an instant and temporary multimedia network using notebook computers or palmtop computers to spread and share information among participants at a conference. Another appropriate local level

application might be in home networks where devices can communicate directly to exchange information

4) Personal Area Network (PAN)- Short-range MANET can simplify the intercommunication between various mobile devices (such as a mobile phone, laptops, and wearable computers)[7]. Traditional wired cables are replaced with wireless connections. MANET can also extend to access the Internet or other networks by mechanisms e.g. Wireless LAN.

5) Education- Universities and campus settings, Virtual classrooms, Ad hoc communications during meetings or lectures.

6) Emergency Services- These arise as a result of natural disasters when the entire communications infrastructure is in disarray (for example, Tsunamis, hurricanes, earthquake etc.)

III. ROUTING PROTOCOLS

Routing protocols define a set of rules which governs the journey of message packets from source to destination in a network[4]. In MANET, there are different types of routing protocols each of them is applied according to the network circumstances. Figure 1 shows the basic classification of the routing protocols in MANETs.
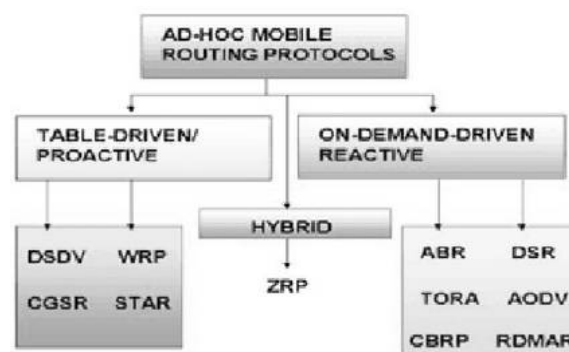
Figure1 Classification of Routing Protocols

A. Proactive Routing Protocols:- Proactive routing protocols are also called as table driven routing protocols. In this each node maintain routing table which contains information about the network topology even without requiring it. The routing tables are updated periodically whenever the network topology changes[12]. Proactive protocols are not appropriate for large networks as they need to maintain node entries for each and every node in the routing table of every node.There are various proactive routing protocols. Example: DSDV, OLSR, WRP etc.

B. Reactive Routing Protocols :-Reactive routing protocol is also known as on demand routing protocol. In this type of protocol, route is discovered whenever it is needed. Nodes initiate route discovery when demanded. A route is acquired by the initiation of a route discovery process by the source node.

Routing protocol have two major components:

1) Route discovery- In this phase source node initiates route discovery on demand basis. Source nodes consults its route cache for the available route from source to destination otherwise if the route is

not present it initiates route discovery. The packet of the source node includes the address of the destination node as well address of the intermediate nodes to the destination.

2) Route maintenance- Due to dynamic topology of the network cases of the route failure between the nodes arises due to link breakage etc, so route maintenance is required. Reactive protocols have acknowledgement mechanism due to which route maintenance is possible. There are various reactive routing protocols. Example: DSR, AODV, TORA and LMR.

C. Hybrid Routing Protocol- This type of protocol is a trade-off between proactive and reactive protocols. Proactive protocols have more overhead and less latency while reactive protocols have less overhead and more latency[4]. Thus a Hybrid protocol is needed to overcome the shortcomings of both proactive and reactive routing protocols. This protocol is a combination of both proactive and reactive routing protocol. It uses the on demand mechanism of reactive protocol and the table maintenance mechanism of proactive protocol so as to avoid latency and overhead problems in the network. Hybrid protocol is appropriate for large networks where large numbers of nodes are present. In this, large network is divided into a set of zones where routing inside the zone is done by using proactive approach and outside the zone routing is done using reactive approach. There are various hybrid routing protocols for MANET like ZRP, SHRP etc.

D. Comparison of Protocols[15] -

Protocol	Advantage	Disadvantage
Proactive	Information is always available. Latency is reduced in the network	Overhead is high, routing information is flooded in the whole network
Reactive	Path available when needed overhead is low and free from loops	Latency is increased in the Network
Hybrid	Suitable for large networks and up to date information Available.	Complexity increases

IV. CHALLENGES

Regardless of many characteristics, the MANET introduces several challenges that must be studied carefully. These are following:

A. Routing Due to the constantly changing topology in ad-hoc networks, routing the packets between any pair of nodes becomes a challenging task. Most of the protocols based on reactive routing instead of proactive routing. Multi cast routing is another challenge as the multi cast tree is not static due to the random movement of nodes within the network[7]. Routes between the nodes may have multiple hops, which is more complex than the single hop communication.

B. Security and Reliability Ad hoc networks have security problems e.g. nasty neighbour relaying

packets[3]. The feature of distributed operation requires different schemes of authentication. Further, wireless link features also introduce reliability problems, because of the limited transmission range, the broadcast nature of the wireless medium (e.g. hidden terminal problem), mobility induced packet losses, and data transmission errors.

C. Quality of Service Providing different quality of service levels in a constantly changing environment will be a challenge. The inherent stochastic characteristic of communications quality in a MANET makes it difficult to offer fixed guarantees on the services offered to a device. An adaptive Quality of Service must be implemented over the traditional resource reservation to support the multimedia services.

D. Inter-networking In addition to the communication within an ad hoc network, inter-networking between MANET and infrastructure networks (mainly IP based) is often expected in many cases. The routing protocols coexistence in such a mobile device is a challenge for mobility management[3].

E. Power Consumption For most of the light-weight mobile devices, the communication-related functions should be optimized for lean power consumption. Power conservation and power-aware routing must be considered.

F. Multicast-Multicast is desirable to support multiparty wireless communications[8]. As the multicast tree is not static, the routing protocol must be able to cope with mobility including multicast membership dynamics (leave and join).

V. SECURITY

A. Security Criteria

1) Availability- The term Availability means that a node should maintain its ability to provide all the designed services regardless of its security state. This security criterion is violated mainly during the denial-of-service attacks, in which nodes in the network can be the attack target and thus some selfish nodes make some of the network services unavailable.

2) Confidentiality- means that certain information is only accessible to those who have been authorized to access it. In other words, in order to maintain the confidentiality of some confidential information, we need to keep them secret from all entities that are not authorized to access them[10].

3) Integrity- Message being transmitted is never corrupted. Integrity can be compromised mainly in two ways[5]: Malicious altering Accidental altering when the message is removed, repeated by an attacker with malicious goal, it is called as malicious altering; on the other hand, if the message is lost or its content is changed due to some benign failures, which may be transmission errors in communication or hardware errors such as hard disk failure, then it is categorized as accidental altering.

4) Authentication- Ensures that participants in communication are genuine and not impersonators. It is necessary for the communication entities to prove their identities as what they have claimed using some

techniques. If there is not such an authentication mechanism, the attacker could act as a benign node and thus get access to confidential information, or even insert some fake messages to disturb the normal network operations.

5) Non-repudiation- Ensures that the sender and the receiver of a message cannot deny that they have ever sent or received a message[11]. This is useful when we need to discriminate if a node with some abnormal behaviour is compromised or not: if a node recognizes that it has received an erroneous message, it can then use that message as an evidence to notify other nodes that the node sending out the improper message should have been compromised.

6) Authorization- No one else can pretend to be another authorized member to learn any useful information. It is generally used to assign different access rights to different level of users.

7) Attacks using fabrication- Generation of false routing messages is termed as fabrication[6]. Such types of attacks are difficult to detect.

B. Attacks on MANET

There are various kinds of attacks on ad hoc network which are following:

1) Location Disclosure- Location disclosure is an attack that targets the privacy requirements of an ad hoc network[5]. By using traffic analysis techniques, simpler probing and monitoring approaches, an attacker is able to detect the location of a node, or the structure of the whole network.

2) Black Hole- In a black hole attack a malicious node injects false route replies to the route requests, announcing it as having the shortest path to a destination[13]. These fake replies can be fabricated to divert network traffic through the malicious node for simply to attract all traffic towards it in order to perform a denial of service attack by discarding the received packets.

3) Replay- A replay attack is one of the attacks that degrade severely the performance of MANET. A replay attacker does this attack by interception and retransmission of the valid signed messages. The validation of signed messages is verified by a timestamp discrepancy fixed by sender and receiver nodes. This attack usually attack on the freshness of routes[6].

4) Wormhole- The wormhole attack is one of the most powerful presented here since it involves the cooperation between two malicious nodes that participate in the network. One attacker, e.g. node A, captures routing traffic at one point of the network and tunnels them to another point in the network, to node B, for example, that shares a private communication link with A[6]. Node B then selectively injects tunnelled traffic back into the network. The connection between the nodes that have established routes over the wormhole link is completely under the control of the two conspiring attackers. The packet leashes is the solution to this attack.

5) Blackmail- This attack is relevant against routing protocols that use mechanisms for the identification of malicious nodes and propagate messages that try to blacklist the attacker. An attacker may construct such reporting messages and try to isolate legitimate nodes from the network. The non-repudiation security criteria can prove to be useful in such cases since it binds a node to the messages it generated.

6) Denial of Service- Denial of service attacks aim at the complete disruption of the routing function and therefore the entire operation of the ad hoc network. In a routing table overflow attack the malicious node floods the network with bogus route creation packets in order to consume the resources of the participating nodes and disrupt the establishment of legal routes.

7) Routing Table Poisoning- Routing protocols maintain tables that hold information regarding routes of the network. In this type of attacks, the malicious nodes generate and send fabricated signalling traffic, or modify legitimate messages from other nodes, in order to add false entries in the tables of the participating nodes. For example, an attacker can send routing updates that do not correspond to actual changes in the topology of the ad hoc network. Routing table poisoning attacks can have non-optimal routes, routing loops, bottlenecks, and even portioning certain parts of the network[16].

8) Breaking the neighbour relationship- An intelligent filter is placed by an intruder on a communication link between two ISS(Information system) could modify or change information in the routing updates or even intercept traffic belonging to any data session.

9) Impersonation- Impersonation attack is a severe threat to the security of mobile ad hoc network. As we can see, if there is not such a proper authentication mechanism among the nodes, the attacker can capture some nodes in the network and make them look like friendly nodes. Thus, the compromised nodes can join the network as the normal nodes and begin to conduct the malicious behaviour such as propagate fake routing information and gain inappropriate priority to access some confidential information.

10) Eavesdropping- It is another kind of attack that usually happens in the mobile ad hoc networks. Eavesdropping means to obtain some confidential information that should be kept secret during the communication. The confidential information may include the public key, private key, location and passwords of the nodes.

VI. CONCLUSION

In this paper, Authors discuss the infrastructure less Mobile Ad-hoc networks. Firstly, the brief introduction was discussed, including the basic idea of MANET. Then the characteristics and applications of MANET with their protocols. Then describe the challenges of MANET, through which we can know the issues in MANET which lead to some problems in these type of networks. Finally, security of MANET is discussed having the brief description of security criteria and then the attacks on MANET. The solutions to these issues are necessary to fulfil the

requirement of wide commercial deployment of MANET.

Mobile ad hoc networking is one of the most important and essential technologies that support future computing scheme. The characteristics of

MANET bring this technology as a great opportunity together with many challenges. MANETs can be exploited in a wide area of applications like military, battlefields, emergency search and rescue, law enforcement, commercial, local and personal contexts. The most important thing for the networks is security. It is also important for Wireless Ad hoc Networks because its applications are in military.

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IMAGE ENHANCEMENT USING HISTOGRAM EQUALIZATION ON GRAY SCALE IMAGE AND DIFFERENT COLOR SPACE IMAGE: A REVIEW

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ABSTRACT : *This paper describes or reviews of Histogram Equalization. Image enhancement is one of the important requirements in digital Image Processing which is important in making an image useful for various applications like Digital Photography, Medicine etc. Image Enhancement is used to improve the quality of poor images. Histogram Equalization is a contrast enhancement technique in the image processing which uses the histogram of image. However histogram equalization is not the best method for contrast enhancement because the mean brightness of the output image is significantly different from the input image. There are several extensions of histogram equalization has been proposed to overcome the brightness preservation challenge. In this paper we are applying Histogram Equalization on gray scale and color image with different color space like RGB, YIQ.*

KEYWORDS- *Histogram Equalization, Brightness Preservation, Contrast Enhancement, RGB, YIQ.*

I. INTRODUCTION

Contrast enhancement is an important area in the field of digital image processing for human visual perception and computer vision. It is extensively used for medical image processing and as a preprocessing step in speech recognition, texture synthesis, and many other image/video processing applications. There are many different methods have been developed for image contrast enhancement. Here we discussed some popular image contrast enhancement method for brightness preservation.

Contrast Enhancement is a specific characteristics enhancement in the image enhancement processing. In which histogram equalization (HE) is the one of the popular method of image contrast enhancement. The histogram of the discrete gray-level image represent the frequency of occurrence of all gray-levels in the image.

A. HISTOGRAM EQUALIZATION

Histogram equalization is a technique for adjusting image intensities to enhance contrast. Histogram Equalization is a technique that generates a gray map which changes the histogram of an image and redistributing all pixels values to be as close as possible to a user –specified desired histogram. HE

allows for areas of lower local contrast to gain a higher contrast. Histogram equalization automatically determines a transformation function seeking to produce an output image with a uniform Histogram. Histogram equalization is a method in image processing of contrast adjustment using the image histogram. This method usually increases the global contrast of many images, especially when the usable data of the image is represented by close contrast values. Through this adjustment, the intensities can be better distributed on the histogram. Histogram equalization accomplishes this by effectively spreading out the most frequent intensity values. Histogram equalization automatically determines a transformation function seeking to produce an output image with a uniform Histogram. Histogram equalization usually increases the global contrast of the processing image. This method is useful for the images which are bright or dark. An image histogram is a type of histogram that acts as a graphical representation of the tonal distribution in a digital image. It plots the number of pixels for each tonal value. By looking at the histogram for a specific image a viewer will be able to judge the entire tonal distribution at a glance.

Image histograms are present on many modern digital cameras. Photographers can use them as an aid to show the distribution of tones captured, and whether image detail has been lost to blown-out highlights or blacked-out shadows. This is less useful when using a raw image format, as the dynamic range of the displayed image may only be an approximation to that in the raw file.

The horizontal axis of the graph represents the tonal variations, while the vertical axis represents the number of pixels in that particular tone. The left side of the horizontal axis represents the black and dark areas, the middle represents medium grey and the right hand side represents light and pure white areas. The vertical axis represents the size of the area that is captured in each one of these zones. Thus, the histogram for a very dark image will have the majority of its data points on the left side and center of the graph. Conversely, the histogram for a very bright image with few dark areas and/or shadows

will have most of its data points on the right side and center of the graph.

Some Features Of Histogram Equalization Are As Follows:

• Histogram equalization is a point process

• Histogram equalization causes a histogram with closely grouped values to spread out into a flat or equalized histogram.

• Spreading or flattening the histogram makes the dark pixels appear darker and the light pixels appear lighter.

• Histogram equalization does not operate on the histogram itself but uses the results of one histogram to transform the original image into an image that will have equalized histogram.

• Histogram equalization do not introduce new intensities in the image. Existing values will be mapped to new values keeping actual number of intensities in the resulting image equal or less than the original number of intensities.

HISTOGRAMS

A histogram is a graph. A graph that shows frequency of anything. Usually histograms have bars that represent frequency of occurring of data in the whole data set.

A Histogram has two axis the x axis and the y axis.

The x axis contains event whose frequency you have to count.

The y axis contains frequency.

The different heights of bar shows different frequency of occurrence of data.
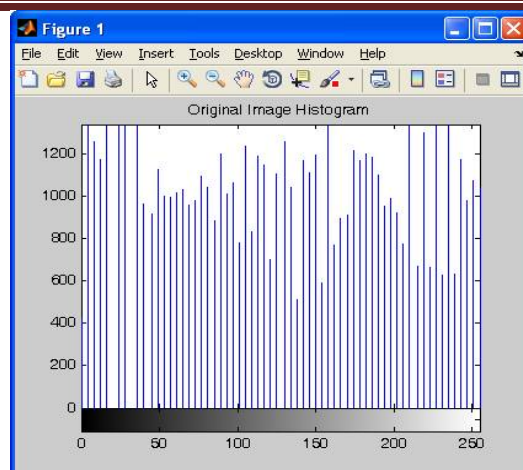
Fig. a) Original Image b) Original image Histogram

B. BRIGHTNESS PRESERVATION

Brightness is a relative term. It depends on your visual perception. Since brightness is a relative term, so brightness can be defined as the amount of energy output by a source of light relative to the source we are comparing it to. In some cases we can easily say that the image is bright, and in some cases, its not easy to perceive.

The Brightness preserving bi histogram equalization firstly decomposes an input image into two sub images based on the mean of the input image. One of the sub image is set of samples less than or equal to the mean whereas the other one is the set of samples greater than the mean. Then the equalizes the sub images independently based on their respective histograms with the constraint that the samples in the formal set are mapped into the range from the minimum gray level to the input mean and the samples in the latter set are mapped into the range from the mean t the maximum gray level. Means one of the sub image is equalized over the range up to the mean and the other sub image is equalized over the range. From the mean based on the respective histograms .Thus, the resulting equalized sub images are bounded by each other around the input mean ,which has an effect of preserving mean brightness.
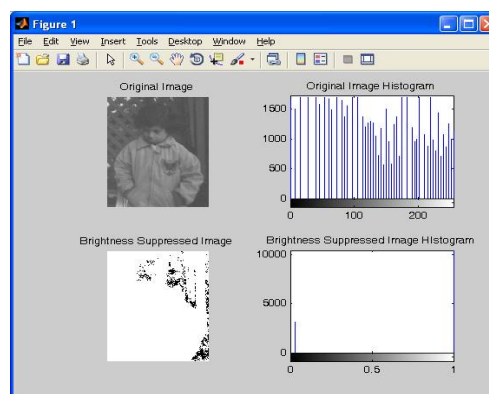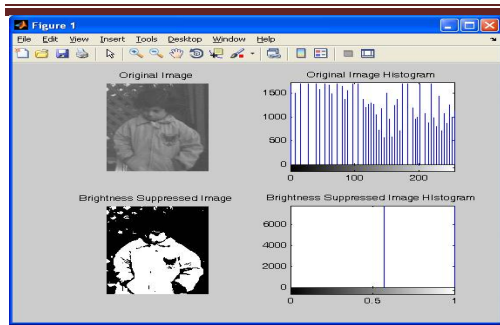
Fig Decrease Brightness

Fig Increase Brightness

A. CONTRAST ENHANCEMENT

Contrast can be simply explained as the difference between maximum and minimum pixel intensity in an image.
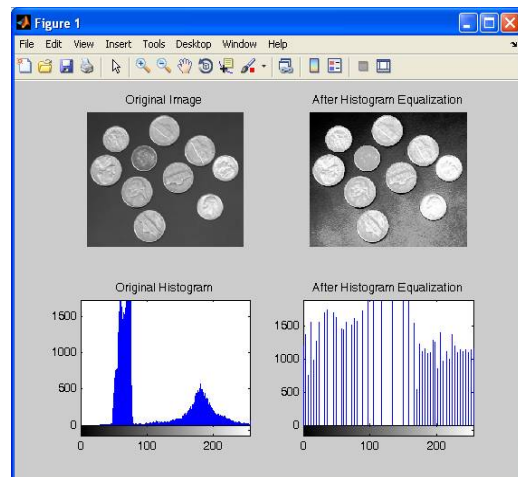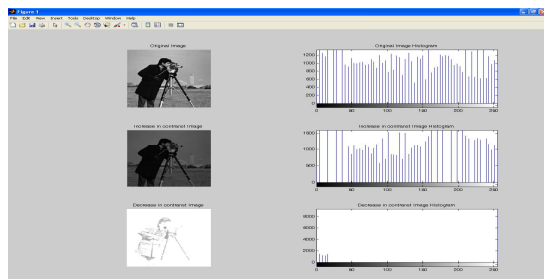
Fig. a) Original image b) Original Image Histogram c) High Contrast d) High Contrast image Histogram e) Low contrast f) Low Contrast image Histogram.

The matrix of this image is:

100	100	100	100	100
100	100	100	100	100
100	100	100	100	100
100	100	100	100	100
100	100	100	100	100

The maximum value in this matrix is 100.
The minimum value in this matrix is 100.

Contrast = maximum pixel intensity (subtracted by)
minimum pixel intensity
= 100 (subtracted by) 100
= 0
0 means that this image has 0 contrasts

a) png Image

b) png Image
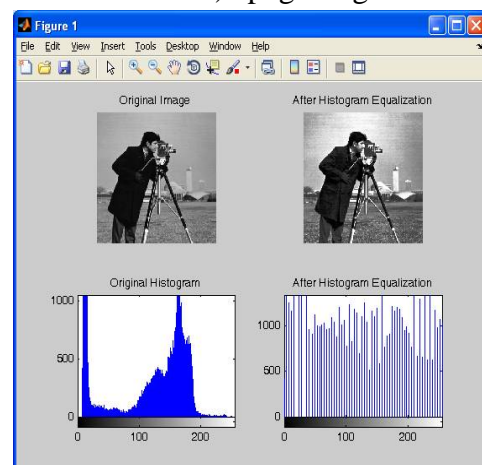
c) Tif image

The above describe the histogram equalization different Format on gray scale image. However it can also be used on color image by

applying the same method separately to the Red, Green and Blue Component of the RGB color image

Histogram Equalization can be considered as redistribution of intensity of the image. Color histogram equalization can be achieved by converting a color image into HSV/HIS image and enhancing the intensity while preserving hue and saturation components.

The RGB image matrix is converted into HIS(Hue, Saturation and intensity) format and histogram equalization is applied only on the intensity matrix remains the same. The updated HIS image matrix is converted back to RGB image matrix. Obtain the histogram of each component (Red, Green, and Blue) independently.define the colormap with three colors red, green ,blue and display the histogram of the components before and after histogram equalization.

HISTOGRAM EQUALIZATION ON COLOR IMAGE:

A. Equalize R,G,B Components independently

This scheme is one of the mostly used methods for color image processing.each channels of RGB Space are processed using histogram equalization independently. After the Equalize the R,G,B components we concate all the three components & get the better image compare to input image .

B. Equalize the Y Components from YIQ color Space.

In order to process color image in RGB color space ,using this scheme the image first must be transformed to YIQ color space. The Y- component represents the luma information and is the only component used by Black-and-white television receives. I- stands for in-phase.

Q-stands for quadrature. I & Q represent the chrominance information.In this method we apply the Histogram equalization on Y-component on YIQ color space After the equalize the Y ,we combine the Y with I & Q .Then we get the better image compare to input image.
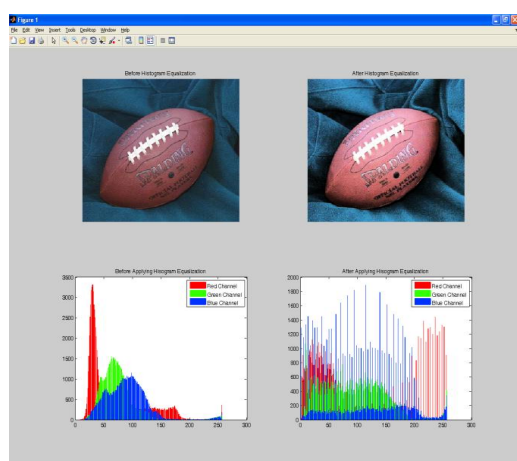
a) jpg image
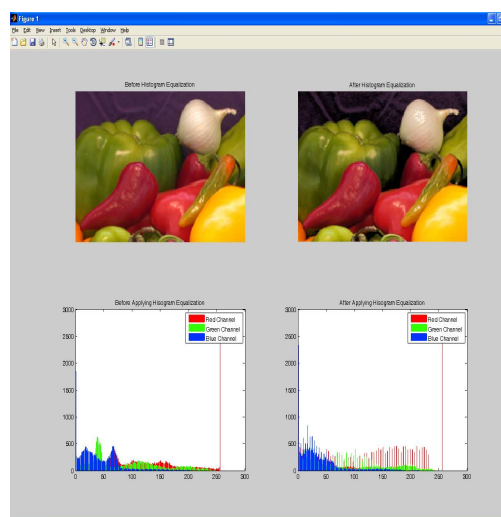
b) png image

II. CONCLUSION

We can clearly see from the image that new contrast image has been enhanced & its histogram has been equalized. There is also one important thing to be note here that during histogram equalization the overall shape of the histogram changes,where as in histogram stretching the overall shape of histogram remains same. It is clear from the histogram of the new image that all the pixel values has been shifted towards right & thus, it can be verified from the image that new image is darker & the original image look brighter as compare to this new image. Also to conclude this paper,we clearly see histograms which is the best tool to understand the distribution of on image intensities.

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A STUDY AND ANALYSIS ON COMPUTER NETWORK TOPOLOGY FOR DATA COMMUNICATION

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***ABSTRACT:** In recent days for computing, distributed computer systems have become very important and popular issue. It delivers high end performance at a low cost. Autonomous computers are connected by means of a communication network in a distributed computing environment which is arranged in a geometrical shape called network topology. There are different types of the topologies like bus, ring, tree, mesh etc.In the present paper a detailed study and analysis on network topologies is presented. Definitions of Physical and Logical Topologies are also provided.*

KEYWORDS: *Physical Network Topology or LogicalNetwork Topology. How topology use.*

INTRODUCTION

Distributed computing systems have become the essential aspect of growing information technology. Theperformance of any distributed system is certainly influenced by the technology, which we adopt in making network interconnections. Network Topology is the study of the arrangement or mapping of the elements (links, nodes, etc.) Of a network interconnection between the nodes.

Topologies can be physical or logical. Physical Topology means the physical design of a network including the devices, location and cable installation. Logical Topology refers to the fact that how data actually transfers in a network as opposed to its design.

I. PHYSICAL NETWORK TOPOLOGY

Physical Network Topology emphasizes the hardware associated with the system including workstations, remote terminals, servers, and the associated wiring between assets. Physical topology defines how the systems are physically connected. It means the arrangement of devices on a computer network through the actual cables that transmit data. There are eight basic topologies. In below each of these topologies are described-

A. Point to Point Topology-

A point to point topology is a direct connection between two devices (nodes); the value of a permanent point-to-point network is unimpeded communications

between the two endpoints. One example of this is a PC connected to a printer. A more common example is a mainframe terminal connected to a mainframe front-end processor.
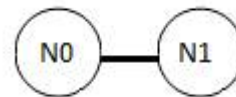
Fig.1 Point-to-Point.

B. Bus Topology-

This structure is very popular for local area networks. In this structure or topology, a single network cable runs in the building or campus and all nodes are linked along with this communication line with two endpoints called the bus or backbone. Reliable in very small networks as well as easy to use and understand. This type of topology is easy to extend. Two cables can be easily joined with a connector, making a longer cable for more computers to join the network. A repeater can also be used to extend a bus configuration. A major disadvantage of this network topology is that if the node addresses matches that contained in the message, the node processes the message. The message is transmitted along the cable and is visible to all devices connected to that cable.
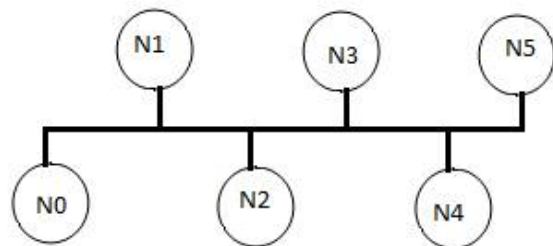
Fig.2 Bus Topology.

C. Ring Topology-

This is yet another structure for local area networks. In this topology, the network cable passes from one node to another until all nodes are

connected in the form of a loop or ring. There is a direct point-to-point link between two neighboring nodes (the Next and the Previous). These links are unidirectional which ensures that transmission by a node traverses the whole ring and comes back to the node Faulty nodes can be isolated from the ring. When the workstation is powered on, it connects itself to the ring. When power is off, it disconnects itself from the ring and allows the information to bypass the node. The most common implementation of this topology is token ring. A break in the ring causes the entire network to fail. Individual nodes can be isolated from the ring. Failure of one computer on the network can affect the whole network.
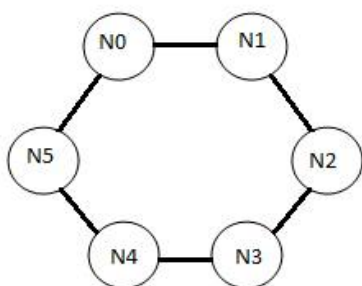
Fig.3 Ring Topology.

D. Mesh Topology-

In this type of topology each device is interconnected with one another, allowing for most transmissions to be distributed even if one of the connections goes down. A major disadvantage is high chances of redundancy in many of the network connections and overall cost is too high compared to any other network topology. A fully connected mesh network therefore has no (n-1) /2 physical channels to link n devices. To accommodate these, every device on the network must have (n-1) input/output ports.
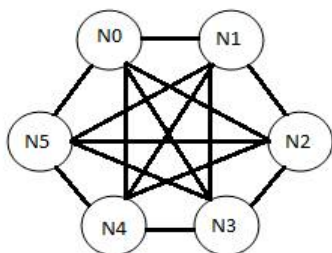
Fig.4 Mesh Topology.

E. Star Topology-

Star topology uses a central hub through which, all components are connected. In a Star topology, the central hub is the host computer, and at the end of each connection is a terminalNodes communicate across the network by passing data through the hub. A star network uses a significant amount of cable as each terminal is wired back to the central hub, even if two terminals are side by side but several hundred meters away from the host. The central hub makes all routing decisions, and all other

workstations can be simple. An advantage of the star topology is that failure, in one of the terminals does not affect any other terminal; however, failure of the central hub affects all terminals. This type of topology is frequently used to connect terminals to a large time-sharing host computer.Many star networks require a device at the central point to rebroadcast or switch the network traffic.
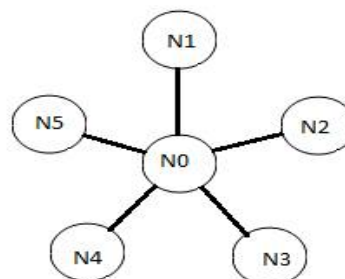
Fig.5 Star Topology.

F. Tree Topology-

Tree Structure suits best when the network is widely spread and vastly divided into many branches. Tree topology is a combination of two or more bus and the Star Topology connected together. Each star network is a local area network (LAN) in which there is a central computer or server to which all the connected nodes directly linked. A major disadvantage is the length of the network depends on the type of cable that is being used and tree topology network is entirely dependent on the trunk which is the main backbone of the network. If that has to fail then the entire network would fail.
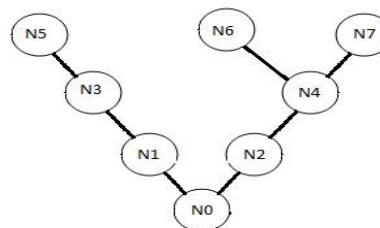
Fig.6 Tree Topology.

G. Hybrid Topology-

A combination of two or more different topologies makes a hybrid topology, Often when the topologies are connected to one another, the layout of the resultant topology is difficult to understand and however the new topology works without any problems. It is a flexible topology, as compared to most other topologies, this topology is reliable and here if there is any problem the whole network will not shut down. But with all these advantages this topology is difficult to manage, expensive to maintain a lot of cabling is needed in this network.
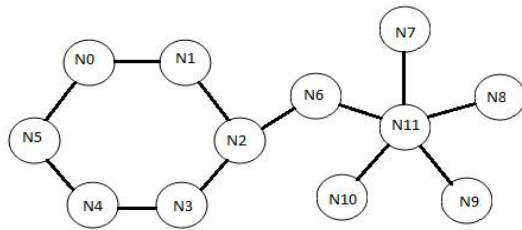
Fig.7 Hybrid Topology.

II LOGICAL NETWORK TOPOLOGY:

Logical Network Topology emphasizes the representation of data flow between nodes. It means logical topology is associated with the arrangement of devices on a computer network and how they communicate with one another. The main role of logical topology is to communicate across the physical topologies among different systems. There are two categories of logical topologies: Shared media topology and token-based topology.

1) Shared Media Topology-

In shared media topology the systems have unrestricted access to the physical media that is all the systems in a network have the ability to access the physical layout whenever they need it. Collision is the main disadvantage of this topology as more than one system send information out on the wire at the same time, the packets collide and as a result this collision kills the packets.

Ethernet is an example of a shared media topology. As a remedy some huge networks are broken down into smaller networks. Some ethernet uses Carrier Sense Multiple Access protocol to reduce the number of collisions.

2) Token Based Topology-

In token based topology a token is used which travels around the network to access the physical media. If any node wants to send a packet to another one it should wait for the token which is traverse within the network either clockwise or anti-clockwise direction.After getting the token a node can send the packet towards the network and all the nodes within the path from sender node to destination node, and all the intermediate nodes should check the destination address, if it matches to anyone it should accept the packet and generate an acknowledgement packet. Acknowledgement packet should follow the reverse path to acknowledge the sender node that the packet is received by the destination node.

CONCLUSION:

In this paper, we have to study the different types of the topologies like Bus Topology, Point-To-Point Topology, Ring Topology, Star Topology, Hybrid Topology, Mesh Topology and Tree Topology. In this paper, we have considered above seven topology uses and its merits and demerits that will study to know that which structure or topology is best for which organization or business. We have to study the topology and finally we have to find the fact that all topologies are alternate options for business like that Bus Topology is useful for small network but it's some demerits so its alternate option is Ring Topology. So finally, we can say that all topologies have some extra and different feature are available from other topology and that features are making it special from other topology.

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IMAGE PROCESSING WITH NEURAL NETWORKS—A REVIEW

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ABSTRACT: *We review several applications of neural networks in image processing and discuss the present and possible future role of neural networks, especially feed-forward neural networks, Kohonen feature maps and Hop1eld neural networks. One dimension specfies the type of task performed by the algorithm: preprocessing, data reduction feature extraction, segmentation, object recognition, image understanding and optimization. The other dimension captures the abstraction level of the input data processed by the algorithm: pixel-level, local feature-level, structure-level, object-level, object-set-level and scene characterization. Each of the six types of tasks poses specific constraints to a neural-based approach. These speci1c conditions are discussed in detail. A synthesis is made of unresolved problems related to the application of pattern recognition techniques in image processing and specifically to the application of neural networks. Finally, we present an outlook into the future application of neural networks and relate them to novel developments*

KEYWORDS- Neural networks, Digital image processing, Image, Bio-inspired neurons, Computational Intelligence, Artificial neural networks (ANNs).

INTRODUCTION:

Image Processing is an area of investigation that uses several techniques and algorithms in order to interpret and understand the information contained in a digital Image. In general, image processing problems are solved by a chain of tasks. This chain, shown in figure 1. Such algorithms may be classified in 6 different types: pre-processing, data compression, segmentation, Feature extraction, classification and optimization. For any of these tasks, it is necessary to interpret information with a Certain amount of uncertainty associated to it, which is Typically done using Artificial Intelligence techniques Such as Fuzzy Logic (FL), Genetic Algorithms (GA) and Artificial Neural Networks (ANN). The interest on ANN has been on the rise due to them being inspired on the Nervous system, their usefulness for solving patterns recognition problems and their parallel architectures.

ANN have been widely used for Image Processing since the 1950s, when the Perception model was first applied to Pattern recognition. Ever since, several

works have been proposed that make use of ANN to solve many different Image Processing tasks. Due to the variety of existing works and algorithms, it has been necessary to study and classify their contributions to the area. This paper tries to focusing mainly on the contributions of the different Types of ANN architectures to the Image Processing area.
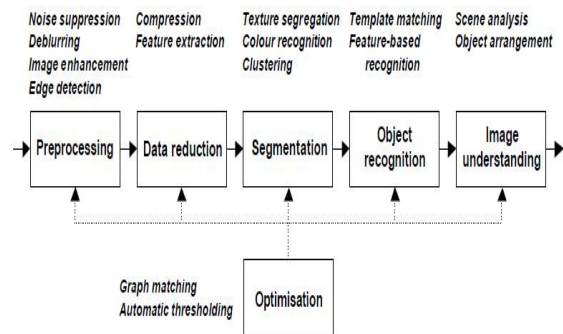
Fig. 1. Tasks carried out image processing.

1.   ANNS FOR IMAGE PROCESSING:

As discussed above, dealing with nonlinearity is still a major problem in image processing. ANNs might be very useful tools for image processing:

• Instead of designing an algorithm, one could construct an example data set and an error criterion, and train ANNs to perform the desired input output mapping;

• The network input can consist of pixels or measurements in images; the output can contain pixels, decisions, labels, etc., as long as these can be coded numerically – no assumptions are made. This means adaptive methods can perform several steps in the image processing chain at once;

• Some types of ANN have been shown to be universal classification or regression techniques (Funahashi, 1989; Hornik et al., 1989). However, it is not to be expected that application of any ANN to any given problem will give satisfactory results. This paper therefore studies the possibilities and limitations of the ANN approach to image processing.

The most common applications found in the literature focus on the following subjects: shape

segmentation in medical images (MI), cell and tissue extraction and recognition in biologic images (BI), biometric patterns and gestures extraction (BM), sensing through images in productive processes and remote sensing (SEN), automotive traffic control and security (TR), letters and characters detection (DC), border detection (ES), texture segmentation (TS), color processing (CS), detection of moving objects (MS), shape segmentation methods in general (SS) and other applications (OT). Each of the analyzed works has been classified according to the category in which it generated the most impact. Figure 2 shows a graph of the resulting number of works for each of the previously described categories. The total number of ANNs does not match with the number of works, since some of them make use of more than one ANN.
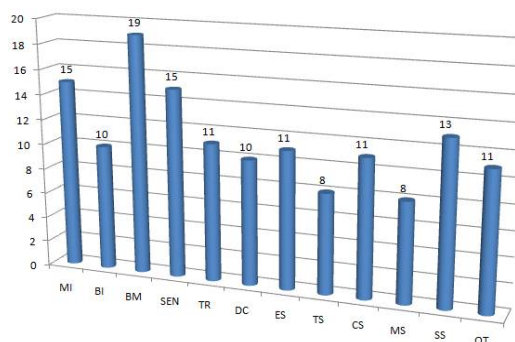
Fig. 2 Graph shows amount of ANNs per application.

2. TYPES OF ANNS:

According to review, various ANN topologies were found. The most frequent ones are described below.

a. Adaptive Resonance Theory (ART)

The basis of this theory is the plasticity-stability dilemmaof the learning process. It is implemented using three architectures: ART1 for binary inputs, ART2 for continuous values and gray scale data and ARTMAP, which consists of three modules: ARTa, ARTb and an additional module to observe if the mappings of the input vectors of each class are correct.

b. Cellular Neural network (CNN)

Based on the Cellular Automata Theory, this type of ANN makes it possible for the neighboring units of the network to interact with each other. Each unit or "cell" is a non-linear dynamic system.

c. Back propagation Neural Networks (BPNN)

These are simple Multilayer Perception (MLP) networksthat use the Back propagation (BP) learning rule.

d. Oscillatory Neural Networks (ONN)

These networks are based on the stimuli with synchronized periodic oscillations that form groups within the visual cortex and may be used to detect features in a certain visual scene. Many different types of ONNs were found in the literature, being the LEGION (Locally Excitatory Globally Inhibitory Oscillator Network) model the most common.

e. Pulse-Coupled Neural Network (PCNN)

This pulsating network was modeled after the visual cortex of some mammals and is mainly used for pre-processing. It was developed by Eckhom and later modified by Rybak and Johnson. The PCNN consists of a neuron per each pixel of the associated image, and its architecture has three main modules: dendrites, linking and pulse generator.

f. Probabilistic Neural Networks (PNN)

Consisting of 4 layers, these networks have been inspired by Bayesian Decision Networks. PNNs estimate a Probability Density Function (PDF) to find the class of a vector. On a related topic, another probabilistic model called Gaussian Mixture Model (GMM) was also reported in the literature.

g. Recurrent Neural Networks (RNN)

This name is given to a type of networks whose internal connections form a direct cycle, such as the Hopfield network, Elman and Jordan's network, the Long Short Time Memory RNN and bidirectional networks. This enables the modeling of dynamic behaviors with the drawback of more memory consumption if compared to direct networks.

h. Radial Basis Function Neural Network (RBFNN)

These networks typically consist of three layers: the input layer, the hidden layer containing non-linear radial basis functions and the output layer.

i. Self-Organizing Map (SOM)

A SOM is a non-supervised network based on competitive learning whose architecture consists of a 2-dimensional array. Nowadays, it is widely used on industrial applications.

3. TAXONOMY FOR IMAGE PROCESSING ALGORITHMS:

Neural networks (ANNs) have increasingly been used as an alternative to classic pattern classi1ers and clustering techniques. Non-parametric feed-forward ANNs quickly turned out to be attractive trainable machines for feature-based segmentation and object recognition. When no gold standard is available, the self-organizing feature map (SOM) is an interesting alternative to supervised techniques. It may learn to discriminate, e.g., different textures when provided with powerful features. The current use of ANNs in image processing exceeds the aforementioned traditional applications. The role of feed-forward ANNs and SOMs has been extended to encompass also low-level image processing tasks such as noise suppression and image enhancement. Hopfield ANNs were introduced as a tool for finding satisfactory solutions to complex (NP-complete) optimization problems. This makes them an interesting alternative to traditional optimization algorithms for image processing tasks that can be formulated as optimization problems. The different problems addressed in the field of digital image processing can be organized into what we have chosen to call the image processing chain. We make the following distinction between steps in the image processing chain (Fig. 1):

1. Preprocessing/filtering. Operations that give as a result a modified image with the same dimensions as the original image (e.g., contrast enhancement and noise reduction).

2. Data reduction/feature extraction. Any operation that extracts significant components from an image

(window). The number of extracted features is generally smaller than the number of pixels in the input window.

3. Segmentation. Any operation that partitions an image into regions that is coherent with respect to some criterion. One example is the segregation of different textures.

4. Object detection and recognition. Determining the position and, possibly, also the orientation and scale of speci1c objects in an image, and classifying these objects.

5. Image understanding. Obtaining high level (semantic) knowledge of what an image shows.

6. Optimization. Minimization of a criterion function which may be used for, e.g., graph matching or object delineation. Optimization techniques are not seen as a separate step in the image processing chain but as a set of auxiliary techniques, which support the other steps. Besides the actual task performed by an algorithm, its processing capabilities are partly determined by the abstraction level of the input data. We distinguish between the following abstraction levels:

A. Pixel level. The intensities of individual pixels are provided as input to the algorithm.

B. Local feature level. A set of derived, pixel-based features constitutes the input.

C. Structure (edge) level. The relative location of one or more perceptual features (e.g., edges, corners, junctions, surfaces, etc.).

D. Object level. Properties of individual objects.

E. Object set level. The mutual order and relative location of detected objects.

F. Scene characterization. A complete description of the scene possibly including lighting conditions, context, etc.

CONCLUSION:

ANNs useful in image processing, these are interesting tools when there is a real need for a fast parallel solution. Often, real applications consist of several individual modules performing tasks in various steps of the image processing chain. A neural approach can combine these modules, control each of them and provide feedback from the highest level to change operations at the lowest level.

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MANET ROUTING PROTOCOLS SCALABILITY WITH APPLICATION SCENARIOS

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ABSTRACT: *MANET is deployed to various areas where limited or no communication infrastructures exist but need a network for different business scenarios where network size is not fixed. There is a need to understand MANET routing protocols scalability. Today, MANETs are deployed in various areas like emergency search-and-rescue operations, commercial environments, home and enterprise networking for enhancing lifestyle, sensor networks for smarter rural and urban development, entertainment, collaborative work, and educational applications like mobile classroom, meetings or convention in which information is quickly shared. This paper highlights on MANETs routing protocols performance for application scenarios where network area size in varying. The simulation results shows that AODV routing protocol is better routing protocol in case of throughput and OLSR is better for delay sensitive applications.*

KEYWORDS: Ad-Hoc, MANET, Routing, Scalability, Wireless

I. INTRODUCTION

MANET is a network, where two or more autonomous mobile nodes can communicate to each other without any mean of infrastructure. With advancement in low cost wireless technology, the MANET has become an inevitable part of number of applications. MANET environment is characterized by mobile hosts (nodes), variable capacity wireless links [11, 14], bandwidth constraints [3, 11] and dynamic topology [3]. Ad hoc network have no fixed routers and all nodes are mobile in which they are connected dynamically in an arbitrary manner. Due to dynamic nature of *'Ad-hoc'* network, each node is continuously maintaining the information required for routing the traffic to know the latest reachability information from its neighbors for determining best feasible route. Routing is much more complex in *'Ad-hoc'* networks than in traditional routing found on *'Infrastructure'* networks. Routing depends on

many factors including topology, selection of routers, and initiation of request under specific underlying characteristics that could serve as a heuristic in finding the path quickly and efficiently [8, 10, 12, 19, 20, 21]. MANET environment is characterized by frequently changing topology and varying channel conditions making routing is a challenging problem. Many routing protocols have been proposed for MANET, but none of them has good performances in all scenarios due to different variance. In this paper, varying network area size and node scalability has been considered as variance to understand the performance of routing protocols AODV and OLSR.

II. OVERVIEW OF MANET

In early 1970s, the Mobile Ad hoc Network (MANET) was called packet radio network, which was sponsored by Defense Advanced Research Projects Agency (DARPA). They had a project named packet radio having several wireless terminals that could communication with each other on battlefields. The early packet radio system was the origin of Internet and was the motivation of the original Internet Protocol suite [8, 9]. The life cycle of Ad hoc networks are categorized into the first, second, and the third generation Ad hoc networks systems. The present Ad hoc network system is third generation [9]. The IEEE 802.11[21] subcommittee had adopted the term "Ad hoc networks" and the research community had started to look into the possibility of deploying Ad hoc networks in other areas of application [7, 18]. Figure-1 depicts a simple MANET. The MANET can be categorized into two fields, open MANET and closed MANET.
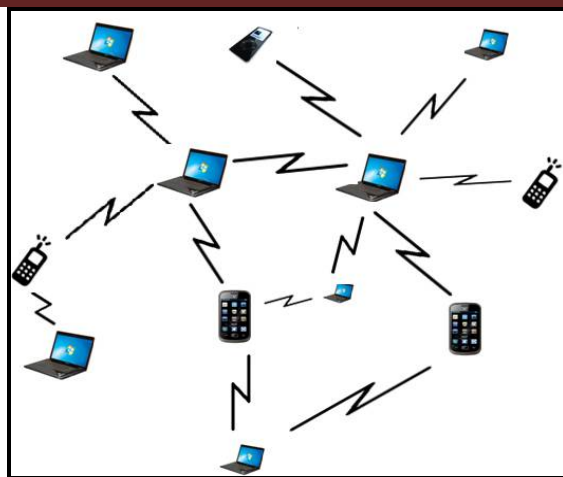
Figure 1 : Mobile Ad-hoc Network (MANET)

Autonomous terminal, dynamic topology**,** distributed operation, multi-hop routing, Light-weight terminals and Shared Physical Medium are characteristics [18, 19, 21] of MANET. There is no background network for the central control of the network operations; the control of the network is distributed among the nodes. Nodes are free to move arbitrarily with different speeds; thus, the network topology may change randomly and at unpredictable time. The nodes in the MANET dynamically establish routing among themselves as they travel around, establishing their own network. The nodes involved in a MANET should cooperate with each other and communicate among themselves and each node acts as a relay as needed, to implement specific functions such as routing and security. When a node tries to send information to other nodes which is out of its communication range, the packet should be forwarded via one or more intermediate nodes. The wireless communication medium is accessible to any entity with the appropriate equipment and adequate resources. Accordingly, access to the channel cannot be restricted. In MANET, each mobile node is an independent node, which could function as both a host and a router. In maximum cases, the nodes at MANET are mobile with less CPU capability, low power storage and small memory size [16].

Now a day MANET is very popular because of its various advantages. It is connected to the internet without wireless router and cost of router is saved. The wireless mobile nodes can communicate while moving in any different directions. Creating an ad hoc network from scratch requires a few settings changes and no additional hardware or software and it connects multiple computers quickly and easily. The routing and transmission protocols are design such that it manages MANET connection on failures [1, 5, 13, 17, 19]. Due to connectionless is not necessary for the communication to use centralized points or gateways administration because nodes are collaborating to deliver packets. The level of flexibility for setting up MANET is high, since they do not require any previous installation or infrastructure and, thus, they can be brought up and torn down in a very short time. MANET could be more economical in some cases as they eliminate fixed infrastructure costs and reduce power consumptions at mobile nodes. These are main advantages of Mobile ad hoc network and it is becoming popular.

There are some constraints of MANET. The capacity of the wireless links is always much lower than in wired counterparts. Indeed, several Gbps are available for wired LAN, while, nowadays, the commercial applications for wireless LANs work typically around 2 Mbps. The power of the batteries is limited in all the devices, which does not allow infinitive operation time for the nodes. In an energy conserving design nodes are sleeping or idle when they do not have to transmit any data. When the data exchange between two nodes goes through nodes that are sleeping, the delay may be higher if the routing algorithm decides that these nodes have to wake up. Attenuation and interferences are other effects of the wireless link that increase the error rate. MANET is less secure. The addressing is the another problem for the network layer in MANET, since the information about the location the IP addressing used in the fixed networks offers some facilities for routing that cannot be applied in MANET. Roaming-the continuous changes in the network connectivity graph involve that the roaming algorithms of the fixed network are not applicable in MANET, because they are based on the existence of guaranteed paths to some destination. Commercially Unavailable: MANET is yet far from being deployed on large-scale commercial basis [6].

Routing in MANETs is more challenging than routing in traditional, wired networks. The mobile devices are usually resource-constrained and have limited wireless transmission range. Unlike traditional networks, the mobile devices must rely on the broadcast nature of the wireless medium. Issues like hidden terminal problem makes routing more complex. Generally wireless transmission medium is lesser as compared to its wired counterpart. As a result, the routing protocols must consider higher packet losses due to transmission errors. The mobile devices can change their locations while the message is being sent. In high-mobility environments, routing mechanisms are often subjected to additional overheads to fall out of supporting mobility is that, nodes which were formerly sending/receiving packets, move out of transmission coverage and attributing to mobility-induced packet losses. Battery constraints as often the devices used are cellular phones or PDAs which can only run for a matter of hours and their battery must be preserved as much as possible. We must also account for potentially frequent network partitions. This might imply that simply no path exists from a mobile node to another as the intermediate routing stations have moved too far apart. The security aspects are of paramount importance. The broadcast nature of wireless networks lends itself to passive eavesdropping attacks without malicious nodes being detected. By exploiting the specific aspects of wireless routing protocols being used, more damaging attacks are possible.

III.   MANET APPLICATIONS

The growth of technology makes increase in Wi-Fi capable laptops, mobile phones, MP3 players and other small portable devices becomes a genuine reason for MANET popularity.

The versatility, low cost of deployment and self configuration are the key attributes of MANET makes them a best choice for a wide range of applications. MANET is very useful where the fixed infrastructure is not available before, quick deployments with minimal configuration are the requirement and there are emergencies. The examples are natural disaster areas, earthquake hit areas where the fixed infrastructure has been destroyed, in flooded areas, fire or explosion hit areas, train or air plane crash [2, 4, 20, 21]. MANET can be also used in pre planed strategic event like surveillance, data collecting in some regions, conferences, virtual-classes and during business conferences. A group of friends may establish a short duration network for exchanging data or playing electronic games. A team of firefighters may deploy a network for communicating to each other on an area that was completely destroyed (where no infrastructure was left). Fire fighters, doctors, policemen can all communicate to each other and exchange vital information (telemedicine, video surveillance etc.) by using this kind of networks. The entertainment industry may also take advantage from this technology, for example, a group of friends that wish to play a game. MANET application area and scenarios are in table-1 for simplification.

Table 1 : MANET applications

Application area types	Scenarios
Tactical networks	• Military communication and operations • Automated battlefields
Emergency services [3, 15,21]	• Search and rescue operations • Disaster recovery • Replacement of fixed infrastructure in case of environmental disasters • Policing and fire fighting • Supporting doctors and nurses in hospitals
Commercial and civilian Environment [17]	• E-commerce: electronic payments anytime and anywhere environments • Business: dynamic database access, mobile offices • Vehicular services: road or accident guidance, transmission of road and weather conditions, taxi cab network, inter-vehicle networks • Sports stadiums, trade fairs, shopping malls • Networks of visitors at airports
Home and enterprises Networking	• Home/office wireless networking • Conferences, meeting rooms • Personal area networks (PAN), Personal networks (PN) • Networks at construction sites
Educations [20]	• Universities and campus settings • Virtual classrooms • Ad hoc communications during meetings or lectures
Entertainment	• Universities and campus settings • Virtual classrooms • Ad hoc communications during meetings or lectures
Sensor network	• Home applications: smart sensors and actuators embedded in consumer electronics • Body area networks (BAN) • Data tracking of environmental conditions, animal movements, chemical/biological detection
Context aware services	• Follow-on services: call-forwarding, mobile workspace • Information services: location specific services, time dependent services • Infotainment: touristic information
Coverage extension	• Extending cellular network access • Linking up with the Internet, intranets, etc.

Ad hoc networking could also serve as wireless public access in urban areas, providing quick deployment and extended coverage. Moreover, the possibility to communicate to places where cables are not able to reach, or even places where trespassing cable are financially infeasible. For environmental monitoring, where the networks could be used to forecast water pollution or to provide early warning of an approaching tsunami. Some commercial scenarios can also take advantages; examples includes- ship-to-ship ad hoc mobile communication, law enforcement, etc. Similarly in other civilian environments like taxicab, sports stadium, boat and small aircraft where mobile ad hoc communications have application. The education area application is virtual class & conference rooms. Considering the broader areas of application and variation of factors in these applications, need is to study the MANET performance, before successful deployment.

IV.   Simulation Experiment study

The wide spread adoption of ad-hoc network has produced the challenges of scalability and scalability performance of the network depends

on the routing protocol used in the network for particular scenario. There are many routing protocols has been proposed for MANETs that are categorized as proactive, reactive and hybrid. In this experiment OLSR and AODV routing protocols from proactive and reactive routing protocols categories and 'network area size' as scalability has been considered. The performance of these routing protocols is evaluated through performance metrics using OPNET simulator.

a) Simulation setup and parameters

To conduct the simulation experiment two routing protocols OLSR and AODV three different network area size (500 x 500 square meters, 1000 x 1000 square meters and 2000 x 2000 square meters) have been considered. The simulation parameters are as per Table-2 and MANET scenario as per Figure-2.

Table 1: Parameters considered for simulation

Parameter	Value
Protocol	OLSR and AODV
Simulator	OPNET modeler 14.5
Simulation time	600 seconds
Area of network	Campus-500 x 500 square meters Campus-1000 x 1000square meters Campus-2000 x 2000square meters
Number of nodes	50
Pause time	Constant(100) seconds
Speed of nodes	Uniform(0,10) meters/sec
Transmission Data rate	11 mbps
Mobility Model	Random Way Point (RWP)
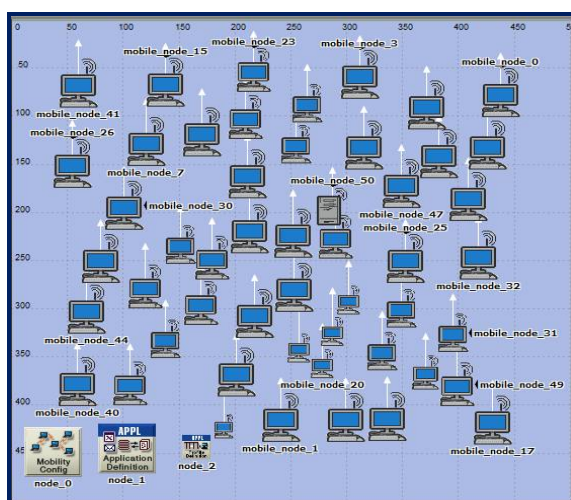
Figure 2: MANET deployment scenario for 50 nodes.

The simulation experiment is repeated eight times with different seed value and average results are considered for performance analysis and comparison on metrics network load, end-to-end

delay and throughput for routing protocols OLSR and AODV.

b) Simulation Result and Analysis

After simulation the performance on metrics 'network load', 'end-to-end delay' and 'throughput' are tabulated in table-3 and graphs are presented through Figure-3 to Figure-5 for OLSR and AODV routing protocols.

Table 2 : OLSR and AODV routing protocols performance for varying network area size

Network area size	Performance Metrics					
	Average Network Load (mbps)		Average End-to-End delay (seconds)		Average Throughput (mbps)	
Protocols	OLSR	AODV	OLSR	AODV	OLSR	AODV
500 square meters	4.67	2.05	1.91	2.05	6.29	8.71
1000 square meters	4.78	2.14	1.51	2.14	6.49	8.09
2000 square meters	4.81	2.28	1.35	2.28	6.54	9.13
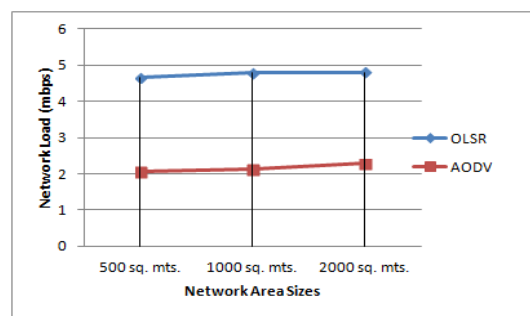
Figure-3: "Network load" performance comparison for OLSR and AODV on varying network area sizes
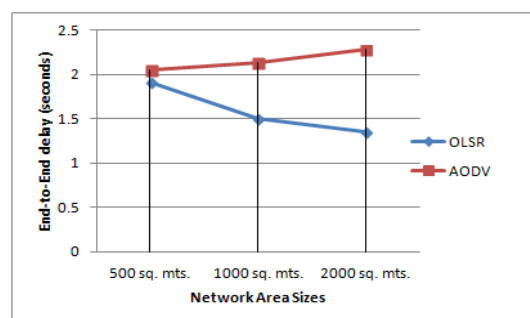
Figure-4: "End-to-End Delay" performance comparison for OLSR and AODV on varying network area sizes
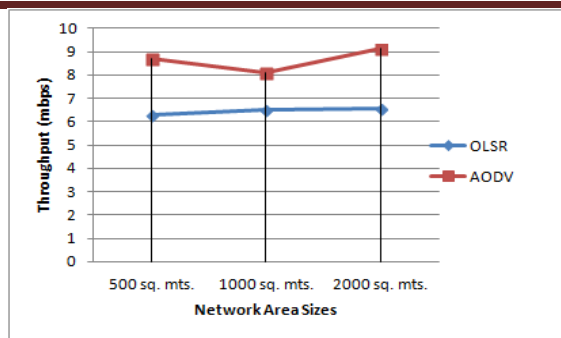
Figure-5: "Throughput" performance comparison for OLSR and AODV on varying network area sizes

OBSERVATIONS: From table-2 and figures 3 to 5 it is observe that for small as well as large network the network load is not increasing very much for OLSR and AODV routing protocols, but performance wise AODV is better than OLSR. In case of AODV end-to-end delay is increasing for large network but delay decreases for OLSR routing protocol and OLSR is better than AODV. Routing protocol AODV throughput is better than OLSR for small as well as large network area size.

Discussion: For delay sensitive applications OLSR is better than AODV. If application performance need high throughput, AODV is better than OLSR. There is not very much network load are experienced for varying network area sizes.

V. CONCLUSION

MANET can be deployed to various application areas where limited or no communication infrastructures exist. There are applications where nodes may entered or leave MANETs and network size are also shrinking or expanding in such phenomenon performance of routing protocol need to be measure to select better routing protocol. In this paper the two routing protocol OLSR and AODV performance has been measured for varying network area sizes. For throughput AODV is better and for delay OLSR is better. According to application performance requirement one can select appropriate routing protocol.

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CRYPTOGRAPHY IN ANCIENT INDIA

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ABSTRACT - *Cryptography has its own advantages now days for hiding information. As day-by-day uses of internet are increasing there is need to transfer information in unknown format. But it is not only now days we are using for information transfer, it has tales in past for hiding information in mythological text for private messaging or changing the meaning of text. The paper throws light on techniques like Katapayadi, Ramshalaka and Bhutasamkhya and other system of cryptography in ancient India.*

KEYWORDS: Information security, Encryption, Decryption, Cryptography

INTRODUCTION

Cryptography is procedure of conversion of textfrom one form to anothertochange original meaning. It has two stages, first is encryption is conversion of plain text to unknown format and decryptionis conversion-encryptedformat to original text.The unknown format after encryption is known as cipher text. There are two types of cryptography first is substitutioncryptography in which letter of plain text are substituted with other letterto change plain text meaning to unknown and vice-versa to get original text. Substitution method also has two types, first is monographicsubstation where single letter is replace for conversion.In polygraphic method group of letters are used to change the meaning of original message. Another way of cryptography is transposition in which rearrangement of letters is use to change the meaning of original text.

In ancient India, cryptography was used in Indianmythological text like hymns and lyrics for hiding text. Some of the methods of were as follows

KaTaPaYaDiSankhya

KaTaPaYaDi(Prasad, 2013)is used in Sanskrit texts as a hashingtechnique.Each consonant of an Indian language is assign a number in this Katapayadi system as follows:

Table 1

कटपयादि संख्या - kaTapayAdi for Melakarta Ragam Names & Numbers									
1	2	3	4	5	6	7	8	9	0
क	ख	ग	घ	ङ	च	छ	ज	झ	ञ
ट	ठ	ड	ढ	ण	त	थ	द	ध	न
प	फ	ब	भ	म					
य	र	ल	व	श	ष	स	ह		
ka	kha	ga	gha	nga	cha	Cha	ja	Jha	nya
Ta	Tha	Da	Dha	Na	ta	tha	da	dha	na
pa	pha	ba	bha	ma					
ya	ra	la	va	sha	Sha	sa	ha		

Suppose we want to hash the word 'Bharat',the number based on katapayadi system would be then as follows for 'Bharat'

$$Bha = Bha = 4$$
$$Ra = Ra = 2$$
$$T = ta = 6$$

Therefore,number 624 represents Bharat

Indian hashes are reversed numbers that iswhy written 624 and Not 426.

Ramshalaka

Ramshalaka is transposition substitution cryptography.As shown in column 1 of table 2"Ramshalakauses nine stanzas or chopaiof Philosophical meaning, from which solution to any actions/questions related to our activities and lives are incidental and in-built, in a square matrix of size 15x15"(Prasad, 2013). Shalaka means matrix, and this shalaka was use by Ram who was famous king and god in Indian mythology 'Ramayana'. Ram used this technique to find answersquestions of that iswhy it called as Ramshalaka.

Verses generally called stanza or rhymes are in first column of Table 3. These verses are broken into independent 'akshar' (Hindi characters) as shown in third column of Table 3and these all akshars creates 15x15 matrix, which is actual shalaka. It is difficult to find or recognize verses from table as that are in matrix form. This means actual text can kepthidden in Shalakaand all the hidden stanzas can be decrypted using some key. In shalaka,order of characters of original text was changed. From Table 4 and Table 5 encrypted technique is visible. While encrypting first character is taken from each, of nine chopais after first character finishes form all stanzas, second character

from each chopai is taken and similarly this procedure is followed to form15x15 matrix.

Table 1RamShalaka

table 2 Ramshalaka characterization

Table 3

table 4

BHUTASAMKHYA SYSTEM

Bhutasamkhyasystem is a method of representing numbers using words having meanings of numerical values.Bhutasamkhya system words chosen from Sanskrit language from which words chosen to replace for numbers. The number 2represented with the word "eye" as every human being has two eyes. Similarly, number "32" represented by word "Teeth".

Small numbers represented by single words. Where sentences used for representing large numbers.To decode numbers from sentences, digits written from left to right.Varahamihira(Varahamihira , 2015)(505 – 587 CE), an Indian astronomer, mathematician, and astrologer, encoded this number as "khakhaaṣṭiyamaḥ". The individual words in this are "kha", "kha", "aṣṭi" and "yamāḥ" and they denote numbers "0", "0", "61" and "2" respectively. To obtain number indicated by kha-kh-aṣṭi-yamaḥ, the numbers need to arrange in the reverse order, as "2", "16","0","0". Placing numbers side by side, we get the number 21600.

Kautilayama

"Kautilayama(Prasad, 2013)in which letters were substituted based on phonetic relation" and other is there had been development of another version of private messaging such as methods based on knowledge of languages and messaging by wrist-finger gesture known as akshar mustika kathanam.

Muladivaya

"Muladivaya is technique in which paired letters were used as cryptographic unit."(Kumar & Prasad, 2013)

Aryabhata's Substitution Code

Aryabhata's Substitution Code(Kak, 2006) is a plotting of numbers to words that divided into two groups of consonants and vowel.

First 25 consonants called varga letters of Sanskrit alphabet are:

k=1	kh=2	g=3	gh=4	ṅ=5
c=6	ch=7	j=8	jh=9	ñ=10
ṭ=11	ṭh=12	ḍ=13	ḍh=14	ṇ=15
t=16	th=17	d=18	dh=19	n=20
p=21	ph=22	b=23	bh=24	m=25

Other remaining 8 consonants are avarga letters:

y=30	r=40	l=50	v=60
ś=70	ṣ=80	s=90	h=100

The varga letters (k to m) represents squares such as 1,100,10000,

The avarga letters (y to h) represents non- squares such as 10, 1000,

This creates a notational system in place values for numbers as large as 10^{17}:

17 16   15 14 13 12 11 10 9 8 7 65 4 3 2 1 0

au auaiaio oe el̥ l̥r̥ ru uiia a
औऔऐऎओऒएऌॡऋ
ॠउऊइईअअ

A letter is to be insert next to its vowel.
For example: if number 4652 is

i	i	a	a
4	6	5	2
gh	c	n	kh

Therefore, number 4652 will; be represented by 4652 = ghicinikhi

Gudhayojya

Gudhayojya(Ganguly, 1979) was a basic method of changing meaning of true content of spoken messages. In this method of cryptography, unnecessary letters added at beginning or at end of each word, so its original meaning was changed. For example to change meaning of statement "I truly believe in lord Ganesha" on may add letter "ish" at beginning of each word, So sentence become "ishIishtrulyishbelieveishinishlordishGanesha", The real content of sentence got changed.

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CAMPUS SELECTION (PLACEMENT) PROCESS WITH REFERENCE TO TECHINCAL INSTITUTES UNDER NORTH MAHARASHTRA UNIVERSITY: A STUDY

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ABSTRACT

The present research paper aims to find out the general opinion of the campus selection process organized by thetraining and placement cell. The objective of this paper is to study on the campus selection (placement) process of the training and placement cell,to analyze the effectiveness ofdifferent training and placement activities organized by the celland to analyze the factors affecting the effectiveness of the campus selection.

KEYWORDS: Campus Selection, Technical Institute, Training and placement activities.

1. INTRODUCTION:

Campus Selection is the process of searching for prospective students and stimulating them to pay attention tothe training and placement activities organized by the institutes. Campus placement means the representatives of companies come to colleges and recruit students and **fresher** for positions that are vacant in their organizations. The companies always aim to recruit smart and talented executives from the prominent campuses and professional institutes make the place a sought after place for students aiming to further pursue studies.The need for the present study is todetermine whether the training and placement activities organized by the training and placement cell fulfill the requirements of the industry. Thisstudy helps to improve the students' cognizance of the campus placement and the activities organized by the training and placement cell. The study helpsthe organization to identify the area of interest and suggest ways to improve to face the campus selection process.

2. NEED FOR THE STUDY:

In this age of rapid technological development, human resources management is theemerging scientific discipline. In the globally competitive and challenging world thesuccess of an institute will be a great extent, influenced by the human resources. In present scenario, it is of great importance to effectivelyselect the students determining the present andfuture requirements of the recruiter.

3. SCOPE OF THE STUDY:

In today's competitive world, the training and placement officers have to adopt a strategic approach and prepare the students' for the campus placement. Hence, it is important to give a proper direction to the students to look beyond the text books and prepare for thecampus placement in a strategic manner. Also, the training and placement activities, which have to execute effectively and placed the students at the right place. There should be total commitment andinvolvement while organizing, recruiting the employees, aim to identify the recruitment process followed by the respondent. The scope of the study is explained as follows:

- This study focus on understanding campus placement and selection process.
- This study helps the organization to identify the area of the problem and suggest ways to improve the campus selection process.
- This study helps to manage the different training and placement activity.

4. OBJECTIVES OF THE STUDY

- To study on the campus selection (placement) process of the training and placement cell. To analyze the effectiveness of different training and placement activities organized by the cell.
- To analyze the effectiveness of the campus placement process.
- To identify the factors of the campus selection process.

5. LIMITATIONS OF THE STUDY:

- ✓ Feedback is just the representative of the entire population, it only states the opinion of few respondents.

The respondents were having fear to reveal the negative aspects.

The information collected was based on the perception of the respondents.

6. REVIEW OF LITERATURE:

(Angadi and Ravanavar 2014) have studied and analyzed the functioning of training and placement cells in the technical institutions in their research paper entitled "A study and Analysis of Training and Placement Cells in Engineering colleges". The researcher found that Placement cells are the integral part of the institute that's shaping one's personality.

Researchers stated and analyzed some function to be performed by all Training and Placement Cell from Engineering colleges. The main objective of the research was to analyze the functions of training and placement cells of different private technical institutions. This research is based an assumption that every the technical institutes established the training and placement cell. The Researchers demonstrate the study on the basis of different practices such as governance, rank, staff working, facilities, career development (Training program). Researcher found that few institutions adopted the practices in their TPC.

(Chouhary 2014) stated in the research paper entitled "The Importance of Training Engineering Students in Soft skills" about soft skills. The Researchers focal point is soft skill training to Engineering students. Researcher reveals that the engineering and management students intended to become professionals need technical skill as well as soft skill. Engineering students from various courses are required to broaden their hard skill to enslave soft skills.

Researcher trying to point out the need of training engineering students in soft skill. He classified the soft skill into three major divisions. Also, he specifies the sub area of soft skills. Even though the engineering and management graduates in India are known for the glaring lack of soft skill mostly in communication skill. Those having good soft skills are promoted to high level.

The researcher concluded that the Management and faculties of engineering institution have a special responsibility to encourage students, imparting the soft skill training to students as well as the teaching and non teaching staff of the engineering colleges. It increases the employability of the engineering and management students.

7. RESEARCH METHODOLOGY:
NORTH MAHARASHTRA UNIVERSITY:

North Maharashtra University,Jalgaon offers a blend of modern, applied job oriented and conventional courses complemented with the state of research facilities, supporting infrastructure and stimulating environment for learning and training. The special efforts are being made by the university to channelize the entire time, energy and resources to make research activities on the campus more meaningful.

According to Clifford Woody, research comprises of defining and redefining problems,formulating hypothesis or suggested solution; collection, organizing and evaluating data; makingdeductions and reaching conclusions; and at last, carefully testing the conclusions to determinewhether they fit the formulating hypothesis.

Research Design	Descriptive
Research Instrument	Questionnaire
Sampling Method	Stratified random sampling. The various strata of this study were: • Training and Placement Officer • Students
Sample Size	217
Research Data	Primary data have been collected directly from the Respondents using a questionnaire while the secondary data was collected from books, articles and the internet.
Tools for DataAnalysis	Chi-Square Test

Table 5 Research Methodology

8. DATA ANALYSIS:
8.1 PERCENTAGE ANALYSIS:
8.1.1 DEMOGRAPHIC PROFILE OF THE RESPONDENTS:

Sr.No.	Demographic Profile	Description	Frequency	%
1	Gender	Male	145	66.8
		Female	72	33.2
2	Age	21-30	204	94.0
		31-40	5	2.3
		41-50	4	1.8
		51-60	3	1.4
		>60	1	0.5
3	Qualification	UG Student	204	94.0
		PG	5	2.3
		PhD	8	3.7
4	Respondent	Student	204	94.0
		Training and Placement officer	13	6.0
		Total :	217	100

Table 6 Demographic Information of respondents

8.1.2 Training and Placement Activities organized by T and P Cell:

Sr. No	T and P Activities	Frequency	%
1	Seminar	13	100
2	Guest Lectures	13	100
3	Group Discussion	10	76.9
4	Communication Skill	09	69.2
5	Industrial Training	10	76.9
6	Mock Interviews	07	53.8
7	Brain Storming Sessions	03	23.1
8	Deliberation	01	7.7
9	Technical skill Program	02	15.4
10	Aptitude Training	02	15.4

Table 7 : Awareness Program conducted by the Training and Placement cell
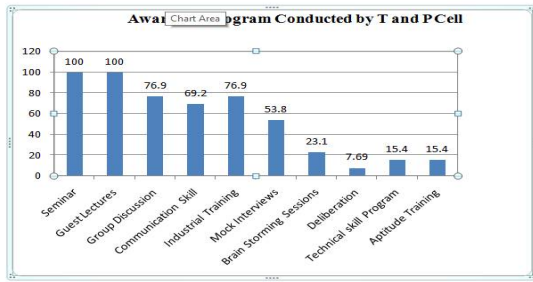
Figure 1 Awareness Program conducted by the Training and Placement cell

	Observed N	Expected N	Residual
Strongly Agree	109	43.4	65.6
Agree	76	43.4	32.6
Neutral	18	43.4	-25.4
Disagree	06	43.4	-37.4
Strongly Disagree	08	43.4	-35.4
Total	217		

From the above table it is inferred that 100% of the respondents were organized the Seminars and Guest Lectures. 76.9% of respondents arranged the Group discussion and Industrial Training program, 69.2% of respondents were conducted the communication skill session, 53.8% of respondents organized the Mock Interviews, 23.1% of respondents arranged the Brain Storming Sessions, 15.4% of respondents conducted the technical skill and aptitude training program and 7.7% of respondents gave the matter full deliberation before reaching a decision.So all the respondents prefer the Seminar and Guest Lectures to increase the skills of the students.

Table 9: Feel about T and P Activities are required to build the students' skill.

Theformula used to calculate chi-square value is

$$x^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

Equation 1: Chi-square Formula
Where $\sum$ - Sum
O_i – Observed Frequency
E_i - Expected Frequency

	Gender of the respondent	T and P activities are required t build the students' skill
Chi-Square	24.558[a]	199.613[b]
Degree of Freedom	1	4
Asymp. Sign	.000	.000

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 108.5.

b. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 43.4

Table 10: Test Statistics

8.2 CHI – SQUARE TEST-TO TEST THE SIGNIFICANT RELATIONSHIP BETWEENTHE GENDER OF THE RESPONDENTS & THE FEEL ABOUT THE TRAINING AND PLACEMENT ACTIVITIES REQUIRED TO BUILD THE STUDENTS SKILL.

Null Hypothesis (H0): There is no significant relation between the gender of the respondentsand the feel about the training and placement activities organized by the training and placement cell.

Alternative Hypothesis (H1): There is a significant relation between the gender of therespondents and the feel about the training and placement activities required to build the students Skill.

The table value of the chi - square test at the 5% level of significance is 0.000 which is smaller than the p value.So we have to reject the null hypothesis (H0) and accept the alternative hypothesis(H1).Thus, it was proved that, there is a significant relationship between the gender & feel about theT and P activities are required to build the students' skill.

9. FINDINGS:

The problem that has been found in this study is that the most of the respondents need modifications in the present campus selection process. The training and placement cell organizing different training and placement activities. Many of the students are not aware of the training and placement cell and the activitiesat entry level. The Training and placement department have to make modifications like using new technique to increase the awareness of the students, to rectify the problems and the suggestions can be given to the institutional head. The training and placement cell can adopt some more sources to aware the students like delivering the information and innovative postson social sites or apps by creating the group to make the campus placement simpler, faster, cheaper and effective.

	Observed N	Expected N	Residual
Male	145	108.5	36.5
Female	72	108.5	- 36.5
Total	217		

Table 8: Gender of the respondents

10. SUGGESTION:

The pedagogy of the training and placement cell activities have to change according the requirement of the recruitment in global companies. The innovative pedagogy and different processes have a great impact on the students to improve the awareness of skills between them.

The campus selection processesof training and placement cell of the technical institutes are satisfied. In the era of globalization, the technical institutes need to modify the strategy and policy adopted by the training and placement cell. Hence the main objective, the study of the campus placement process could be achieved.

11. CONCLUSION:

The present study will be benefited and with the help of the to the technical institutes under North Maharashtra University.

Further from this study the organization will be benefited and with the help of the suggestionsgiven the technical institutes can improve its functioning and the overall campus selection process.

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IOT DATA AND DATA MANAGEMENT: A REVIEW

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ABSTRACT:

Traditional data management systems handle the storage, retrieval, and update of elementary data items, records and files. Now a days, the IoT is more popular to most emerging internet of things (IoT). The "Things" may be vary as per the users. User can request the things by query. the query may be online or offline by user as data to produce, Process, Store/update and delivered the response to query. For offline or global user query is collect, filtered and aggregate/fusion of the query to preprocess and delivered, The IoT is dynamic and global network in nature. IoT data is online while providing storage, logging, process and auditing facilities for offline analysis.

KEYWORDS:- IoT Data, IoT Lifecycle, IoT Data Management, Traditional Data.

INTRODUCTION:-

The IoT is a dynamic and global network infrastructure, in which "Things"—subsystems and individual physical and virtual entities—are identifiable, autonomous, and self-configurable. "Things" are the object , identification , process and services provided by data. "Things" are expected to communicate among themselves and interact with the environment by exchanging data generated by sensing, while reacting to events and triggering actions to control the physical world.

One of the most valuable aspects of the emerging Internet of Things (IoT) is the data it produces. Businesses use that data to support their decisions, and — as IoT grows — they need better tools for relevant and timely discovery. These days, discovery systems can find the right data without even knowing its structure, semantics, sensor description, or location. These systems can also deduce context information such as annotations and metadata.

SOFTWARE ARCHITECTURE AND THE INTERNET OF THINGS:

Any software architecture, designed to be deployed within the setting of the Internet of Things, will need to foresee the increasing heterogeneity of devices and networks, and will have to provide for varying user and application requirements within diverse contexts of service provision. It will be essential for new architectures to integrate the latest technologies in the areas of

software and hardware in order to assimilate as much as possible data and services available in the environment of the user. As service integration-related tasks will remain inevitable, it is no surprise that the industry is aiming for software solutions that make this integration a more tractable activity.

DATA COLLECTION:

IoT getting data from enable technology for creating computing environment to process huge amount of data, originating from and circulating in such a distributed and heterogeneous environment. The big data related procedure such as data acquisition, filtering , transmission and analysis have to be updates to match the requirement of IOT data.

Big data is characterized by 3Vs - velocity, volume and variety. Focusing on the this big data for different processing approaches.

Collecting and analyzing the data circulating in IoT environment is where real power of IoT resides. The application utilize data pattern and recognition and data mining techniques to extract knowledge and make smarter decision

In "Things" data may be collected from different resources such as Wireless, Broadband, and Mobility

IOT DATA MANAGEMENT

Traditional data management systems handle the storage, retrieval, and update of elementary data items, records and files. In the context of IoT, data management systems must summarize data online while providing storage, logging, process and auditing facilities for offline analysis. This expands the concept of data management from offline storage, query processing, and transaction management operations into online-offline communication/storage dual operations.

IOT DATA LIFECYCLE
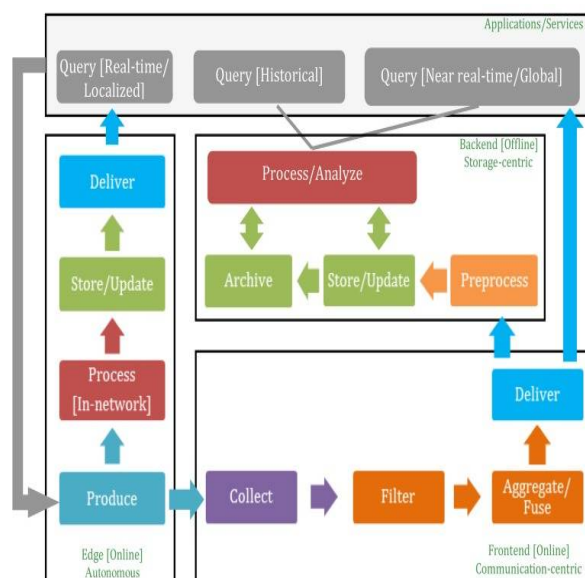
The lifecycle of data within an IoT system proceeds from data production to aggregation, transfer, optional filtering and preprocessing, and finally to storage and archiving. Querying and analysis are the end points that initiate (request) and consume data production, but data production can be set to be "pushed" to the IoT consuming services. Production, collection, aggregation, filtering, and some basic querying and preliminary processing functionalities are considered online, communication-intensive operations. Intensive preprocessing, long-term storage and archival and in-depth processing/analysis are considered offline storage-intensive operations.

Storage:- Storage is the long term process for access and update operation.It is a read only data i.e. data to be read from the storage IoT system may generate process , and store data in network and localize services.

Querying: Data querying is the core process to access and retrieve data. In the context of IoT, the query can be receive in the real time localize and globalize.

Production: Data production involves transfer of data by the "Things" within the IoT framework and reporting this data to interested parties periodically, pushing it to the network for process. Then it send the query for response.

Collection: Data may be collected at within the network where it is further filtered and processed, and possibly fused into compact forms for efficient transmission. Wireless communication technologies Wi-Fi and cellular are used by objects to send data to collection points.

Aggregation/Fusion: Transmitting all the raw data out of the network in real-time is often increasing data streaming rates and the limited bandwidth. Aggregation and fusion techniques merging operations in real-time to compress the volume of data to be stored and transmitted.

Delivery: As data is filtered, aggregated, and possibly processed either at the concentration points or at the autonomous virtual units within the IoT, the results of these processes may be sent further up the system, either as final responses, or for storage and in-depth analysis. Wired or wireless broadband communications may be used there to transfer data to permanent data stores.

Preprocessing: IoT data will come from different sources with varying formats and structures. Data may need to be preprocessed to handle missing data, remove redundancies and integrate data from different sources into a unified schema before being committed to storage. This preprocessing is a known procedure in data mining called data cleaning. It is not compulsory to all the data in fixed relational Schema. The data may be accessed by customized there is no restriction about to access data in any format.

Storage/Update—Archiving: This handles the efficient storage and organization of data as well as the continuous update of data it become available. Archiving refers to the offline long-term storage of data that is not immediately needed for the system's ongoing operations. Storage can also be decentralized for autonomous IoT systems, where data is kept at the objects that generate it and is not sent up the system. There are some limitations to centralized storage of data.

Processing/Analysis: This is used to ongoing retrieval and analysis operations performed and stored and archived data in order to gain insights into historical data and predict future trends, or to detect abnormalities in the data that may trigger further investigation or action. It analyze and process of achieve data and storage updates.

TRADITIONAL DATA MANAGEMENT VS IOT DATA MANAGEMENT

Traditional Approach to data handling offered a lot of the convenience of the manual approach to business process for e.g. hand written invoices, delivery report, stock and account statement etc. as well as the benefits of storing data electronically.

The traditional approach usually consisted of custom built data process and computer information system tailored for a specific business function. An accounting department would have their own information system tailored to their needs whereas the sales department would have an entirely separate system for their needs. In traditional data management there are many reports are generated that are the crucial work to collect all information related to reports

As devices and sensors multiply and data volumes swell, legacy data management infrastructure and techniques will no longer be sufficient to fully leverage the IoT. IoT organizations demonstrate the direction that data management needs to take.

Traditional centralized databases will always have a role to play in analytics.

The data management is moving from the central data repository towards the edge of the network. IoT organizations are nearly twice as likely as all other organizations to have automated data capture. These organizations embed data management into the devices and sensors generating data to facilitate a smooth and steady stream of information. Data is managed as soon as it is generated.

The data management frontend is communication-intensive; involving the propagation of query requests and result to and from sensors and smart objects. The backend is storage-intensive; involving the mass storage of produced data for later processing and analysis and more in-depth queries. Although the storage elements reside on the back end, they interact with the frontend on a frequent basis via continuous updates and are thus referred to as online.

DRAWBACKS :

The Internet of Things (IoT) is placing new demands on data storage, networking, processing and analytics. For end users, vendors and investors, it represents both a challenge and an opportunity.

The growth of Internet of Things (IoT) is rapidly increasing the amount of data generated, and industry experts warn that the current river of unstructured data will soon turn into a flood.

Enterprise Tech cited a recent Gartner report that examined the impact IoT will have on enterprise infrastructure. The report warned that "due to a lack of information capabilities adapted for the IoT" an estimated 25% of attempts to utilize IoT data will be abandoned before deployment ever occurs.

Gartner cautions that IoT specialists who are tasked with IoT strategies and managing data governance, "are not prepared for the information-related implications of the Internet of Things."

"The IoT will challenge their capabilities, skills, processes and tools with complexity and scale, as well as new governance implications," said Gartner

which predicted information management must become a core competency in the future.

CONCLUSION:-

IoT is nothing but a information engineering. It involve proper delivery of required information from the server. The result generated from the system using the IoT concept has higher probability of accuracy. This things has lots of achievement in business environment. It has some obstacles that is information explosion. The tedious job for the analytics who handle the data, if he not aware about futuristic of the collected data.

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USE OF ICT IN ACADEMIC INSTITUTIONS LIBRARIES IN SANGRUR DISTRICT

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ABSTRACT:

The basic motive of any academic Institution library is to acquire process and retrieve the information and to make available the much needed information to the user community. This study exposes the implementation and utilization of Information Communication and Technology (ICT) methods in the academic libraries in Sangrur district of Punjab, and the level of the usage of ICT in these libraries and also suggested the modern techniques to be implemented. The results show that ICT could play an important role in the Library System, to be used widely in the academic Institution libraries. Government and semi-government institutions standards can improve drastically through this ICT enabled libraries, so that the users can take advantage of this standard information retrieval through ICT Tools. According to information provided by library professionals , this paper suggests that more technology can be used in academic libraries ,which can be more helpful use to the user community to reach the information required,

KEYWORDS: Academic Library, ICT Skills , E-Resources, Library Networking, Library professionals.

INTRODUCTION :

Academic libraries for centuries have played important role in supporting research in all subjects and disciplines within their host universities and colleges. But the last decade has brought a sea change in relationships between researchers and libraries. Information and communication technology (ICT).enabled products and services, and the availability of online information resources have changed the way the services academic institutions and libraries now provide to their researchers. ICT is the integration of computer and communication technology used to process, store and disseminate information. It has changed the traditional practices of library and

information centres in delivery of services to the end users. forever changed the way information is gathered, processed and disseminated. While processing, storage and retrieval facilities are provided by computers, telecommunications provide the facilities for the transfer revolution, which in its various manifestations has affected nearly every

aspects of information provision. The ICT has nowadays become an important

technology in academic institutions as it plays a very important role in meeting information needs of the researchers and institution as a whole.

Fulfilling the objective of imparting education in an academic institution largely depends upon the information sources available and their usage in Libraries. The important developments in the area of ICT have created innovative changes in all areas of information. Libraries being reservoirs of knowledge has no exception to this ICT development. The ICT tools have nowadays become an important technology in academic libraries as it plays a very significant role in meeting information requirements of the user community and institution as a whole. This study has identified the ICT infrastructure and its implementation in academic libraries across Sangrur district.

LITERATURE SURVEY:

A survey of related literature was carried out which is described below,

Shaheen Majid (1999) investigated the

relationship between computer literacy of academic staff and their use of electronic information sources. The impact of other factors such as age, gender and educational background on the use of electronic information sources was also investigated. They found statistically significant relationship between computer literacy and the use of electronic information sources and services. A significant relationship was also noted between the age of academics and their use of electronic information sources.

Naved and Nishat (2009) note that researchers use a variety of ICT products and services for their research work as these products prove very helpful in finding needed information quickly and easily and also help the researchers to access, manage, integrate, evaluate, create, and communicate information more easily.

Afolabi and Abidoye, (2011) stress the integration of information and communication technology to library operations for effective library services and the need for the effective application of ICT as the best tool for libraries to use in assisting educational researches and students in this age of information explosion.

Nwachukwu (2007) identified that ICT application of computers and other technologies to the acquisition, organization, storage, retrieval and dissemination of information. This study unveils the challenges and opportunities among the librarians to apply modern technologies in their libraries and to provide the effective information series to the research communities.

Kattimani and Ramesh (2013) stated that Compared to all library professionals have more skills on library automation software modules, various operating systems, internet- related skills and web designs. The majority of the professionals are facing financial problems, overload of work and negative attitude of the higher authority in acquiring ICT skills.

Kumar (2013) ICT influences the role of LIS professionals and the offer number of opportunities for professionals and personal development. Professionals with appropriate ICT skills are crucial for transforming traditional library to the electronic library. The librarians have significant basic ICT skills to handle the library and there is enough scope to develop their innovative ICT skills and to implement these skills in the library to provide new ICT based library services.

RESEARCH METHODOLOGY :

In the present study 44 questionnaires were distributed to the different Institutions to examine the utilization of ICT in academic Institutions libraries in the Sangrur District. This District has 44 colleges, questionnaires were distributed to all these institutions and responses were received from 35 college librarians.9 institutes not responded due to non availability of the librarians or the library professionals.

OBJECTIVES OF THIS STUDY :

- To examine the areas of applications of ICT in academic Institution libraries .
- To evaluate the views of the librarians about the limitations, challenges in application of ICT towards adopting these technologies.
- To study the relationship between the satisfaction of the ICT experience in libraries with gender wise.
- To find out the problems faced by the users while using ICT tools.

RESULTS AND DISCUSSION :

STATUS OF THE RESPONSES
Table 1: Status of the Responses

Sr. No.	Type of Academic Institutes	No of Respondents	Percentage (%)
1.	Education colleges	16	45.7
2.	Degree colleges	14	40
3.	others	05	14.3

Out of the 35 respondents, the majority of the respondents are 21 (60%) male librarians and 14 (40%) female librarians. Type of Academic Institutes wise, majority of the respondents are from Education colleges which is 45.7 %, followed by Degree colleges 40 % and others 14.3 % .

GENDER AND YEARS OF ICT

EXPERIENCE:

Table 2: Gender and years of ICT experience

Sex	1-2 Years No (%)	2-4 years No (%)	4-6 years No (%)	6-8 years No (%)	More than 8 years No (%)
Male	1(2.85)	2(5.71)	5(14.2)	4(11.42)	9(25.71)
Female	-	4(11.42)	7(20)	3(8.57)	-
Both Sex	1(2.85)	6(17.14)	12(34.28)	7(20)	9(25.71)

Note-the figure in the parenthesis indicates number of respondents

The majority of surveyed male librarians 25.71 percent have more than 8 years of ICT experience in the libraries, but none of the surveyed female librarians have more than 8 years experience. About 20 percent of female librarians have up to 6 years experience, which indicates that in recent years females are engaging in the library profession by competing with the male.

The majority of the female librarians

20 percent have experiences within the 4 to 6 years category, but the younger female librarians are mostly adopting the ICT products and usage compared to above the 4 years experience category. Only 8.57 percent of female professionals have ICT experience of 6-8 years. Similarly, females having 4-6 years experience and 6-8 years experiences comprise 20 percent and 8.57 percent of the respondents respectively. According to the survey, female librarians have keen interest to learn ICT in the

form of a structured way and wish for a systematic implementation in the libraries.

ICT ADOPTION OF RESPONDENTS BY AGE WISE :

Table 3: Age of Respondents with ICT Experiences in the libraries

Age (years)	1-2 Years No (%)	2-4 years No (%)	4-6 years No (%)	6-8 years No (%)	More than 8 years No (%)
30-35	2(5.71)	3(8.57)	4(11.4)	3(8.57)	1(2.85)
36-40	-	3(8.57)	2(5.71)	2(5.71)	3(8.57)
41-45	-	2(5.71)	1(2.85)	2(5.71)	-
46-50	-	1(2.85)	2(5.71)	2(5.71)	-
51-55	-	-	1(2.85)	1(2.85)	-
All age groups	2(5.71)	9(25.71)	10(28.57)	10(28.57)	4(11.4)

Note-the figure in the parenthesis indicates number of respondents

It's evident from Table 3 that 28.57 percent Librarians have more than 6 years of good ICT experience. Only 5.71 percent of the librarians have below 2 years of experience. It may be seen from Table 3 that the librarians are giving priority to implementation of ICT applications in their libraries.

At the same time for age factor, 37.14 percent of the respondents within 30-35 and 28.57 percent of the respondents within 36 to 40 years old have good experience with ICT applications and 14.28 percent of the respondents in the age fold of 41 to 45 are also have some experience with ICT. Unfortunately, librarians above 46 years have poor experience with ICT applications.

TYPES OF INSTITUTIONS V/S EXPERIENCE OF RESPONDENTS :

Table 4: Institutions Vs Experiences of Respondents

Institutions Run By	1-2 Years No (%)	2-4 years No (%)	4-6 years No (%)	6-8 years No (%)	More than 8 years No (%)
Govt.	2(5.71)	-	2(5.71)	2(5.71)	8(22.85)
Semi-Govt	1(2.85)	1(2.85)	1(2.85)	1(2.85)	1(2.85)
Private	1(2.85)	3(8.57)	4(11.42)	4(11.42)	2(5.71)
All Institutions	4(11.42)	4(11.42)	9(25.71)	7(20)	11(31.42)

Note-the figure in the parenthesis indicates number of respondents

It is evident from Table 4 that the majority of the govt. institutions librarians are having more than 8 years experiences of ICT implementation in their libraries and they represent 22.85 percent of the respondents. The Private institutions librarians are also having vast experience on ICT at 40 percent. But the semi-govt libraries have very poor usage of ICT Products in their respective libraries.

In the Private Institutions libraries, librarians with more than 8 years of experience are improved in their ICT applications of their libraries constitute 5.71 percent of the total surveyed. It's also interesting to note here that the 6 to 8 years and more than 8 years category show a decreasing trend because of the non employment and also not filling the vacancy for some period of time. So this gap has a significant role to reduce the percentage. This found that the young professionals acquiring more ICT skills on applying in their respective areas.

ICT PREFERENCES IN LIBRARIES :

The Preferences of the ICT Resources in libraries are different. ICT Applications like E-resources, Online Databases, E-articles, E-newspapers and DVD /CDs are available with libraries. The table below shows the survey response of male and female librarians indicating their preference for different types of ICT resources and this is done by ranking their preferences from 1 to 5.

Table 5: ICT Resources Preferences by Librarians

ICT resources	Grade out of 5
e-resource	2.09
Online Databases	2.32
e-articles	3.05
e-news papers	3.50
CDs/DVDs	4.11

Most of the Responses from the different research area has identified that the CD/ DVD mode of information is the most preferred ICT resource by the users community, the reason given being it has good storage capacity and maximum information can be stored in this mode and the information can be easily received by the users through this platform. Table 5 represents the rating of these ICT resources. CD/DVDs get Maximum of 4.11 out of 5, followed by e-news paper, e-articles, and online databases.

ICT APPLICATION EXPOSURE ICT :

Table 6 shows how ICT applications are useful to manage the library in a effective

way and the level of ICT utilization among the surveyed librarians.

Table 6: Librarians level of exposure in ICT

ICT Applications	Well known No (%)	Known No (%)	Somewhat Known No (%)	No idea No (%)	Don't Know No (%)
Digital Library initiatives	23(65.31)	5(14.28)	5(14.28)	2(5.71)	-
Open access journals	26(74.28)	4(11.42)	3(8.57)	2(5.71)	-
Library consortium	23(65.31)	7(20)	3(8.57)	1(2.85)	1(2.85)
Library Hardware Resource Facility	17(48.57)	10(28.57)	4(11.42))	2(5.71)	2(5.71)
Library Soft wares	17(48.57)	12(34.28))	4(11.42))	1(2.85)	1(2.85)
Library Networking	19(63.3%)	9(26.7)	4(11.42))	3(3.4%)	
Internet	23(65.31)	9(25.71)	2(5.71)	-	1(2.85)
Databases	19(54.28)	8(22.85)	4(11.42))	3(8.57)	1(2.85)
Library Automation	25 (71.42)	8(22.85)	2(5.71)		

Note-the figure in the parenthesis indicates number of respondents

Most of the librarians' experience in open access journals is vastly increased and there is no gender difference for the librarians regarding setting up the open access archives. Most of the surveyed librarians say they are familiar in OAJ 74.28 percent followed by library automation 71.42 percent library consortium 65.31 percent. All ICT applications have to be vastly explored by the librarians. The data in table 6 reveals that there are 2.85 percent librarians who don't know about the library consortium, library hardware resource facility, library software, and interestingly 2.85 percent librarians don't know about the internet. This shows that some of the libraries still follow the conventional method of using library resources.

LIBRARIANS' ATTITUDE TOWARDS USE OF ICT IN ACADEMIC LIBRARIES :

Table 7: Librarian's Attitude towards use of ICT

Attitude	Strongly agree No (%)	Agree No (%)	Uncertain No (%)	Disagree No (%)	Strongly Disagree No (%)
Provide online OPAC access to library users	23(65.71)	6(17.14)	6(17.14)	-	-
Provide Access to learned journals in digital form	22(62.85)	8(22.85)	4(11.42)	1(2.85)	-
Provide Document Delivery services	18(51.42)	12(30.0)	5(14.28)	-	-
Provide electronic bulletin board service	17(48.57)	11(31.42)	5(14.28)	2(5.71)	-
In a changing role, Library staff should help users to identify, locate, acquire or access, and learn how to use online database themselves	17(48.57)	10(28.57)	6(17.14)	1(2.85)	-
Campus networking required for connecting all the departments to library	21(60)	9(23.3%)	4(11.42)	1(2.85)	-
Scan journal articles and provide article indexing	20(57.14)	7(20)	7(20)	1(2.85)	-
Library should have high speed data network connectivity	21(60)	10(28.57)	4(11.42)	-	-
Enhance the staff skills in using the ICT	23(65.71)	7(20)	5(14.28)	-	-
Training end users in the use of ICT tools	22(62.85)	8(22.85)	5(14.28)	-	-

Note-the figure in the parenthesis indicates number of respondents

To provide the library service promptly and effectively, the usage of ICT in a research and development libraries is must, for that the attitude of librarians towards use of ICT is surveyed. Librarians of both the genders strongly agree about the utilization of ICT resources in a systematic way to proceed to better service. The table presents all the above attitudes strongly agreed by the professionals. These respondents are encountering the problem of inability to use the computer, while 2.85 percent

encountering the problem of connecting data networking. Most of these librarians surveyed are encountering the problem of non-connectivity of internet for the reason of the above disagree status.

SUGGESTIONS :

The Implied Suggestions are below:
➢ The majority of the respondents prefer Internet as their first source to look for the needed information sources. So the Authority of the research and development libraries should make all the efforts upgrade the ICT infrastructure from time to time.
➢ It is the point of view that the authority of the Libraries should create an Information literacy programme for the users to educate them in accessing the electronic ICT resources.
➢ And also suggest that the librarians / In charge of the libraries should increase the number of online resources such as e-journals and online databases in their respective libraries. Significant development in information and communication infrastructure is facilitating the creation and distribution of knowledge.
➢ Most of the surveyed librarians felt that the fund and non-cooperation of the colleagues may be major difficulties for the development of the ICT based libraries, so authorities should do the needful.
➢ Some of the Respondents say that all the government libraries should be make provision for digital libraries and the ministry should give the nod for mandatory rule for their libraries.

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CVS TESTING USING HFA VIA COMPUTER NETWORK.

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ABSTRACT:

Computer vision syndrome (CVS) is one among the lifestyle disorder in the present era. About 88% of people who use computers everyday suffer from this problem. CVS is a com-plex of ocular and visual problem due to near work which is experienced of ocular and visual problem due to near work which is experienced during the use of computer and television. Therefore, refer the the visual field test using Humphrey Field Analyzer detect CVS and give the treatment for CVS using ayurveda and body positions of human.

1.   Now a days the HFA II-i software offer a choice of connectivity to specialist office networks to EMR and to FORUM, the comprehensive data management system.Using this facility you can export files via the USB port, or over the network, and save to shared folders on a PC for transferring data to EMR.This connectivity give the comprehensive patient information you need, whenever and wherever you need it.

INTRODUCTION

Computer Vision Syndrome, also referred to as Digital Eye Strain, describes a group of eye and vision-related problems that result from prolonged computer, tablet, e-reader and cell phone use. Many individuals experience eye discomfort and vision problems when viewing digital screens for extended periods. The level of discomfort appears to increase with the amount of digital screen use.

Visual field tests are used to detect blind spots (scotomas), which could be a sign of eye diseases. The size and shape of a scotoma offer important clues about the presence and severity of diseases of the eye, optic nerve and visual structures in the brain. Many eye and brain disorders can cause peripheral vision loss and other visual field abnormalities.

The most common symptoms associated with Computer Vision Syndrome (CVS) or Digital Eye Strain are: eye strain,headaches,blue red vision,dry eyes,neck and shoulder pain.

These symptoms may be caused by: Poor lighting**,**Glare on a digital screen,Improper viewing distances,Poor seating posture,Uncorrected vision problems,A combination of these factors.

2.   COMPUTER VISION SYNDROME DIAGNOSYS

Computer Vision Syndrome, or Digital Eye Strain, can be diagnosed through a comprehensive eye examination. Testing, with special emphasis on visual requirements at the computer or digital device working distance, may include:

- **Patient history** to determine any symptoms the patient is experiencing and the presence of any general health problems, medications taken, or environmental factors that may be contributing to the symptoms related to computer use.
- **Visual acuity measurements** to assess the extent to which vision may be affected.
- A **refraction** to determine the appropriate lens power needed to compensate for any refractive errors (nearsightedness, farsightedness or astigmatism).
- **Testing how the eyes focus, move and work together**. In order to obtain a clear, single image of what is being viewed, the eyes must effectively change focus, move and work in unison. This testing will look for problems that keep your eyes from focusing effectively or make it difficult to use both eyes together.

This testing may be done without the use of eye drops to determine how the eyes respond under normal seeing conditions. In some cases, such as when some of the eyes' focusing power may be hidden, eye drops may be used. They temporarily keep the eyes from changing focus while testing is done.

On visual acuity measurement,refraction and eyes focus effect one digital device is working. **This is Humphrey Field Analyzer**.Using the Humphrey Field Analyzer various types of visual field are tested.
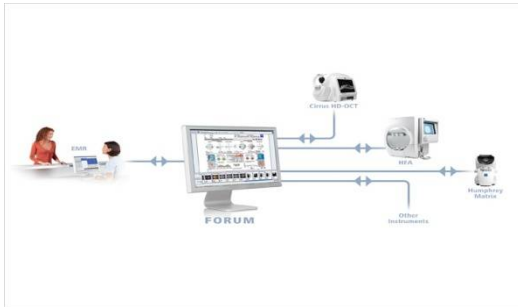
Connecting the way you need

Now a days the **HFA II-*i* software** offer a choice of connectivity to specialist office networks to EMR and to FORUM, the comprehensive data management system **.**

Connectivity powered by FORUM
For comprehensive connectivity, FORUM integrates all of your ZEISS instruments, as well as any DICOM device using the medical standard data protocol. FORUM can also connect to networked devices without DICOM – giving you virtually instantaneous access to the comprehensive patient information you need, whenever and wherever you need it.

Centralized report management and retrieval
FORUM allows you to access your CVS patient data instantly through centralized report management and retrieval.

EMR integration with FORUM
Connectivity to an EMR through FORUM delivers significant practice efficiency and offers closed-loop workflow helping to eliminate patient data errors. For legacy patient records, FORUM offers FORUM ASSIST Match, a quick and simple way to find and merge multiple patient records using a variety of match criteria.

Basic   Networking
You can export files via the USB port, or over the network, and save to shared folders on a PC for transferring data to EMRs.

3.   TYPES OF VISUAL FIELD TESTS USING HFA

a)   Confrontation visual field testing typically is used as a screening visual field test. One eye is covered, while the other eye fixates on a target object, such as the doctor's open eye, while the doctor stands or sits directly in front of you. You then are asked to describe what you see on the far edges or periphery of your field of view. A patient undergoes visual field testing with a Humphrey Field Analyzer (HFA), which uses automated perimetry to measure responses to visual stimuli appearing in central and side vision. (Image: Carl Zeiss Meditec)

As an example, your eye doctor may hold up different numbers of fingers within your peripheral field of view and ask how many can be seen while you continue to fixate on the doctor's eye.

If an eye disease is suspected, you may need to undergo more comprehensive, formal types of visual field testing to evaluate the quality of your central and peripheral vision. A variety of sensitive tests for measuring visual field loss exist, including:

b)Automated Perimetry Various forms of automated perimetry tests measure your responses to the presence of objects in different areas of your field of   view.

While your head is held still, usually with a forehead and chin rest inside a large bowl-like instrument, you stare at a source of light straight ahead and tiny lights of different intensities are flashed from random points in your visual field. Each time you see one of these lights, you immediately press a button or use some other means to indicate your response.

If you can't see the lights in certain parts of your field of view, then you may have a blind spot indicating vision loss.

c)Frequency Doubling Perimetry
Frequency doubling is based on an optical illusion produced with vertical bars of contrasting colors (usually black and white) appearing on a screen. These bars appear to double in number when they alternately flicker at higher frequencies, a phenomenon thought to be due to the unique response of specific light-sensitive cells (photoreceptors) in the retina. Inability to see vertical bars at certain frequencies could indicate optic nerve or other types of eye damage with accompanying loss of vision in certain areas of the visual field.

Computer Vision Syndrome treatement
Solutions to digital screen-related vision problems are varied. However, they can usually be alleviated by obtaining regular eye care and making changes in

how you view the screen.
1.Eye Care
In some cases, individuals who do not require the use of eyeglasses for other daily activities may benefit from glasses prescribed specifically for computer use. In addition, persons already wearing glasses may find their current prescription does not provide optimal vision for viewing a computer.

- Eyeglasses or contact lenses prescribed for general use may not be adequate for computer work. Lenses prescribed to meet the unique visual demands of computer viewing may be needed. Special lens designs, lens powers or lens tints or coatings may help to maximize visual abilities and comfort.

- Some computer users experience problems with eye focusing or eye coordination that can't be adequately corrected with eyeglasses or contact lenses. A program of vision therapy may be needed to treat these specific problems. Vision therapy, also called visual training, is a structured program of visual activities prescribed to improve visual abilities. It trains the eyes and brain to work together more effectively. These eye exercises help remediate deficiencies in eye movement, eye focusing and eye teaming and reinforce the eye-brain connection. Treatment may include office-based as well as home training procedures.

2.Viewing the Computer
Proper body positioning for computer use. Some important factors in preventing or reducing the symptoms of CVS have to do with the computer and how it is used. This includes lighting conditions, chair comfort, location of reference materials, position of the monitor, and the use of rest breaks.

- **Location of computer screen** - Most people find it more comfortable to view a computer when the eyes are looking downward. Optimally, the computer screen should be 15 to 20 degrees below eye level (about 4 or 5 inches) as measured from the center of the screen and 20 to 28 inches from the eyes.

- **Reference materials** - These materials should be located above the keyboard and below the monitor. If this is not possible, a document holder can be used beside the monitor. The goal is to position the documents so you do not need to move your head to look from the document to the screen.

- **Lighting** - Position the computer screen to avoid glare, particularly from overhead lighting or windows. Use blinds or drapes on windows and replace the light bulbs in desk lamps with bulbs of lower wattage.

- **Anti-glare screens** - If there is no way to minimize glare from light sources, consider using a screen glare filter. These filters decrease the amount of light reflected from the screen.

- **Seating position** - Chairs should be comfortably padded and conform to the body. Chair height should be adjusted so your feet rest flat on the floor. If your chair has arms, they should be adjusted to provide arm support while you are typing. Your wrists shouldn't rest on the keyboard when typing.

- **Rest breaks** - To prevent eyestrain, try to rest your eyes when using the computer for long periods. Rest your eyes for 15 minutes after two hours of continuous computer use. Also, for every 20 minutes of computer viewing, look into the distance for 20 seconds to allow your eyes a chance to refocus.

- **Blinking** - To minimize your chances of developing dry eye when using a computer, make an effort to blink frequently. Blinking keeps the front surface of your eye moist.

3.AYURVEDIC HOME REMEDIES FOR COMPUTER VISION SYNDROME

1. **Triphala for CVS:** 1 teaspoon of Triphala powder or 1 Triphala capsule at night along with a teaspoon of honey and 5 drops of ghee is a good remedy for CVS.
2. **Amla – Indian gooseberry for CVS:** Amla, being rich in anti oxidants is one of the very useful herbs for eye care.
3. **Moisturising eye drops:** Such as Isotine eye drops, Ophthacare eye drops etc can be used to reduce irritation and to improve moisture. But these should only be used after consulting a doctor.
4. **Usage of Special glasses:** The special glasses prescribed by the eye specialists help to prevent the problems related to the focus and eye strain.

4.CONTRIBUTION OF AYURVEDIC THERAPIES IN CVS

Ayurveda explains several therapies to reduce eye strain and fatigue with easy to follow procedures. The important therapies are –

1. **Tarpana:** The special medicated ghee of choice (like Triphala ghrita,Maha triphala ghrita,Jeevantyadi ghrita,Amalaka ghrita,Yashti ghrita etc) according to the condition and stage of the illness is filled

inside the well constructed around the eye ball and retained for 5-10 minutes.

2. **Putapaka Awarasa:** Like the above procedure, the medicated fresh-juice obtained on sudation (putapaka method) by the drugs like Agasthya, Eranda etc is filled.
3. **Aschotana:** The medicated fresh juice, processed ghee etc are instilled to the eyes in the dose of 1-2 drops.
4. **Seka:** Pouring of soothening decoctions or fresh juices will help to relieve the fatigue and strain caused in CVS.
5. **Pindi:** The medicated paste applied over the closed eyes also have significant benefit in CVS.

CONCLUSION

Computer has become an integral part of office equipments. Because of the high use of computer there has been a considerable increase in visual problems, leading to the risk of developing CVS. So, the HFA machine for detect CVS is the better therapy.*HFA offer a choice of connectivity to specialist office networks to EMR and to FORUM is very useful for patient information you need, whenever and wherever you need it.*Also the application of *eye care ,viewing the computer of proper body positions,ayurvedic home remedies and ayurvedic therapies* constitutes the basic therapeutic approach in the management of CVS. Hence, it can be implemented in all places of computer utility.*In future we can operate HFA on pc directely or creating App.*

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COMPARATIVE STUDY OF DIFFERENT ONLINE SHOPPING PORTALS IN INDIA

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ABSTRACT:- **The main objective of this research is to study, different shopping portals in india, which is good ,and why Online shopping become so popular now a days. Looking for Best Online shopping sites in India or Top 10 ten 2013 shopping website in India, here in this paper we going to tell you top 20+ and many more Indian online shopping sites. Online shopping has been growing very fast in India, only in 2012 online shopping e-commerce site number has crossed 600 from 100 . Online shopping offers fast, easy, money saving and interesting shopping experience, it has many advantages like 24 hours shopping, Shopping with coupon to get discount, shopping from Home, rich product availability and specifications etc. Also now many sites like Shopclues, Ebay, PayTm offers some great deals every day or week which you can't resist like Jaw Dropping Deal, Sunday Flea Deal, PayTm karo, Ebay, Amazon Lightning Deals, Sankalp deals, Homeshop18.com Superdeals, Flipkart offers, Amazon Happy Hours etc.**

KEYWORDS:- *. Online shopping , Flipkart , Amazon , e-shop , online store , B2B, electronic commerce.*

Research Objectives:-

To understand the concept of online shopping.
To understand the advantages and disadvantage of online shopping.
To know the various online portals.
To understand why some shopping sites become popular.

Introduction:-

On-line shopping is a recent phenomenon in the field of E-Business and is definitely going to be the future of shopping in the world. Online shopping is a form of **electronic commerce** Online shopping is slowly creeping into India. As of now, a large number of people prefer buying everything from groceries to clothes online. Not so long ago, the Indian audience was wary of shopping online owing to potential thefts etc.

Online shopping or e-shopping is a form of electronic commerce which allows consumers to directly buy goods or services from a seller over the internet using a web browser. Alternative names are e-web-store, e-shop, e-store, internet shop, web-shop, web-store, online sort, virtual store etc.

Online shopping is a growing area of technology. Establishing a store on the Internet, allows for retailers to expand their market and reach out to consumers who may not otherwise visit the physical store. The convenience of online shopping is the main attraction for the consumers. Unique online payment systems offer easy and safe purchasing from other individuals. Electronic consumers exhibit different buying behaviors such as; cart abandonment. The benefits of shopping online also come with potential risks and dangers that consumers must be aware of. In the future, we can expect online stores to improve their technology tremendously, allowing for an easier and a more realistic shopping experience.

Online shopping is the process whereby consumers directly buy goods or services from a seller in real-time, without an intermediary service, over the Internet. It is a form of electronic commerce. An online shop, eshop, e-store, Internet shop, webshop, webstore, online store, or virtual store evokes the physical analogy of buying products or services at a bricks-and-mortar retailer or in a shopping center. The process is called business-to-consumer (B2C) online shopping. When a business buys from another business, it is called business-to-business (B2B) online shopping.

History

English entrepreneur Michael Aldrich was a pioneer of online shopping in 1979. His system connected a modified domestic TV to a real-time transaction processing computer via a domestic telephone line. He believed that videotext, the modified domestic TV technology with a simple menu-driven human–computer interface, was a 'new, universally applicable, participative communication medium — the first since the invention of the telephone.' This enabled 'closed' corporate information systems to be opened to 'outside' correspondents not just for transaction processing but also for e-messaging and information retrieval and dissemination, later known as e-business. His definition of the new mass communications medium as 'participative' [interactive, many-to-many] was

fundamentally different from the traditional definitions of mass communication and mass media and a precursor to the social networking on the Internet 25 years later. In March 1980 he launched Redifon's Office Revolution, which allowed consumers, customers, agents, distributors, suppliers and service companies to be connected on-line to the corporate systems and allow business transactions to be completed electronically in real-time. During the 1980s he designed, manufactured, sold, installed, maintained and supported many online shopping systems, using videotext technology. These systems which also provided voice response and handprint processing pre-date the Internet and the World Wide Web, the IBM PC, and Microsoft MS-DOS, and were installed mainly in the UK by large corporations.

In 1990, Tim Berners-Lee created the first World Wide Web server and browser. It opened for commercial use in 1991 . In 1994 other advances took place, such as oline banking and the opening of an online pizza shop by Pizza Hut. During that same year, Netscape introduced SSL encryption of data transferred online, which has become essential for secure online shopping. Also, in 1994, the German company Intershop introduced its first online shopping system. In 1995, Amazon launched its online shopping site, and in 1996, eBay appeared.

Description

A good online store is easy to navigate and browse for possible purchases. It has a product catalog that customers can use to browse the search criteria (usually a type, price, material, age, etc.), information about the products, the sellers, and the service center. Online stores may also discuss business conditions and a Complaints Procedure.

If a shopper finds a product to purchase, clicking "send" will add the item to the shopping cart. The shopping cart collects all items to be purchased. Once a shopper is satisfied with their selections, the shopper makes a binding order and payment using a credit card or other financial arrangement. Therefore, implementing usability testing is highly important for an online store to avoid the reduce of overall performances of the online store [2]

In the twenty first century, online shopping has become very popular, especially with the lifestyles of business people who are always busy and are looking for a convenient way to shop.

E- Payment Systems:-

E payment is a subset of an e-commerce transaction to include electronic payment for buying and selling goods or services offered through the Internet. Generally we think of electronic payments as referring to online transactions on the internet, there are actually many forms of electronic payments. As technology developing, the range of devices and processes to transact electronically continues to increase while the percentage of cash and check transactions continues to decrease.

Online shoppers commonly use a credit card or a PayPal account in order to make payments. However,

some systems enable users to create accounts and pay by alternative means, such as:

- Billing to mobile phones and landlines
- Cash on delivery (C.O.D.)
- Cheque / Check
- Debit card
- Direct debit in some countries
- Electronic money of various types
- Gift cards
- Postal money order
- Wire transfer / delivery on payment
- Invoice, especially popular in some markets/countries, such as Switzerland
- Bit coin or other crypto currencies

Some online shops will not accept international credit cards. Some require both the purchaser's billing and shipping address to be in the same country as the online shop's base of operation. Other online shops allow customers from any country to send gifts anywhere. The financial part of a transaction may be processed in real time (e.g. letting the consumer know their credit card was declined before they log off), or may be done later as part of the fulfillment process.

The Internet has the potential to become the most active trade intermediary within a decade. Also, Internet shopping may revolutionize retailing by allowing consumers to sit in their homes and buy an enormous variety of products and services from all over the worlds. Many businesses and consumers are still wary of conducting extensive business electronically. However, almost everyone will use the form of E Commerce in near future.

The services provided online for shopping:-

1. Shopping:- the main services provided by the online websites are the shopping only. They provide the various option to shop online through which you can shop anything. You shop for the clothes, electronic items, furniture and so on. You can shop for the whole family members also. There is wide range of the clothes in various brands.

2. Discounts:- discounts are also offered by the many online companies. You can ge the huge discounts during the festive and wedding season through which you can save your money.

3. Payment mode:- payment mode is totally depending upon you whether you want to pay by the credit cards or to cash on delivery. You can choose any payment mode. You give the amount for the product when it is delivered at your home is the cash on delivery.

4. Refund, exchange :-A business doesn't have to allow you to return an item you have simply changed your mind about. However, some stores have their own in-store policy to offer a refund, exchange or credit note for 'change-of-mind' purchases. Usually when you buy a product or service the contract is final. If you simply change your mind, your circumstances have changed or you find cheaper

products elsewhere, the retailer or service provider does not have to provide a refund or exchange.

5. Check before you buy:- Usually when you buy a product or service the contract is final. If you simply change your mind, your circumstances have changed or you find cheaper products elsewhere, the retailer or service provider does not have to provide a refund or exchange.However, in some situations you may be able to negotiate with the seller.

5. Check the retailer's returns policy or terms and conditions:- Some retailers will kindly let you return products for a cash refund, an exchange or a credit note. Before you buy, ask the shop about their exchange or refund policy, or read their terms and conditions if you are buying online. If you later change your mind, you will need to refer to these. Retailers can choose not to include items on special or on sale in their refund policy, eg "no change of mind refunds on sale items."

6. Check the terms of the contract for services:- If you cancel a booking or appointment before any services are commenced, you have still entered into a contract and if they have suffered a loss they may be able to charge you. Also, read the service provider's contract or their terms and conditions to check your ability to end the contract for different reasons.

7. Ask for an exchange card:- If you buy a gift, you can ask for an exchange card to give with the gift. If the recipient doesn't like the gift, they can go back to the shop or online store and exchange it.Exchange cards usually have an expiry date. This date is important to know because a shop or online store is not obliged to honour an exchange card after that date.

8. Buying 'on appro':- Cash approval, or buying products 'on appro', means you can take the products home without committing to buying them. Usually you pay for the products, but you can return them in the same condition for a full refund within a day or other specified period. If you damage the products whilst "on appro" the shop can make you pay for the damage or insist that you buy the products.

Advantages & Disadvantages of Online Shopping :-

Shopping is probably one of the oldest terms used to talk about what we have all been doing over the years, if possible, eras. Then again, in ancient times, the terms that would have been used would be 'trading' or 'bartering' and probably even 'market.' So what has traditional shopping have to offer now that the internet has opened up a wider and more enticing market to the current consumers?

Advantages of Online Shopping

• **Save Time** – Do you have the specific list that you want to buy? With just a couple of clicks of the mouse, you can purchase your shopping orders and instantly move to other important things, which can save time.

• **Save Fuel** – The market of fuel industries battles from increasing and decreasing its cost every now and again, but no matter how much the cost of fuel are it does not affect your shopping errands. One of the advantages of shopping online is that there is no need for vehicles, so no purchase of fuel necessary.

• **Save Energy** – Admit it, it is tiresome to shop from one location and transfer to another location. What is worse is that there are no available stocks for the merchandise you want to buy. In online shopping, you do not need to waste your precious energy when buying.

• **Comparison of Prices** – The advanced innovation of search engine allows you to easily check prices and compare with just a few clicks. It is very straightforward to conduct price comparisons from one online shopping website to another. This gives you the freedom to determine which online store offers the most affordable item you are going to buy.

• **24/7 Availability** – Online shopping stores are open round the clock of 24/7, 7 days a week and 365 days. It is very rare to find any conventional retail stores that are open 24/7. The availability of online stores give you the freedom to shop at your own pace and convenience.

• **Hate Waiting in Lines** – When buying items online, there are no long lines you have to endure, just to buy your merchandise. The idea of shopping online is cutting down those bad habits of standing in a long line and just waiting. Every online store is designed with unique individual ordering features to purchase the item.

• **Too Ashamed to Buy** – There are times that you want to purchase something out of the ordinary that can be a bit embarrassing when seen by other people. Items like weird ornaments, sexy lingerie, adult toys, etc. In online shopping, you do not need to be ashamed, your online transactions are basically done privately.

• **Easy to Search Merchandise You Want to Buy** – You are able to look for specific merchandise that includes model number, style, size, and color that you want to purchase. In addition, it is easy to determine whether the products are available or out of stock.

Disadvantages of Online Shopping

If there are advantages, most likely there will be disadvantages. Despite the success of purchasing through online shopping stores, there are still some disadvantages that most people complain about. These include:

• **Personally Check the Item** – If you are one of those shoppers who want to touch, see, and test the product personally, at online shopping, you are not able to do so. Online stores are only showing product description and photos of the merchandise,

which can be a disadvantage for many online shoppers.

• <u>**Diminished Instant Satisfaction**</u> – Unlike buying at retail stores, you are able to use the product instantly after you buy it, which can be satisfying. However, online shopping requires patience to wait for the item to arrive at your door step about 2 to 3 days or even longer depending on the location you've ordered it from.

Traditional Commerce vs. Online commerce:-

Online shopping as the name suggest is done over internet and therefore you do not have stand in line or go anywhere from your home to purchase the stuff you like whereas in physical shopping if you want to buy you have to go nearby mall or shop and then purchase the item you like from there.

In online shopping one can look many products and that too multiple times without buying them and therefore it offers lot of flexibility whereas in case of physical or traditional shopping one does not have too much of choices as one has to buy the product which is available at shop and if that product is not available then either you buy the product which is your second choice or wait for that product to come and then buy.

In Online shopping if one is buying products like shoes or clothes then one cannot try the product before placing the order and therefore the chances of actual product being different from perceived product is high whereas in case of traditional shopping there is no such risk because consumer try it first and then buy and therefore there is no scope of difference between actual and perceived product.

Online shopping is transparent in the sense that one can compare the price of product over different websites to ensure that he or she buys the product at cheapest price, however in case of physical shopping one does not have this luxury because the buyer has to purchase the product at a price which is quoted by seller as there is no way of finding whether the price quoted by seller is fair or not.

In case of online shopping thousands of different products are available at one place or website whereas in case of physical shopping this is not possible and hence if you want to buy mobile and trousers then you have to go to 2 different shops as these product are different and hence it leads to time wastage. Hence one can say that when it comes to time saving online shopping definitely scores over physical shopping.

Online shopping scope is used by people who are tech savvy and therefore it is mostly used by young people, however in recent times middle age and older age people too are getting used to it whereas physical shopping is done by old people or by those who are not that familiar with technology advancement in e commerce and its benefits and they consider online shopping risky because of fear of fraud and unknown.

As one can see from the above that there are many differences between online and physical shopping, however one thing remain the same and that is one has to spend money whether he or she buy the product online or physically.

Here Is A List Of Top Online Shopping Sites In India:-

Today, you can shop online for anything and everything using these popular eCommerce portals. Shop online in India for **mobiles, computers, clothes, shoes, household items, accessories, digital products**,etc.

Nowadays e-commerce portals are being developed for specific products and business. That's the reason there are now thousands of eCommerce portals in India that cater every kind of products and businesses on the Internet.

Flipkart.com:-This one has to come first hands down. The entire country is completely dependent on Flipkart for nearly all their shopping needs. Flipkart sells everything from gift vouchers to electronics to home appliances. In fact, statistics claim that there are more items on flipkart than in a mall. Hence, Indians are heavily reliant on flipkart for all their shopping needs.

Here you can buy almost everything ranging from books, bags, toys, baby care,belts,watches, television, cell phones to refrigerators, hard drives , motorcycles, air conditioners, and a lot of various items. Here you can get easy discounts, coupons and many other deals which will keep you buying from Flipkart.

Amazon.in:-A large number of people from India swear by the services of amazon. Amazon and flipkart are always at war with each other and are always at close heels. Amazon has an equally large number of products as flipkart. In fact, Amazon apparently sells more than flipkart. Since amazon is an American company, it lacks the desi taste that would be preferred by an Indian. It would be wise to indianise its Indian domain. It would then be an instant hit amongst the masses.

Snapdeal.com:-Snapdeal is a completely Indian website and is often preferred by the masses for its cheap rates. It sells products at really low prices and hence, is a favourite of the masses. It is a good idea to buy from Snapdeal if you are looking for absolutely cheap prices. However, there have been times when consumers have complained of the products of Snapdeal and hence, some of them stay away from Snapdeal.

Snapdeal is India's largest e-commerce website with respect to the number of transactions in a single day. Products such as watches, hard drives, laptops, computers can be bought at a very cheap price. It provides some heavy discounts on its items. Operating in only a few number of cities but the transaction rate is very high. It ranks amongst the top players in best online shopping sites in India.

Jabong.com:-Jabong is again an American brand but seems to be doing very well in India. It has a large number of clothes and accessories for sale and is a complete paradise for those who love shopping for clothes. It has all kinds

of products from western wear to desi kurtis and it would be fun to sit home and shop for clothes on jabong. Jabong is excessively preferred by women shoppers.This site is gaining popularity day by day because of its efficient work process and availability of number of brances in most parts of the country. Soon it will be in race amongst the present best online shopping sites in India.

Myntra.com:-Myntra aiming to redefine the fashion mantra of Indians, offers fashion products such as T-shirts, jeans, watches, shoes, belts and other fashion accessories. An equally large number of women favour myntra over jabong. Myntra also has a large number of accessories and clothes on its online portal. It has a large number of categories as well and one can buy from a category of their choices. From western to ethnic to traditional, all kinds of clothes are sold on myntra.

Localbanya.com:-This is a website meant for shopping groceries and is a blessing for working women. It is also a blessing for the woman who is busy all the time. All of the grocery items are available over here and one can buy according to their needs. From organic to inorganic items, everything is available over here. Thus, localbanya.com is indeed one of the leading grocery shopping sites in India.

Homeshop18:-This is an equally popular website amongst online shoppers. Those who do not mind waiting a little extra for delivery at the reward of a lower price, order from here. A lot of times, the cheapest of items and the remotest of items are easily found on homeshop18.com. Thus, this site also has an equally large number of shoppers who are loyalists. However, homeshop18 cannot be trusted when one is in an emergency. You'd rather buy from one of the websites where they give express deliveries.

Infibeam.com:-Infibeam.com is a place where you often find things that are not found anywhere else. The rarest of things, the rarest of books and the rarest of electronics and many other such items are easily found on infibeam.com. Infibeam.com has a long way to go before it comes higher up the ranks but it definitely isn't doing badly so far.Infibeam is India's own e-commerce company placing its headquarters in Ahemdebad. Buy cell phones jewellery, apparel, Mp 3 and a lot more here.

Shopclues.com:-Shopclues is famous for their heavily discounted best shopping deals. Shopclues is one of the best online stores that offers a wide variety of cameras, Computer accessories, Mobile, Gift, Jewellery, Cosmetics, toys, clothes, books and bag. ShopClues is an amazing online shopping store to buy products. ShopClues , famous for its Jaw Dropping Deals, provides commodities at an extremely cheap price. Offers wide variety of goods such as cameras, cosmetics, pendrives etc.

Firstcry.com:- Firstcry.com India's largest store for Kids selling 70000+ items from 400+ top International and Indian brands.

eBay.in:-The world leader in online shopping store has stamped its mark in India also.

eBay is a shopping store in which a wide variety of goods, services and products are bought and sold. eBay sells fresh new products along with used products. It some times holds up auction for some products also. eBay and Flipkart are on a neck to neck competition for becoming the best online shopping site in India.

Tradus.in:-Tradus is an European based online shopping store which provides variety of online products and commodities. Shipping is done for free but only to a few parts of the country. Discounted prices of products are available in this website.

FutureBazaar.com :- is an online shopping site which is owned by highly recognized and reliable Future Bazaar Private Limited. It offers you variation of products along with the variation in their prices.

BuythePrice.in:-Shop Online – Buy Mobile Phones, Laptops, Digital Cameras, MP3 Players, TVs and Hard Disks + Free Shipping . An intersting feature about this website is that the prices of the products goes on decreasing if more and more people buy them. The price of the book goes down from 400 to 300 if instead of 1 10 people buy it. The customers can take profitable advantage of this option.

Homeshop18.com:-This website contains a range of kitchen appliances , household products , laptops, shoes, gifts etc . Homeshop18 . Owned by Network18, a television and a media marketing company. Homeshop18 is the first company to launch its 24 x 7 open Home shopping TV channel. This website has been awarded the "Best Shopping Site" by PC World Magazine in 2008. Because of its advertisement, the popularity has been rising to new peaks. It is also becoming one of the strongest contender for best online shopping sites in India.

Yebhi.com:-Yebhi is also referred as the " Online Apparel Store of India". This website provides a wide collection of apparel, bags, jewellery. Yebhi is the undisputed king of Online Apparel in India. Lucrative prices along with discounts makes the customers buy in this shopping store.

Indiaplaza.com :-Shop over more than 8 million items in indiaplaza.in. Offers varied products with number of options available for each product.

Pepperfry.com:- India's leading lifestyle store offering home decor products along with wardrobe , and other fashion accessories

Indiatimes.shopping.com :-Displays an umpteen number of products, targeted mainly on electronic items. Electronic items such as cell phones, iphones, laptops and its accessories etc. can be purchased at a very cheap price.

Sulekha.com:-Offers a limited number of products but at a very lucrative price. Kitchen appliances and electronic items can be profitably purchased.

Koovs.com:- This website offers branded clothing, accessories, cosmetics, utilities, health care, fashion products etc. specially for the ladies.

Bestylish.com:-Be stylish offers you online footwear shopping at discounted price.

Seventymm.com:- Seventymm.com offers electronic gadgets, electronics accessories, LCD televisions, movie posters etc. It contains a lot of stuffs for the children such as soft toys of cartoon characters, school bags, kids wear, video games, coloring sets, umbrellas and many other.

Hushbabies.com:- Hushbabies is one stop shop for baby products. It is amongst the few online shopping sites that offers baby products. It deals with an array of baby products starting from baby soaps, powders, and toys to baby cleaning products. There are thousands of branded baby products available online in this online shopping site.

Goodlife.com ;-Goodlife.com offers you some of the best Indian and International personal care products. Products of some the highly reputed personal care product companies such as Lakme, Olay, Dove, L'Oreal etc are available in this website.

Naaptol.com:- Naaptol.com allows its customers to avail various options for a particular product. This website is amongst the most popular online shopping sites. The details of the product is displayed to the customer, leaving behind no confusion in the minds of its customer.

GadgetGuru.com:- GadgetGuru.com is definitely the amongst the best online shopping sites which offers various gadgets of different types at a very cheap rate. It offers laptops, cameras, iphones, ipads, notebooks etc.

SaveRupee.com :- It is an online shopping mall that provides discounts on maximum number of its items.

Comparitive analysis of E-Shopping Potals through their different indications :-

Indications	Shopping Potals															
	Flipcart.com	Amazon.com	Snapdeal.com	Jobong.com	Mynantra.com	Shopclues.com	eBay.in	Naaptol.com	Firstcry.com	GadgetGuru.com	Homeshop18.com	Pepperfry.com	Goodlife.com	Yebhi.com	Infibeam.com	Localbanya.com
Mobiles & Tablets	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✗	✗	✗	✓	✗
Electronics, camera	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✗	✗	✗	✗	✓	✗
Fashion & Lifestyle	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✗	✗	✓	✓	✗
Clothing- Men,women	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✗	✗	✓	✓	✗
Baby & Kids- Clothings, toys, baby care, footwear	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✗	✗	✓	✓	✗
Appliances- kitchen appliances & home appliance	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✗	✗	✓	✓	✗
Jewellery	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✗	✗	✓	✓	✗
Footwear	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✗	✗		✓	✗
Accessories- BAGS, SUNGLASSE, WATCHES	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✗	✗	✓	✓	✗
Home & Furniture	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✓	✗	✓	✓	✗
Automotive & Industrial -Cars & Bikes	✓	✓	✓	✓	✗	✗	✗	✗	✗	✓	✗	✗	✗	✗	✓	✗
Books and Stationery	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✗
Health Care & Beauty Essentials	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓	✗
grocery	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓

From above table, all indications are available on flipcart, amazon, snapdeal,jobong, shopclues,naaptol , **Infibeam.com** ,because of this more product availability these shopping sites are became so popular all items are available on one click at one site.

And few products available on Mymantra.com , Shopclues.com, eBay.in, Naaptol.com, Yebhi.com , so this e-shopping sites are not more popular . customer can approach these site when they want purches a specific item.

And some sites are not able to sale all products the sale a specific item, and because of this e-shopping web sites like **Localbanya.com,** Goodlife.com, **Pepperfry.com,** Firstcry.com are popular for a specific items.

Conclusion:

Online shopping has become extremely popular over the last decade. Utilized mostly by the "Net- Generation", this service is extremely convenient. Although online shopping can be very convenient and beneficial there are also some potential problems that can arise. Consumers have been seen to exhibit different buying behaviors when shopping online than when they are shopping in a physical store. This makes it imperative that retailers study the behaviors of consumers and make changes in order to remain profitable and successful. Another potential problem that can arise from online shopping is addiction. The convenience of online shopping that can be seen as very beneficial, can also lead to an unhealthy addictive pattern of behavior. If the person does not seek help, this unhealthy pattern, can result in an online shopping addiction, causing more than financial damage. In the future, we can expect online stores to improve their technology tremendously, allowing for an easier and a more realistic shopping experience online.The technology of online shopping websites will continue to grow and, as a result, will expand the online shopping market and benefiting thousands of consumers over the world.

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Paper ID: 52

TO DISCOVER AND AVOID NON-SIGNIFICANT PATTERNS IN SEQUENTIAL DATA MINING

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ABSTRACT: **Several popular algorithms like FP-Growth, SPADE are available to obtain genuine and informative sequence patterns among from sequence data sets. However, these approaches generate sequences with the help of a time-window where the time constraint is provided by a domain expert. We proposed an approach to obtain genuine 2-Sequences [12] and 3-Sequences [13] with the help of estimated average time interval between any two events of any 2-Sequence.**

We further used the algorithm to obtain list of non-significant sequences that has large time gap between the successive occurrences of constituent events of the 2-Sequences and/or 3-Sequences. In this paper, we demonstrated the results obtained using our algorithm. We tested our results on the live data set of transaction recorded for a small North American retail store chain.

Keyword : data mining, non-significant sequences, intra-transaction association

1. INTRODUCTION:

Data mining is a process of discovering useful patterns or knowledge from data sources. In market analysis, association rule mining is used. Association rule mining means to find all co-occurrence relationship among data items. There are two types of association can be found using association rule mining: intra-transaction association (association among items within same transaction) [1], [2].and inter-transaction (association among items in different transactions) [3], [4], [5], [6], [7]. To analyze customer behavioral buying patterns, inter-transaction association is used. Inter-transaction association means sequential pattern mining. For example, a subsequence such as buying first A item, then B item, and then C item if it occurs frequently in shopping history database, is a frequent sequence pattern.

Most of the sequential patterns are discover in large database using time constraint [8], [9], [10], [11]. A numbers of items in a sequence are called length of that sequence. For example, a sequence <AB> such that an event A follows by event B within time interval T, is called as 2-Sequence. A sequence <ABC> such that an event A follows by an event B within time interval T1 and event B follows by an event C within time interval T2. A sequence <ABC> contains 3 different items A, B and C corresponds to three different events known as 3-Sequences.

Conventional algorithms that discover sequences using time constraints are not estimated actual time interval among sequences. Joshi et al. [12] has proposed an algorithm to estimate a time period for any given 2-Sequences. An extended work to 3-Sequences has proposed in algorithm [13]. In this approach, we used this approach to find 3-sequences and estimated time intervals among them. We specified time interval range more than threshold value to find non-significant sequences and avoid them. The rest of the paper is organized into 4 sections. In section-2, we discuss database used in experiment and preprocessing of database. Section-3, presents experiment details. Section-4 concludes the paper.

2. EXPERIMENTAL DATASET:

For experiment, we use a dataset of retail store. Database contained information of customers, products and their transaction from January 2005 to December 2010.

3. EXPERIMENTAL EVALUATION:

We performed experiment to generate 2-Sequences and 3-sequences with estimation of time interval among them. Finally, we find and discard non- significant sequences. The following Figure 1 shows experiment work flow:

First, we pre-processed a dataset to remove duplicate records and perform sort on customer, product and time fields. We obtained frequent 1-sequence dataset which satisfy min_support threshold value using GSP algorithm.

We generate 2-Sequences and estimate time period among them using approach [12] as shown in Table 1.

We generate 3-Sequences and estimate time interval among them using approach [13] as shown in Table 3.
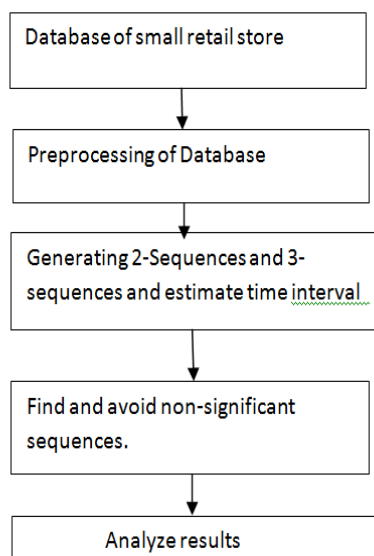
Fig. 1 Experimental Workflow

By inputting value more than threshold value, we found non-significant sequences from 2-Sequences and 3-Sequences. This non-significant sequence can be avoided. In Table 2, non-significant sequences are obtained by inputting threshold value as 365. We considered if time interval among 2-Sequences is 365 days (1 year) then the sequence is non-significant. Similarly, we obtained non-significant sequences from 3-sequences as shown in Table 4.

EXPERIMENTAL RESULTS:

Table 1. Time interval estimate for 2-Sequences

Association between (item3,item4)			
Customer	Date of purchase of item 3	Date of purchase of item 4	Time Interval (T1) (3->4)
8	7/1/2005	20/07/2005	194
9	20/02/2005	18/03/2005	26
15	12/4/2005	9/9/2005	150
19	22/03/2006	17/04/2006	26
19	21/01/2007	14/07/2007	174
20	26/08/2005	21/02/2006	179
20	21/02/2006	4/5/2006	72
20	23/12/2006	15/12/2007	357
24	21/11/2005	10/4/2007	505
28	12/1/2005	24/05/2006	497
39	17/05/2007	12/12/2007	209
45	6/12/2006	1/2/2007	57

Table-2 shows Non-significant 2-Sequences (Time interval more than 365)

Association between (item 3,item 4)			
Customer	Date of purchase of item 3	Date of purchase of item 4	Time Interval (T1) (3->4)
24	21/11/2005	10/4/2007	505
28	12/1/2005	24/05/2006	497

TABLE 3
TIME INTERVAL ESTIMATES FOR 3-SEQUENCE

Association between (item 4, item 8, item 15)					
Customer	Date of purchase of item 4	Date of purchase of item 8	Date of purchase of item 15	Time Interval (T1) (1->2)	Time Interval (T2) (2->3)
6	26/01/2007	1/2/2007	1/2/2007	6	0
6	27/02/2007	27/02/2007	27/02/2007	0	0
6	22/03/2007	23/03/2007	23/03/2007	1	0
6	7/5/2007	14/05/2007	14/05/2007	7	0
6	4/6/2007	4/6/2007	4/6/2007	0	0
6	2/10/2007	5/10/2007	5/10/2007	3	0
6	19/10/2007	21/10/2007	21/10/2007	2	0
6	29/10/2007	31/10/2007	5/11/2007	2	5
44	27/02/2006	18/09/2006	27/08/2007	203	343
58	12/12/2007	28/12/2007	28/12/2007	16	0
127	13/03/2006	26/12/2006	26/12/2006	288	0
159	22/08/2005	2/12/2006	13/12/2006	467	11
161	11/10/2005	14/06/2006	5/7/2006	246	21
164	28/01/2005	28/04/2006	24/06/2006	455	57
171	11/4/2007	17/10/2007	23/12/2007	189	67
174	9/2/2005	23/07/2007	10/8/2007	894	18
178	14/02/2005	2/4/2005	2/4/2005	47	0
217	4/5/2006	12/5/2006	12/6/2007	8	396
222	4/8/2005	11/8/2006	4/1/2007	372	146
241	25/05/2006	18/05/2007	30/07/2007	358	73
343	6/6/2006	10/8/2007	10/8/2007	430	0
362	26/07/2006	8/1/2007	28/01/2007	166	20
364	27/07/2006	8/8/2006	4/11/2006	12	88

Table-4 shows Non-significant 3-Sequences (Time interval more than 365)

Association between (item 4, item 8, item 15)					
Customer	Date of purchase of item4	Date of purchase of item8	Date of purchase of item15	Time interval (T1) (1->2)	Time interval (T2) (2->3)
159	22/08/2005	2/12/2006	13/12/2006	467	11
164	28/01/2005	28/04/2006	24/06/2006	455	57
174	9/2/2005	23/07/2007	10/8/2007	894	18
217	4/5/2006	12/5/2006	12/6/2007	8	396
222	4/8/2005	11/8/2006	4/1/2007	372	146
343	6/6/2006	10/8/2007	10/8/2007	430	0

CONCLUSION:

In this paper, new approaches were used to discover 2-Sequences and 3-Sequences with estimation of time intervals among them. If the time interval among sequences is too large then they are meaningless. Such sequences can be avoided from frequent sequences.

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CYBER CRIME AND ITS IMPLICATIONS

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ABSTRACT: *The purpose of this paper is to understand Cybercrime, its Phenomena, Challenges and Legal Response. It is beneficial to know the legal aspects of cyber security and to help harmonize legal frameworks. As such, it aims to help better understand the national and international implications of growing cyber threats, to assess the requirements of existing national, Regional and international instruments, and to assist in establishing a sound legal foundation. It provides a comprehensive overview of the most relevant topics linked to the legal aspects of Cybercrime and focuses on the demands of developing countries. Due to the transnational dimension of Cybercrime, the legal instruments are the same for developing and developed countries.*

Cyber security, a complex issue, cuts across domains and national boundaries and makes it difficult to attribute the origin of cyber-attacks. It, therefore, calls for a strategic and holistic approach requiring multi-dimensional and multi-layered initiatives and responses.

KEYWORD: *Cyber security, Cyber Crime, Theft, Malware, illegal access.*

INTRODUCTION

The Internet is one of the fastest-growing areas of technical infrastructure development. Today, Information and communication technologies (ICTs) are omnipresent and the trend towards digitization is growing. The demand for Internet and computer connectivity has led to the integration of computer Technology into products that have usually functioned without it, such as cars and buildings. Electricity supply, transportation infrastructure, military services and logistics – virtually all modern services depend on the use of ICTs. Although the development of new technologies is focused mainly on meeting consumer demands in western countries, developing countries can also benefit from new technologies.4 With the availability of long-distance wireless communication technologies such as WiMAX5 and computer systems that are now available for less than USD 200, many more people in developing countries should have easier access to the Internet and related products and services. The influence of ICTs on society goes far beyond establishing basic information infrastructure. The availability of ICTs is a foundation for development in the creation, availability and use of network-based services. E-mails have displaced traditional letter, online web representation is nowadays more important for businesses than printed publicity materials; and Internet-based communication and phone services are growing faster than landline communications. The availability of ICTs and new network-based services offer a number of advantages for society in general, especially for developing countries.

ADVANTAGES AND RISKS

The introduction of ICTs into many aspects of everyday life has led to the development of the modern Concept of the information society. This development of the information society offers great Opportunities. Unhindered access to information can support democracy, as the flow of information is Taken out of the control of state authorities (as has happened, for example, in Eastern Europe and North Africa).Technical developments have improved daily life – for example, online banking and shopping, the use of mobile data services and voice over Internet protocol (VoIP) telephony are just some examples of how far the integration of ICTs into our daily lives has advanced. However, the growth of the information society is accompanied by new and serious threats. Essential services such as water and electricity supply now rely on ICTs. Cars, traffic control, elevators, air conditioning and telephones also depend on the smooth functioning of ICTs.23 Attacks against information infrastructure and Internet services now have the potential to harm society in new and critical ways. Attacks against information infrastructure and Internet services have already taken place. Online fraud and hacking attacks are just some examples of computer-related crimes that are committed on a large scale every day [3]. The financial damage caused by cybercrime is reported to be enormous.

CYBER SECURITY AND CYBER CRIME

Cybercrime and cyber security are issues that can hardly be separated in an interconnected

environment. In 2010, UN General Assembly resolution on cyber security addresses cybercrime as one Major challenge. Cyber security plays an important role in the ongoing development of information technology, as well as Internet services. 37 Enhancing cyber security and protecting critical information infrastructures are essential to each nation's security and economic well-being. Making the Internet safer (and protecting Internet users) has become integral to the development of new services as well as government policy. Deterring cybercrime is an integral component of a national cyber security and critical information infrastructure protection strategy. In particular, this includes the adoption of appropriate legislation against the misuse of ICTs for criminal or other purposes and activities intended to affect the integrity of national critical infrastructures. At the national level, this is a shared responsibility requiring coordinated action related to prevention, preparation, response and recovery from incidents on the part of government authorities, the private sector and citizens.

ILLEGAL ACCESS

The offence described as "hacking" refers to unlawful access to a computer system191, one of oldest Computer-related crimes. Following the development of computer networks (especially the Internet), this crime has become a mass phenomenon. Famous targets of hacking attacks include the US National Aeronautics and Space Administration (NASA), the US Air Force, the Pentagon, Yahoo, Google, eBay and the German Government. Examples of hacking offences include breaking the password of password-protected websites and Circumventing password protection on a computer system. But acts related to the term "hacking" also Include preparatory acts such as the use of faulty hardware or software implementation to illegally obtain a password to enter a computer system, setting up "spoofing" websites to make users disclose their Passwords and installing hardware and software-based key logging methods (e.g. "key loggers") that Record every keystroke – and consequently any passwords used on the computer and/or device. Many analysts recognize a rising number of attempts to illegally access computer systems, with over 250 million incidents recorded worldwide during the month of August 2007 alone. Three main factors have supported the increasing number of hacking attacks: inadequate and incomplete protection of computer systems, development of software tools that automate the attacks, and the growing role of private computers as a target of hacking attacks.

Inadequate and incomplete protection of computer systems

Hundreds of millions of computers are connected to the Internet, and many computer systems are without adequate protection in place to prevent illegal access. Analysis carried out by the University of Maryland suggests that an unprotected computer system that is connected to the Internet is likely to Experience attack within less than a minute. The installation of protective measures can lower the risk, but successful attacks against well-protected computer systems prove that technical protection measures can never completely stop attacks.

Development of software tools that automate the attacks

Recently, software tools are being used to automate attacks. With the help of software and preinstalled attacks, a single offender can attack thousands of computer systems in a single day using one computer. If the offender has access to more computers – e.g. through a botnet – he/she can increase the scale still further. Since most of these software tools use preset methods of attacks, not all attacks prove successful. Users that update their operating systems and software applications on a regular basis reduce their risk of falling victim to these broad-based attacks, as the companies developing protection software analyze attack tools and prepare for the standardized hacking attacks. High-profile attacks are often based on individually-designed attacks.

VARIOUS TYPES OF CYBER CRIMES

There are several types of cyber crimes that are occurring in the networking world some of these are as written below-

1. Financial fraud
2. Sabotage of data and other networks
3. Theft of proprietary information
4. System penetration from outside
5. Denial of service
6. Unauthorized access by insiders
7. Employee use of internet service privileges
8. Viruses

ANTI-CYBERCRIME STRATEGIES

Cyber security plays an important role in the ongoing development of information technology, as well as Internet services. Making the Internet safer (and protecting Internet users) has become integral to the development of new services as well as governmental policy. Cyber security strategies – for example, the development of technical protection systems or the education of users to prevent them from becoming victims of cybercrime – can help to reduce the risk of cybercrime. An anti-cybercrime strategy should be an integral element of a cyber security strategy. The ITU Global Cyber security Agenda, as a global framework for dialogue and international cooperation to coordinate the international response to the growing challenges to cyber security and to enhance confidence and security in the information society, builds on existing work, initiatives and partnerships with the objective of proposing global strategies to address these related challenges.

CONCLUSIONS

The cyber crime as a whole refers to Offences that are committed against individuals or groups of individuals with a criminal motive to

intentionally harm the reputation of the victim or cause physical or mental harm to the victim directly or indirectly, using modern telecommunication networks such as Internet (Chat rooms, emails, notice boards and groups) and mobile phones (SMS/MMS)". Such crimes may threaten a nation's security and financial health. Issues surrounding this type of crime has become high-profile, particularly those surrounding cracking, copyright infringement, child pornography, and child grooming. There are also problems of privacy when confidential information is lost or intercepted, lawfully or otherwise. A computer can be a source of evidence. Even when a computer is not directly used for criminal purposes, may contain records of value to criminal investigators. So the network must be secure as no one can access the information of the computer.

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EFFECTS OF ICT IN TEACHING, LEARNING PROCESS

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ABSTRACT: *In 21st century Information Communication Technology plays a vital role in the education sector. Information and Communication Technology have become commonplace entities in real life aspect. The use of ICT in education lends itself to student learning settings. The effective integration of this technology into room practices poses a challenge to lecturers. It is usually believed that ICTs will empower lecturers and learners, creating vital contributions to learning and action. The innovations that ICT has brought in teaching, learning method embrace E-learning, e-communication, fast access to info, on-line student registration, on-line publicity, reduced burden of keeping hardcopy, networking with capable persons.*

KEYWORDS: *- ICT, Computer-Based Coaching, Virtual Libraries etc.*

1. INTRODUCTION:

Information & Communication Technology (ICT) is one of the basic building blocks of modern societies and has become popular within a short period of time. It is now considered as to be the technology of the 21st century. The incorporation of ICT in education can itself engender many boarder innovations. It also helps to reduce the social disparities between pupils, since they work in teams in order to achieve a given task.. Within the past decade, the new ICT tools have essentially modified the way people correspond and do business. They built a significant transformation in industry, education, agriculture, medicine, business, engineering and other field. ICT becomes the main focus of employee development and this may need to rest on in a very creative way so as to permit instructors to active the full advantage in their daily task. Information Communication Technology can improve access to and promote quality in education by providing educational opportunities to greater range of individuals of all ages, as well as the traditionally damned those in local areas, girls and women with disabilities can increased the excellence of teaching and learning by providing access to a superb kind of educational resources and by facultative democratic pedagogies. Fast growth in information and communication technologies has created completely different opportunities to improved the education system.ICT includes total completely different technological tools resembling computers cyberspace broadcasting technologies that wont to communicate , disseminate, store and manage data .Information acquisition ,processing and analysis, dissemination area unit essential attributes of effective teaching and learning method.

2. ICT IN TEACHING AND LEARNING

Today's ICT's including laptops, personal digital assistance, camera, cell phone have become affordable, accessible and integrated into the larger section of the societies all over the world. ICT changes the view of learning from student-centered learning system and the teachers are the facilitators, coach and mentors were ICT support the learning facilities to students are:-

2.1. Tele-Education System:-

This type of education has been used for several years to deliver continued teaching programs a rural and urban area in India. The main modes are audio, video & computer audio technologies involve the transmission of the spoken word (Voice) between learners and instructors synchronously or asynchronously. An combination of network system comprising of EDUSAT, Broadband, and U-SAT networks help in bringing virtual classrooms in a bringing virtual classroom in a meticulous environments with seamless two-way interaction between the teachers and learners in a mutual environment.

2.2. Digital and Virtual Libraries:-

Nowadays digital education creates new change patterns for students, teachers, librarians and others. The scholar and master have a provision of online access to thousands of journals, articles, eBooks and publications, etc. and also provision to submit online publication. ICT facilities the link all over the world in all subject matter and made social networking. It saves time and money.

2.3. Distance Learning:-

It is additionally one in all alternative branches of higher education. In this type of education, where students work at home or at the office and communicate with their faculty and other students via e-mail, video conferencing, twitter, and other forms of computer-based communication. It is called as open learning. Nowadays distance learning program depends on computer-based coaching (CBC) program tools to produce a virtual classroom. ICT helps in maintaining the student's personal profile, student record, student assessment, etc. The Student also participates in different activities like assignment uploading, course material downloading, attending quiz and online test and preparing classroom and project presentation and access the knowledge.

3. BENEFITS OF ICT:-

ICT can apply to the timely transmission of information and knowledge, thereby helping education system. Using ICT teachers can easily represent their lecture to student and student can also acquire the information easily. By using ICT teaching becomes interesting.ICT can be helpful for students in education by implementing it in different sectors of education. ICT in teacher training can save money from the government. The class improvement is feasible after careful and planned implementation in higher education by various stakeholders. ICT resembling videos, television, and transmission pc software system that mixes text, sound and colorful moving image are often wont to give difficult and authentic content which will interact the coed in learning the method.

4. BARRIERS OF ICT IN EDUCATION:-

ICT has a great role to enrich the class of education. ICT in higher education, unfortunately, there are some barriers in education. In explicit, teachers' beliefs concerning the connectedness of ICT to their subject will amplify or cut back the result of sensible difficulties they'll encounter. Lack of teacher's ability to handle ICT equipments is the biggest barriers in an education system. One another barrier of ICT in education is a lack of infrastructures and equipment's are other problems in urban and rural areas. Lack of interest of teachers to use ICT for teaching purpose. ICT use in education relates to a student's behavior appropriate use of computer and the internet by the student have significant positive effects on the student's attitude and their achievements. Use of ICT may be difficult for the weaker student because they may have a problem with working independently and may need more support from the teacher. There is an absence of access to ICT instrumentality thanks to structure factors cherish the readying of computers in ICT suites instead of lecture rooms.

CONCLUSION:

The use of ICT in all the fields across the board is making drastic changes in societies of Twenty first century and it also affected the application and integration of ICT by the teachers In teaching learning process.
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The use of ICT in teaching and learning helps students to expand knowledge, experience and increase understanding, especially in higher education that require visual, audio, flow chart, video presentation and so on ICT-enabled learning would facilitate to understand the opportunities offered by ICT to arrange for learning within the twenty first Century that embraces digital technologies for higher learning, for enhanced assessment of learning outcomes and achievements, for better teaching and for better social inclusion. Using ICT in study encourages students to process information better and thus enhances the understanding and improves students' memory. In all the key implication is that the technology is solely a catalyst for change.

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AUTHENTICATION TECHNIQUES: A REVIEW

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ABSTRACT: *Humans recognize each other according to their various characteristics for ages. We recognize others by their face when we meet them and by their voice as we speak to them. The process of verifying a user's identity is typically referred to as user authentication. Identity verification (authentication) in computer systems has been traditionally based on something that one has (key, magnetic or chip card) or one knows (PIN, password). Things like keys or cards, however, tend to get stolen or lost and passwords are often forgotten or disclosed. To achieve more reliable verification or identification we should use something that really characterizes the given person. In this paper different techniques of Authentication are summarized. The proposed system provides the novel approach to achieve authentication and confidentiality.*

KEYWORDS: *Phishing, bots, OCR, PIN*

INTRODUCTION:

The process of verifying a user's identity is typically referred to as user authentication. Passwords are the method used most often for authenticating computer users, but this approach has often proven inadequate in preventing unauthorized access to computer resources when used as the sole means of authentication.

In private and public computer networks including Internet, authentication is commonly done through the use of Login IDs (user name) and passwords. User authentication is a process that allows a device to verify the identity of someone who connects to a network resource.

Types of Authentications:

There are three basic techniques for authentication –
1. Knowledge based authentication
2. Token based authentication
3. Biometric based authentication [7,11,6].

For authentication, Knowledge based authentication technique uses something the user knows (e.g. text passwords, graphical passwords etc.), Token based authentication technique uses something the user has (e.g. smart card) and Biometric based authentication technique uses who you are? Unique, measurable characteristic of an individual (e.g. Iris, finger print) [15,5].

Among the three techniques, knowledge based technique is widely used for authentication because it is well known to all domains of users and easy to implement.

Token based and Biometric based authentications are more secure than knowledge based authentication but, those techniques have their own limitations. In the case of Token based authentication, token should always be carried for accessing the service and there is a possibility of losing the token or the token being stolen by some body. To avoid the usage of stolen tokens, an extended token based authentication uses PIN (Personal Identification Number) in addition to tokens for authentication. Biometric authentication is not yet adopted for all applications because of the expenditure involved for maintaining the special devices.

In general, the three techniques can be used for different types of applications based on the security requirements. In the present situation, every user has to maintain number of user accounts either for office work or for personal work. Biometrics or Tokens can be used for applications with high security requirements and knowledge based authentication can be used for other applications. The traditional method used for knowledge based authentication is textual passwords. Passwords are widely used to authenticate users of operating systems, database systems, networks, mobile devices and application software such as email and e-commerce.

Characteristics of passwords:

The three important characteristics of the passwords are memorability, usability and security. M*emorability* is to be considered as part of usability, in order to specify the importance of it, we consider it as a separate aspect. Passwords should be easily

remembered by the user for a long time and he should be able to properly recall the passwords for authentication. The intellectual load should be less on the user in remembering the password otherwise he may not be able to use the application or service. If the user accesses the account more frequently, then there is a great chance for remembering the passwords. The high frequency of access undoubtedly increases the memorability of passwords. But, the user has to rememberthe passwords for even less frequently accessed accounts. If the user is not able to recall the passwords correctly, then he or she starts writing the password some where which is a threat to security. Recall tests are conducted to measure the success rate of memorability which indicates how far the users are able to remember their passwords after a period of time.

Usability refers to the ease with which users can employ a particular technique to achieve user authentication. The usability of a system is to be viewed in terms of the context in which it is used and its appropriateness to that context. The metrics that can be used for measuring usability are time required to create the password, the time required to login and the error rate (number of mistakes users make while entering the password). The ease of use (the process involved), the training required to understand and to adopt the system are also important to use the system efficiently. For most frequently used accounts, the login time should be less otherwise the user may completely avoid using the account. The metrics specified can be measured by conducting user studies either in the lab or in the field with some participants who are given suitable training. The recall tests can be conducted at different recall intervals to evaluate the memorability and the usability.

Security of passwords can be specified in terms of resistance to various types of attacks. Attack is an attempt to exploit vulnerabilities in the passwords.

Attacks can be categorized into password guessing attacks and password capturing attacks. Password guessing attacks include brute force, dictionary and (personalized) guessing attacks. Password capturing attacks include shoulder surfing, hidden camera, social engineering and malware attacks. Password guessing attacks can be resisted by having a large password space and strong passwords. Password capturing attacks can be resisted by introducing authentication techniques which depend on the secret entered by the user as well as the login interface. Security may be increased by introducing multiple rounds in the authentication technique at the cost of usability. Though it is desirable to have higher values for security and usability, due to trade off between them, an optimal solution will be selected depending on the application.

II. LITERATURE REVIEW:

A. Textual passwords:

Textual password is the conventional method used for user authentication. It remains as most widely used method because it is simple, inexpensive compared to other techniques and easy to implement [8,2]. Users tend to select simple and short passwords to remember easily. It is very easy for the intruder to break these simple passwords. Random and lengthy passwords are hard to remember. The main problem with traditional textual method is that passwords selected for many applications are either weak and memorable or secure but difficult to remember [13,9]. Some users even use the name of the system as password [12]. The lengthy passwords provide more security but, it is difficult to remember several such long passwords. It is a tendency that users use the same password for many accounts to reduce the load on the memory which makes intruder's job easy [1,3]. It is easy to capture the textual password either by shoulder surfing or by malware. So the textual passwords are vulnerable to dictionary, (personalized) guessing and capturing attacks. To address the problems of textual passwords, Graphical passwords are introduced.

B. Graphical Passwords:

Graphical passwords can be categorized into three methods recognition based, recall based and cued recall based on the cognitive load on the user in retrieving the passwords from the memory [16, 15, and 6].

1. Recognition based techniques:

In recognition based systems, users generally select a set of images during password registration and he has to recognize these images during login time. The studies of cognitive scientists say that humans have unlimited memory for pictures and they can remember and recall pictures easily than text [5, 17, 18]. Hence, the accurate recall of textual passwords is replaced by recognizing images to reduce the cognitive load on the user.

a. Déjà vu : In this technique, from a set of sample images, user selects a fixed number of images to form an image portfolio. For authentication user must recognize the images from his portfolio which are part of the challenge set. Guessing attacks is easy using photographs than random art images.

b. Passfaces : Real User Corporation developed the technique Passfaces [24]. During login, a panel of human faces will be displayed in a grid in multiple rounds and the user must recognize the face that belongs to his portfolio in each round. The face should be correctly recognized in all rounds for authentication.

c. Faces / Story : Davis et al [19] proposed two authentication systems - Faces (based on Passfaces) and Story (based on order of images).

2. Recall based techniques:

The (pure) recall based passwords are same as traditional passwords as they require the user to remember and recall the passwords during login time. In recall based systems, users draw their password either on a blank canvas or on a grid. There are no cues to help the user to recall the passwords.

I. DAS (Draw-A-Secret)

Jermyn et al [20] proposed a graphical password technique which is more secure than textual passwords. In this technique, user draws a

secret (picture) on a grid using stylus during password registration.

II. Passdoodle

Passdoodle allows users to create hand written drawings as passwords with a stylus on a touch screen without a visible grid. This technique is vulnerable to shoulder surfing, one login may be sufficient to observe the password. No further study was done on this technique.

III. Pass-Go

Tao and Adams [21] designed a new scheme Pass-go based on Chinese board game Go. Drawing the password in Pass-go is difficult than DAS, and remembering the sequence of dots or lines is also a difficult job.

IV. Pass-Shapes

De Luca et al [22] evaluated different authentication techniques for ATM usage and found that many users depend on the shapes in order to remember the PIN. This technique is vulnerable to shoulder surfing, phishing and malware attacks. No grid is required to draw a password. The password space depends on the number of strokes.

3. Cued-recall techniques

Cued-recall is an easier task than pure recall because cues help the users to recall the password. In cued-recall systems, generally users select specific locations on a single image. Instead of remembering the entire image, user has to remember few locations on the image.

I.Pass Points : G.E. Blonder [23] designed the first graphical authentication technique. In this technique, user selects certain locations on an image as password. During login time, user has to reselect the same locations in the same order for authentication. Weidenbeck et al [24] designed Pass points extending Blonder's design by increasing clickable areas. In this technique, user can click anywhere on the image to create a password. User clicks on a set of points on the image using a mouse.Viskey [25] is the commercial product of Pass points designed for mobile devices for screen unlocking. User taps locations on the image using a stylus or finger. The major problem is input tolerance.

II.Cued click points : Chiasson et al [26] proposed cued click points and persuasive cued click points. In Cued click points, user clicks on one point on an image to go to next round. Another image will be displayed in that round and the user has to click a point in that image. This process will be repeated five times making a password of five click points for five images.

III. Inkblot authentication: Stubblefield and Simon [27] proposed Inkblot authentication. During password registration, user watches an inkblot, assumes a word that describes the inkblot and enters first and last letters of word as part of the password.

IV. Passlogix V-GO : V-GO [28] is the authentication technique designed by Passlogix Company. In this technique, the user clicks/drags number of background objects for password creation. The sequence of activities like preparing a meal by choosing required items and cooking is a password.

This is fun to use but the passwords are predictable because of the limited objects in the environments.

4. Shoulder surfing resistant techniques

Graphical passwords are more vulnerable to shoulder surfing attacks than conventional textual passwords.

1. S3PAS : Zhao and Li [29] proposed a shoulder surfing resistant authentication system S3PAS. During registration user selects a password and the characters in the password are known as original pass characters. The login image of S3PAS consists of randomly scattered 94 printable characters. For authentication, user has to find the positions of original pass characters and assumes invisible triangles known as pass triangles for every three pass characters in sequence. The user has to click inside the pass triangle following some rules. The clicks in sequence generate a session password. The login image will be changed every time and in turn the session password changes. The changing login image makes S3PAS protected to the brute-force search towards the session passwords. The system might be broken once by chance with a small probability using brute-force attacks towards session password like any password system, but it is hard to get actual original password to login every time.

2. Convex Hull click : Sobrado and birget [30] developed shoulder surfing resistant graphical authentication technique. During registration, user selects pass objects from a set of objects. The login involves several rounds. For authentication, user recognizes pass objects and clicks within the convex hull of 3 pass objects.

3. Fake Pointer : Takada [31] designed an authentication system which is resistant to shoulder surfing and hidden cameras. User has to register two things a PIN and answer indicator which contains different shapes. The user interface of the fake pointer contains two layers the first layer contains digits and second layer contains shapes. The major problem of this technique is user has to remember the PIN as well as answer indicator which is a difficult task.

4. CDAS (Come from DAS and Story)

Haichang et al [32] designed a shoulder surfing resistant graphical password scheme for PDAs based on the concept of DAS drawing and sequence retrieval in Story. In this technique, user selects number of images known as pass images in sequence during registration. During login, degraded images are randomly placed on the screen. The user has to draw a curve across their pass images in the same sequence without lifting the stylus from the drawing surface including the pass images and the decoy images. The user can make a story connecting the pass images to remember the sequence.

5 GrIDsure

GrIDsure [33] is a pattern based authentication. Humans remember patterns much better than PINs, and this helps to create session PINs using dynamic grid. They enter PIN based on the pattern selected by him during registration. During login, a grid is displayed with randomly placed digits. User follows his pattern and enters the digits in pattern as PIN. This technique is strong

against shoulder surfing when the intruder captures password only. If the intruder captures both login grid and the password, it is easy to get the password.

C. Biometric techniques

There are lots of biometric techniques available now a days. A few of them are in the stage of the research only (e.g. the odor analysis), but a significant number of technologies is already mature and commercially available (at least ten different types of biometrics are commercially available nowadays: fingerprint, finger geometry, hand geometry, palm print, iris pattern, retina pattern, facial recognition, voice comparison, signature dynamics and typing rhythm).

1 Fingerprint technologies

Fingerprint identification is perhaps the oldest of all the biometric techniques. This technique is quit outdated now, but it turned the research and development focus on the fingerprint technology since its release. The manufacturers of the fingerprint readers used to deliver the fingerprint processing software with the hardware.

2 Iris
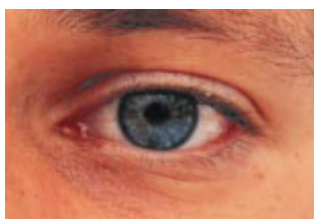
Each iris is a unique structure featuring a complex pattern. This can be a combination of specific characteristics known as corona, crypts, filaments, freckles, pits, furrows, striations and rings.

2.3 Retina :

The iris is the colored ring of textured tissue that surrounds the pupil of the eye. Even twins have different iris patterns and everyone's left and right iris is different, too. Research shows that the matching accuracy of iris identification is greater than of the DNA testing. The iris pattern is taken by a special gray-scale camera in the distance of 10–40 cm from the camera .The camera is hidden behind a mirror, the user looks into the mirror so that he/she can see his/her own eye, then also the camera can "see" the eye. Once the eye is stable (not moving too fast) and the camera has focused properly, the image of the eye is captured.

The technology was invented by J. Daugman of Cambridge University and the first iris scanning systems was launched in 1995.

Retina scan is based on the blood vessel pattern in the retina of the eye. Retina scan technology is older than the iris scan technology that also uses a part of the eye. The first retinal scanning systems were launched by Eye Dentify in1985.The main drawback of the retina scan is its intrusiveness. The method of obtaining a retina scan is personally invasive. A laser light must be directed through the cornea of the eye.. It is not user friendly and still remains very expensive. Retina scan is suitable for applications where the high security is required and the user's acceptance is not a major aspect.

3. Hand geometry :

Hand geometry is based on the fact that nearly every person's hand is shaped differently and that the shape of a person's hand does not change after certain age. Hand geometry systems produce estimates of certain measurements of the hand such as the length and the width of fingers. Various methods are used to measure the hand. These methods are most commonly based either on mechanical or optical principle. Hand geometry does not produce a large data set (as comparedto other biometric systems).The verification results show that hand geometry systems are suitable for lower level security application.

4. Signature dynamics
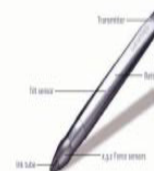
These are special purpose devices used to capture the signature dynamics, both are wireless. The E-pad devices show the signature on the digital display while the Smart pen has got its own ink cartridge and can be used to write onto any paper.

The signature dynamics recognition is based on the dynamics of making the signature, rather than a direct comparison of the signature itself afterwards. The dynamics is measured as a means of the pressure, direction, acceleration and the length of the strokes, number of strokes and their duration. The most obvious and important advantage of this is that a fraudster cannot collect any information on how to

write the signature by simply looking at one that has been previously written

5. Facial recognition

Facial recognition is the most natural means of biometric identification. The method of distinguishing one individual from another is an ability of virtually every human. Any camera (with a sufficient resolution) can be used to obtain the image of the face.

6. Speaker verification:

The principle of speaker verification is to analyze the voice of the user in order to store a voice print that is later used for identification/verification. Speaker verification and speech recognition are two different tasks. The aim of speech recognition is to find *what principle* has been told while the aim of the speaker verification is *who* told that. Speaker verification focuses on the vocal characteristics that produce speech and not on the sound or the pronunciation of the speech itself. The vocal characteristics depend on the dimensions of the vocal tract, mouth, nasal cavities and the other speech processing mechanisms of the human body. The accuracy of the speaker verification can also be affected by the background and network noise in the input signal. This increases the false rejection rate. Speaker verification is a biometric technique based on behavioral characteristic and as such can be negatively affected by the current physical condition and the emotional state.

7. Other biometric techniques :

Palm print

Palm print verification is a slightly different implementation of the fingerprint technology. Palmprint scanning uses optical readers that are very similar to those used for fingerprint scanning, their size is, however, much bigger and this is a limiting factor for the use in work stations or mobile devices.

Hand vein

Hand vein geometry is based on the fact that the vein pattern is distinctive for various individuals. The veins under the skin absorb infrared light and thus have a darker pattern on the image of the hand taken by an infrared camera. The hand vein geometry is still in the stage of research and development.

DNA

DNA sampling is rather intrusive at present and requires a form of tissue, blood. The analysis of human DNA is now possible within 10 minutes. As soon as the technology advances so that DNA can be matched automatically in real time, it may become more significant. At present Biometric Systems DNA is very deep-rooted in crime detection and so will remain in the law enforcement area for the time being.

Thermal imaging

This technology is similar to the hand vein geometry. It also uses an infrared source of light and camera to produce an image of the vein pattern in the face or in the wrist.

Ear shape

Identifying individuals by the ear shape is used in law enforcement applications where ear markings are found at crime scenes. Whether this technology will progress to access control applications is yet to be seen. It is a telephone type handset within which is a lighting unit and cameras which capture two images of the ear.

Body odor

The body odor biometrics is based on the fact that virtually each human smell is unique. The smell is captured by sensors that are capable to obtain the odor from non-intrusive parts of the body such as the back of the hand. Methods of capturing a person's smell are being explored by Mastiff Electronic Systems. Each human smell is made up of chemicals known as volatiles. They are extracted by the system and converted into a template. The use of body odor sensors brings up the privacy issue as the body odor carries a significal amount of sensitive personal information.

Keystroke dynamics

Keystroke dynamics is a method of verifying the identity of an individual DNA is very entrenched in crime detection and so will remain in the law enforcement area for the time being.

Thermal imaging

This technology is similar to the hand vein geometry. It also uses an infrared source of light and camera to produce an image of the vein pattern in the face or in the wrist.

Not all users can use any given biometric system. People without hands cannot use fingerprint or hand-based systems. Visually impaired people have difficulties using iris or retina based techniques. As not all users are able to use a specific biometric system. The user authentication can be successful only when user's characteristics are fresh and have been collected from the user being authenticated. This implies that the biometric input device must be trusted. The biometric system should check user's aliveness.

Biometric are good for user authentication.

CONCLUSION:

Here various techniques for supporting authentication are discussed. There is more scope for future researches in the field of multifactor authentication depending upon user and their application.

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MOBILIB: A MARATHI AND HINDI LANGUAGE LITERATURE ACCESS MODEL USING SMS BASED INFORMATION SYSTEM

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ABSTRACT.

Mobile based Information Systems are the most recent offshoots of information technology. Availability of information on walk using hand held wireless device like mobiles is one of the highly sought research application. In this scenario using Information Retrieval principles for information access on mobiles has listed number of application domains. Agriculture, health, education, banking and government sector are the major of them.

This paper presents the work in progress with respect to development of a SMS based literature access mechanism for Indian languages. An Indic Literature Information System using Android client and JAVA Server is developed for the experiments. A Server is developed in JAVA to maintain the knowledge base using Vector Space Model. Android application provides a suitable client interface to retrieve literature information by sending a flexible query in natural language. It allows you to use Romanized transliteration form of Indic language literature documents available on Internet.

This article is about development of respective Information Retrieval strategy and application of Relevance Feedback Mechanism which deals with ambiguity identified in the query due to flexibility in transliteration style and named entity recognition. It also discusses the data structure used in our model. The performance of the system is evaluated by using Precision, Recall and MRR measures.

1. INTRODUCTION

Today's generation is using mobiles like a life line. Name the problem and youngsters will pick up their mobile phones to look for its solution. Songs, Games, Pictures, Meaning of a word, Definition of a term, Recipe of a delicious dish, all this information is available on their smart phones. 3G, 4G technology has narrowed the differences in personal computers and mobile phones. Operating environment of modern mobile systems is advancing with enhanced internal, external memory, high data rates, enhanced bandwidth and multimedia operating systems. The web based information systems are now accessible on these smart phones.

SMS technique is the basic feature of mobile technology mainly used for chatting. Number of fruitful applications are under progress using SMS. GSM based automated remote controlling systems and SMS based information systems are the upcoming applied research

fields[13]. SMS based information system is used for many applications in education [15][16] , medicinal [11] , tourism [10], governance [9], agriculture [12], banking sectors [11] in major.

The literature survey [8] reveals that "SMS based information systems using natural language query" is a dynamic and challenging research extension to the existing Information Retrieval area of ICT (Information and Communication Technology). Most of this development is related to Information Systems in English language. No significant work is reported in the field of "Literature Information Access in Indic languages on mobiles". Present internet facility is not sufficient if a user is mobile and wants to search information like "Who is author of certain poem?" or "What is the title of a song sung by *certain* singer of *certain* film*?"*.

2. METHODOLOGY

With this background Mobile Based Library System which allows users to access information about literature by sending related SMS query to the server is designed. For this development the theory and practices of Information Systems, Information Retrieval, Relevance Feedback Mechanism and Transliterated Searching Methodologies are studied from available literature. The corresponding research work is planned with the objective to develop a system that can access Indian language literature using query in the form of SMS using a Mobile's hand set. The mobile set having Android technology is used for the experimentations. Appropriate user interface is designed to allow users to send query in their own words using Roman transliteration of their language. For actual implementation Marathi and Hindi language literature is collected. Using Vector Space Model [7] the literature in ITRANS transliteration encoding form is processed to build the inverse document index which we termed as Vocabulary of the MobiLib system. The documents are processed by developing a parser to classify the terms in three categories which are Tag term, Content term, and Value terms. The documents are consisting of the informative lines tagged by specific tag to carry information like singer, writer, music director, title and others. These informative tags and

corresponding value terms are processed by this parser developed in Java language.

2.1 Android Application

Using Android as a client technology for mobile based information access, the server side is developed using Java Servlet. For this development JDK-7 platform for server side and Android 4.2 for client side are used.

The user interface is developed by considering the general practices executed by users while using SMS technology and also the information retrieval paradigm. The main aim is to enable users to access relevant answer by sending a flexible natural language query to the server. A set of Servelets are developed to take care of the underline user-system interaction. These Servelets are activated by an apache server. These interactions mainly includes user registration, authentication and the query based information access mechanism. The android client sends the user query using http-client request. The Servlet responds with Http-response after processing the Http-request. A suitable data structure is build at server site to maintain the query log of all users. The query from the query log is processed to acquire suitable ranked document list. If the query matches with any query already answered by the system with a certain threshold distance value the system sends the respective answer to the user otherwise sends the ranked document list. In this case the user is supposed to react with an implicit relevance feedback [6]. The system improves the relevance order by applying probability relevance model [4] and sends the top one/five documents to user.

Appropriate data structure is implemented to build the Vector Space Model. The model identifies the type of category of a word, their association and the respective location as line number in the triplet strings as shown in Figure-1.

In improved version of the system LinkedHashMap data structure is developed that has solved the problem of maintaining two HashMaps for the Vector. For both query term vector as well as document term vector this representation is used. The screen shot of a Java Servlet Class definition that handles user query and maintains the query list with suitable data structure is depicted in Figure-2. In order to implement the query vector and document vector LinkedHashMap is used as another efficient Map type of Java Collection Class [17]. It is combination of HashMap and LinkedList data structures. As the HashMap it maintains the key value pairs. As a linked-list it gives a iteration order in which the keys are inserted. This feature is useful as we can maintain the terms in the order of their insertion when the documents are parsed. Here LinkedHashMap < Key, Value> is used , where "Key" is the document term and "Value" is the sequence of triplets forming a string. Each triplet is <weight, doc#, tag#>. The weight is TF-IDF score, doc# is corresponding document, and tag# is the term id of the tag term associated with the key term. This structure thus does not need to maintain the term-id of each term separately.
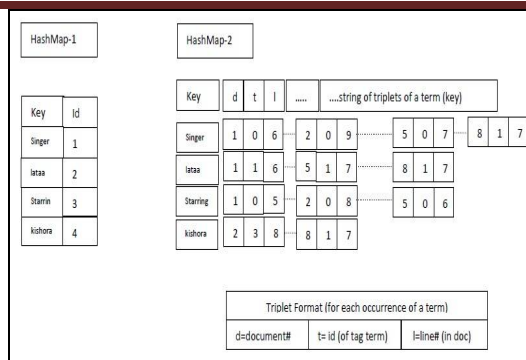
Figure 1:Document Vector Space using HashMap
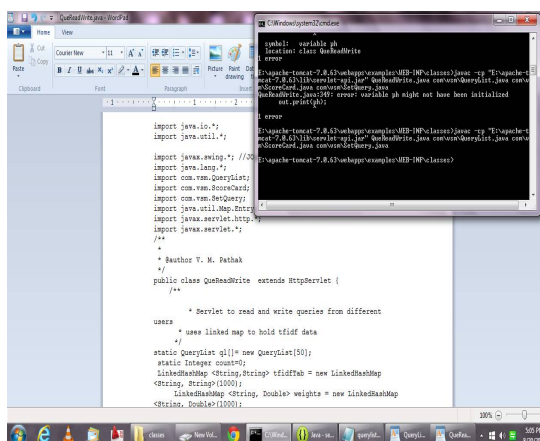
Figure 2: Snap shot of Query Processing Servlet

2.2 ITRANS Documents.

When explored through the encoding methods applied to restore Marathi literature in digitized form, the Indic-transliteration (ITRANS) form came across as the best transliteration coding format. This scheme encodes most of the Indic-language documents in self tagged English script form, including character coding for all vowels, consonants, special symbols such as "Anusvara", "Avagraha", "Visargah", "Chandra/ArdhChandra bindu" and much more. The concept is that the documented contents can be retrieved and printed in the local language script form such as "Devanagari", for Marathi language. Any exertion to retrieve such ITRANSed documents using natural language query is not still on record of IR. With the fact that most of the students and young generation in India use English script to type SMS in local languages (like Marathi language in Maharashtra, Gujarati in Gujarat state), the **author** of this paper started working on experimenting the problems related to "SMSbIR" in this domain. SMS will be formed in Marathi and Hindi language typed in English script style using flexible query forms. Thus for document collection and standard query formation ITRANS encoding method is chosen for actual implementation of the system.

3. USING RELEVANCE FEEDBACK MODELS

The functionality development of this system is based on the Information Retrieval mechanism. Using Vector Space Model the knowledge base of the system with respect to available literature is maintained. To allow the users

with significant flexibility there is the need of an appropriate disambiguation method. In our MobiLib model two levels of ambiguities are handled as specified below.

3.1 Noisy Query Term Correction

First to choose relevant documents by mapping the user noisy query terms to standard transliterated terms. For this Levenshtein's edit distance method is employed to assign weights to terms in the system's vocabulary depending on their minimum distance with the user's noisy terms. These weights and TFIDF weights are used to compute the final Cosine Similarity score for each respective document in the document space of the system. It is clear that the system's vocabulary is nothing but the inverse document term index of ITRANS terms collected by processing the literature documents.

Levenshtein's Edit distance method is combined to a set of rules to map user query term to a set of terms occurring in document space (VSM).

eg. The term "ramchandra" is mapped to "ramachandra:RAmachandra:raamacha.ndra:raamacha.ndraaya"

Basic function is defined as Prox $(t1,t2) = (1 - mindist / l)$.

Where, l is the a average length on terms t1 and t2. mindist is the minimum edit distance between t1 and t2 using Levenshtein's function. Prox is the proxy weight of the term t1 over t2.

Modified algorithm is defined as $Prox(t1,t2) = (point1-mindist/l) * (point2-mindist/l)$.

Here additional rule is applied that says, all terms t2 having mindist<= l/2 are qualified for this term set which we can term as candidate terms. The terms are ranked based on their proxy weights. Top ranked terms are observed to be closer to the user's respective expected term.

The algorithm cosine similarity for scoring the documents for relevance ranking is thus modified considering the transliteration/ spelling flexibility from user's point of view.

3.2 Dealing with Named Entity Recognition.

The second level of ambiguity handled is about the Named Entity Recognition (NER). User query is consisting of phrases like "kisane gaaya" which has to identify the named entity (NE) "singer", similarly "kisane linkha" asks for NE "Lyrics" and "kisane sangit diya" asks for "music" respectively. This needs to associate corresponding tags to the value terms like <singer:lataa>, <music: barman> and <lyrics: khebudkar>. An XML tagging is used to develop an ontology that maps the user query phrases to respective tags identified while literature document parsing. The <tag:term> pairs are thus assigned weights by refining the query using this Relevance Feedback method . The angular distance between the query vector and document vectors are computed using the Cosine Similarity function using TF-IDF weights of the terms in the inverted document index. The cosine similarity measure ranks the documents based on their relevance with the corresponding query. If the Similarity Score Cosim(q,d) is higher the respective document d is highly relevant to the query q. The user responds to the respective answer for the top most document

snippet if not relevant he/she checks the next answer. Probability Relevance mechanism is applied to assign refined weights to the query terms based on the relevance information collected from the user responses for the answer delivered by the server for his/her query. The response is considered as positive if the user reads the answer and checks the OK button on the user interface. If he checks the NEXT button indicates low user satisfaction regarding the current snippet. This way the relevance information is read as either 'yes' or 'no' for respective document of current snippet. This is thus a Binary Relevance Mechanism (BRM). Following algorithm depicts this retrieval task developed for this purpose.

Algorithm- JAVA Server for Request-Receive-Respond

(Uses Vector Space Model to construct knowledge base)

i. Read Query: (eg. Lataa ne gaayaa r d barman kaa sa.ngeet diya aa.nkho pe gaanaa)

ii. Construct Query Term Vector:(Lataa gaayaa r d barman sa.ngeet diya aa.nkho gaanaa)

iii. Terms are identified by document term vector index: (Lataa r d barman aa.nkho)

This goes through the steps -

a. Compute Cosine Similarity Score.
b. Apply it on all documents and sort in descending order of Cosine Scores.
c. Produce ranked document list.
d. Deliver top five documents to user.

iv. Refine Query : (using XML based structure knowledge)

[Lataa r d barman sa.ngeet aa.nkho] [singer music stitle]

←----------User query terms--------→ ←----Tag terms----→

v. Apply probability relevance model (PRM) to rerank the documents and generate relevance order .

(cost(t,v) is assigned to each Tag (t) , Value (v) pairs by applying this PRM.

<singer Lataa > <singer r> <singer d> <singer barman> <singer aa.nkho>

<music lataa> <music r> <music d> <music burman> <music aa.nkho>

<stitle lataa> <stitle r> <stitle d> <stitle burman> <stitle aa.nkho>

vi. Produce this improved ranked document list to user again and use it to acquire the respective snippets from the knowledge base.

vii. Repeat this and wait for next query.

4. RESULTS and CONCLUSION

In our experiment we have collected 160 Marathi and Hindi queries. These queries are collected from participants of an experimental set up. Users are allowed to type the queries freely in transliterated form, from a set of Devnagari scripted queries. Thus we consider these queries as noisy queries. For building the knowledgebase the transliterated Marathi and Hindi literature documents are collected from available sources on Internet. The total document space includes collection of hundred and fifty Marathi documents and one thousand Hindi songs. Total number of terms collected is around

twenty thousand Marathi terms and sixteen thousand Hindi terms. In first iteration a ranked order list is send to the users consisting of ten top ranked documents in the decreasing order of their relevance scores. To measure system performance we have used the Precision-Recall as the standard measure for these results. The average values of precision and recall are measured over 25 sampled queries from the query set to measure performance of the system. The server response for one of the sampled query is shown in Figure 4. We have achieved average precision 60% precision value in our problem without application of relevance feedback. Applying probabilistic relevance the ranking order is modified to produce improved result to achieve 72% precision. The average recall value is improved from 55% to 62%. The recall is poor as some of the queries are not receiving all its related documents in first ten ranked documents. We have experimented over the <tag: value> pair mapping algorithm to improve this result so that more relevant terms and hence the relevant documents would surface out at the top rank. This has further improved the result which is evaluated by Mean Reciprocal Rank over all queries applied. The MRR values of Marathi literature access over 25 queries in previous phase are recorded as o.76 which is improved to 0.9 after applying relevance feedback for noisy queries.
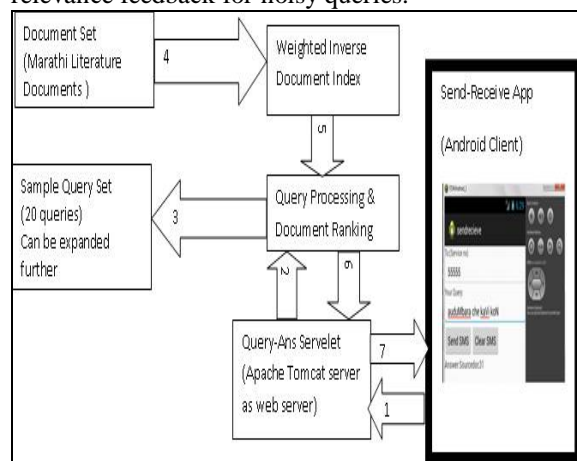

Figure 3:Andoid client & JAVA Servlet functional diagram.

Figure 2:Result of a query on Android Client

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IMAGE PROCESSING AND APPLICATION

Hemlata Kolhe

ABSTRACT:

The objective of image processing is to visually enhance or statistically evaluate some aspect of an image not readily apparent in its original form .The basic principle of image processing operations carried out will assist us in greater perception and vision but does not add any information content. This objective is carried out through development and implementation of processing means necessary to operate upon images. Image processing is called as altering and analyzing pictorial information of images. In our daily life we come across different type of image processing best example of image processing in our daily life is our brain sensing lot of images when we see images with eyes and processing is done is very less time.

KEYWORD- Image Processing, Analog Image Processing, Digital Image Processing

INTRODUCTION TO IMAGE PROCESSING

What is an image?

An image is an array, or a matrix, of square pixels arranged in columns and rows.

In a (8-bit) grayscale image each picture element has an assigned intensity that ranges from 0 to 255. A grey scale image is what people normally call a black and white image, but the name emphasizes that such an image will also include many shades of grey

254	107
255	165
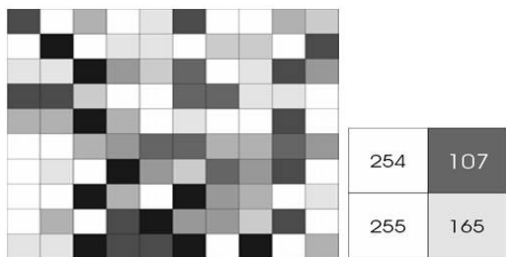
Figure: Each pixel has a value from 0 (black) to 255 (white).

A normal greyscale image has 8 bit colour depth = 256 greyscales. A "true colour" image has 24 bit colour depth = 8 x 8 x 8 bits = 256 x 256 x 256 colours = ~16 million colours.

Image processing is a method to perform some operations on an image, in order to get an enhanced image or to extract some useful information from it. It is a type of signal processing in which input is an image and output may be image or characteristics/features associated with that image. Image processing pertains to the alteration and analysis of pictorial information. Common case of image processing is the adjustment of brightness and contrast controls on a television set by doing this we enhance the image until its subjective appearing to us is most appealing. The biological system (eye, brain) receives, enhances, and dissects analyzes and stores images at enormous rates of speed.
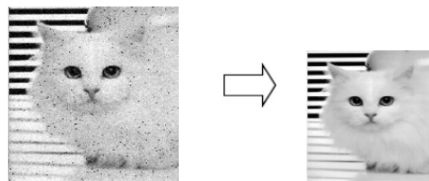
Image processing basically includes the following three steps:

- Importing the image via image acquisition tools;
- Analysing and manipulating the image;
- Output in which result can be altered image or report that is based on image analysis.

There are two types of methods used for image processing namely, analogue and digital image processing. Analogue image processing can be used for the hard copies like printouts and photographs. Image analysts use various fundamentals of interpretation while using these visual techniques. Digital image processing techniques help in manipulation of the digital images by using computers. The three general phases that all types of data have to undergo while using digital technique are pre-processing, enhancement, and display, information extraction.

Working:
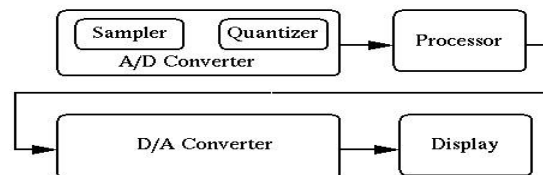
The common steps in image processing are image scanning, storing, enhancing and interpretation. The schematic diagram of image scanner-digitizer diagram is shown in figure
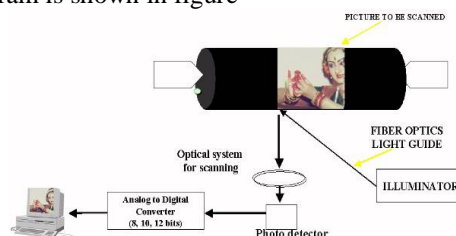
Basically there are two-methods for processing pictorial information. They are:
- Optical processing
- Electronic processing.

Optical processing uses an arrangement of optics or lenses to carry out the process. An important form of optical image processing is found in the photographic dark room.

Electronic image processing is further classified as:
- Analog processing
- Digital processing.

Analog Processing:

Analog processing is the control of brightness and contrast of television image. The television signal is a voltage level that varies In amplitude to represent brightness through out the image by electrically altering these signals , we correspondingly alter the final displayed image appearance.

Digital Image Processing:

Processing of digital images by means of digital computer refers to digital image processing. Digital images are composed of finite number of elements of which has a particular location value. Picture elements, image elements, and pixels are used as elements for digital image processing.

Digital Image Processing is concerned with processing of an image. In simple words an image is a representation of a real scene, either in black and white or in color, and either in print form or in a digital form i.e., (technically an image is a two-dimensional light intensity function. In other words it is a data intensity values arranged in a two dimensional form, the required property of an image can be extracted from processing an image. Image is typically by stochastic models. It is represented by AR model. Degradation is Image processing is the study of any algorithm that takes an image as input and returns an image as output.

Other form is orthogonal series expansion. Image processing system is typically non-casual system. Image processing is two dimensional signal processing. Due to linearity Property, we can operate on rows and columns separately. Image processing is vastly being implemented by "Vision Systems" in robotics. Robots are designed, and meant, to be controlled by a computer or similar devices. While "Vision Systems" are most sophisticated sensors used in Robotics. They relate the function of a robot to its environment as all other sensors do ."Vision Systems" may be used for a variety of applications, including manufacturing, navigation and surveillance.

Some of the applications of Image Processing are:
1. Robotics.
2. Graphics and Animations
3. Medical Field
4. Satellite Imaging.
5. Remote Sensing
6. Non-destructive Evaluation
7. Forensic Studies
8. Textiles
9. Material Science.
10. Military

11. Film industry
12. Document processing
13. Printing Industry

Image processing is the study of any algorithm that takes an image as input and returns an image as output .Includes:
- Image display and printing
- Image editing and manipulation
- Image enhancement
- Feature detection
- Image compression
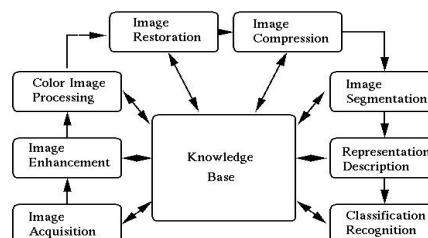
STAGES IN IMAGE PROCESSING:

I. IMAGE ACQUISITION:

An image is captured by a sensor (such as a monochrome or color TV camera) and digitized. If the output of the camera or sensor is not already in digital form, an analog-to digital converter digitizes it.

II. RECOGNITION AND INTERPRETATION:

Recognition is the process that assigns a label to an object based on the information provided by its descriptors. Interpretation is assigning meaning to an ensemble of recognized objects.

III.SEGMENTATION:

Segmentation is the generic name for a number of different techniques that divide the image into segments of its constituents. The purpose of segmentation is to separate the information contained in the image into smaller entities that can be used for other purposes.

IV. REPRESENTATION AND DESCRIPTION:

Representation and Description transforms raw data into a form suitable for the Recognition processing.

V. KNOWLEDGE BASE:

A problem domain detailing the regions of an image where the information of interest is known to be located is known as knowledge base. It helps to limit the search.

VI. THRESHOLDING:

Thresholding is the process of dividing an image into different portions by picking a certain grayness level as a threshold, comparing each pixel value with the threshold, and then assigning the pixel to the different portions, depending on whether the pixel's grayness level is below the threshold or above the threshold value. Thresholding can be performed either at a single level or at multiple levels, in which the image is processed by dividing it into "layers", each with a selected threshold. Various techniques are available to choose an appropriate threshold ranging from simple routines for binary images to sophisticated techniques for complicated images.

VII. CONNECTIVITY:

Sometimes we need to decide whether neighboring pixels are somehow "connected" or

related to each other. Connectivity establishes whether they have the same property, such as being of the same region, coming from the same object, having a similar texture, etc. To establish the connectivity of neighboring pixels, we first have to decide upon a connectivity path.

VIII. NOISE REDUCTION:

Like other signal processing mediums, Vision Systems contains noises. Some noises are systematic and come from dirty lenses, faulty electronic components, bad memory chips and low resolution. Others are random and are caused by environmental effects or bad lighting. The net effect is a corrupted image that needs to be preprocessed to reduce or eliminate the noise. In addition, sometimes images are not of good quality, due to both hardware and software inadequacies; thus, they have to be enhanced and improved before other analysis can be performed on them.

IX. CONVOLUTION MASKS:

A mask may be used for many different purposes, including filtering operations andnoise reduction. Noise and Edges produces higher frequencies in the spectrum of a signal. Itis possible to create masks that behave like a low pass filter, such that higher frequencies of 7

EDGE DETECTION:

Edge Detection is a general name for a class of routines and techniques that operate on an image and results in a line drawing of the image. The lines represented changes in values such as cross sections of planes, intersections of planes, textures, lines, and colors, as well as differences in shading and textures. Some techniques are mathematically oriented, some are heuristic, and some are descriptive. All generally operate on the differences between the gray levels of pixels or groups of pixels through masks or thresholds. The final result is a line drawing or similar representation that requires much less memory to be stored, is much simpler to be processed, and saves in computation and storage costs. Edge detection is also necessary in subsequent process, such as segmentation and object recognition. Without edge detection, it may be impossible to find overlapping parts, to calculate features such as a diameter and an area or to determine parts by region growing.

XI. IMAGE DATA COMPRESSION:

Electronic images contain large amounts of information and thus require data transmission lines with large bandwidth capacity. The requirements for the temporal and spatial resolution of an image, the number of images per second, and the number of gray levels are determined by the required quality of the images. Recent data transmission and storage techniques have significantly improved image transmission capabilities, including transmission over the Internet.

XII. REAL-TIME IMAGE PROCESSING:

In many of the techniques considered so far, the image is digitized and stored before processing. In other situations, although the image is not stored, the processing routines require long computational times before they are finished. This means that, in general, there is a long lapse between the time and image is taken and the time a result obtained. This may be acceptable in situations in which the decisions do not affect the process. However, in other situations, there is a need for real-time processing such that the results are available in real time or in a short enough time to be considered real time. Two different approaches are considered for real time processing. One is to design dedicated hardware such that the processing is fast enough to occur in real time. The other is to try to increase the efficiency of both the software and the hardware and thereby reduce processing and computational requirements.

Advantages

• In medicine by using the Image Processing techniques the sophistication has increased. This lead to technological advancement.

• Vision Systems are flexible, inexpensive, powerful tools that can be used with ease.

• In Space Exploration the robots play vital role which in turn use the image processing techniques.

• Image Processing is used for Astronomical Observations.

• Also used in Remote Sensing, Geological Surveys for detecting mineral resources etc.

• Also used for character recognizing techniques, inspection for abnormalities in industries.

Disadvantages

• A Person needs knowledge in many fields to develop an application / or part of an application using image processing.

• Calculations and computations are difficult and complicated so needs an expert in the field related. Hence it's unsuitable and unbeneficial to ordinary programmers with mediocre knowledge.

CONCLUSION

In Computer science, image processing is any form of signal processing for which the input is an image, such as photographs or frames of video. The output of image processing can be either an image or a set of characteristics or parameters related to the image. Most image processing technique involves treating the image as a two dimensional signal and applying standard signal processing techniques to it. This technology is required for military and other types of surveillance, statistical data collection in the fields of forestry, agriculture, disaster prediction, weather prediction. In order to extract scientifically useful information, it will be necessary to develop techniques to register real-time data recorded by a variety of sensors for various applications.

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A STUDY ON THE DEVELOPMENT OF TEXTILE INDUSTRIES BY USING INFORMATION AND COMMUNICATION TECHNOLOGY

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ABSTRACT

Globally textile industries have been established as a backbone of economic enlargement. Textile industries are contributing in the overall development of economy. The textile industry plays a vital role in economic growth. Information and Communication Technology (ICT) has vast arena to contribute in welfare of human being. It is used for data processing, data management, reports producing, knowledge and information providing etc. Information and Communication Technology (ICT) plays a major part in textile technology. In textile industries mostly preferred the Electronic Data Interchange (EDI), Enterprises Resource Planning (ERP), Computer Aided Design (CAD), Computer Assisted Manufacturing (CAM) etc. The telecommunication technology in view of getting instant access to information about sales, resulting reorders and market trends, telecommunication services required for data transmission.

In this context, it would be more relevant to make an attempt to study the use of Information and Communication Technology (ICT) in textile industries, its uses, challenges in adoption of ICT etc. and its effects on the development of textile industries.

KEYWORDS: ICT, Textile Industry, Use, Challenge of ICT.

1.INTRODUCTION

Information & Communication Technology (ICT):

Information and Communication Technology (ICT), technology, can improve business practices and increase the efficiency and competitiveness of developing country firms. Information and Communication Technology (ICT) has an important role to play as developing countries adjust to the new era. Information and communications technology (ICT) is often used as an extended synonym for Information Technology (IT), but is a more specific term that stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals), computers as well as necessary enterprise software, middleware, storage, and audio-visual systems, which enable users to access, store, transmit, and manipulate information.

Textile Industries in India:

Textile industries are contributing in the overall development of economy. The Textile industry in India traditionally, after agriculture, is the only industry that has generated huge employment for both skilled and unskilled labor in textiles. The textile industry continues to be the second largest employment generating sector in India. It offers direct employment to over 35 million in the country. The Suresh Halwankar committee in its report on the new textile policy of Maharashtra says, "To utilize all cotton grown in state, it require to increase spinning capacity which will generate more revenue of Rs.1000 crore from selling yarn worth Rs.40000 crore.

ICT in Textile:

As Organizational goal is to maximize profit. Organizations of developed countries have achieved the goal through ICT. ICT has vast arena to contribute in welfare of human being. It is used for data processing, data management, creating reports, expanding knowledge and information and problem solving. For this purpose we have much software market. So, ICT has a great contribution in science education, health care sector, security sector, banking sector, communication sector, textile sector, media and publication sector, sectors like war and peace also need computer and information technology to take quick decision and show efficiency in working process.

Importance of ICT in Textile Industries-

The textile sector plays a vital role in providing ample employment opportunities for the people. ICT plays a major part in textiles technology and industry. In textile sector mostly preferred the Electronic Data Interchange (EDI), Enterprises Resource Planning (ERP), Computer Aided Design (CAD), Computer Assisted Manufacturing (CAM), the telecommunication technology in view of getting instant access to information about sales, resulting reorders and market trends, telecommunication services required for data transmission. Most of the companies are quite satisfied with the existing communication services such as Telephone, Fax and Telex, Use of computer in administrative department, inventory and finance department as well as use of Microsoft word, excel, spreadsheet etc. Information and Communication Technology (ICT) has vast arena to contribute in welfare of human being. It is used for data processing, data management, reports producing, knowledge and information providing etc. It helps in problem solving, quick decision making

and to show efficiency in working process. Information and Communication Technology (ICT) plays a major part in textile technology. In textile industries mostly preferred the Electronic Data Interchange (EDI), Enterprises Resource Planning (ERP), Computer Aided Design (CAD), Computer Assisted Manufacturing (CAM) etc. The telecommunication technology in view of getting instant access to information about sales, resulting reorders and market trends, telecommunication services required for data transmission.

2. REVIEW OF LITERATURE

Tommaso Ciarli & Roberta Rabellotti (2003): In "ICTs in Industrial Districts: An Empirical Analysis on Adoption, Use and Impact in the Biella Textile District", in this paper we have undertaken an empirical analysis about adoption and use of ICTs in a sample of 122 textile enterprises located in the Biella district. As per their findings, the effect of size is stronger on adoption than on use. This can be explained by a stronger incentive in smaller firms to take of advantage of ICTs investments once they are made; as expected, the availability of internal skills is also positively influencing both adoption and use of ICTs; finally, accumulated stocks of PCs also have a positive impact on the dependent variables: firms with higher previous investment in personal computers have accumulated more knowledge for future investments and are also more likely to use those investments. With regard to the second part of the empirical analysis, based on a smaller sample of 50 firms, we confirm our hypothesis that adoption and use of ICTs positively influence innovation. The most interesting finding is that different types of innovations, i.e. product, process and organizational innovations are influenced by different variables.

Roberta Rabellotti (2004): "ICT s in Industrial Districts: An Empirical Analysis on Adoption, Use and Impact in the Biella Textile District" This paper provides a further analysis in that direction, under particular conditions. In the first place he analyzed a localized industrial structure, characterized by important linkages with external markets2. Secondly, they controlled for sector idiosyncrasies focusing on one specific sector: the textile industry, which constitutes the main activity of the district investigated. Thirdly, they adopted the different indicators of both adoption and use of ICTs, in order to distinguish the effect of ICTs on production, storage and internal share of information from the impact of the external communication technologies. Finally, they don't consider directly the relation between ICTs use and increase in productivity (or whatever index of firm performance), as it is usually done in the literature, but they looked at what they considered a preceding cause-effect relation: the influence of ICT on innovation, assuming implicitly that there is a positive correlation between firm innovativeness and its relative performance.

Carlos Daniel and Durand Chahud (2005): In the "CEPAL Project" document, in this report mentioned Small enterprises, however, are subject to increased competition as well as greater demand for higher quality products and services. Surviving in this competitive environment will require raising the overall productivity of small enterprises, which in turn will need higher levels of management capacity. The ability to acquire, process, and effectively use ICT tools will be crucial in this setting. Accordingly, it is important to accept that ICTs have the potential to transform access to information, improve internal information systems, and enhance the methods and scope of information dissemination.

Mario Morais (2006): In the "E-Business in the Textile Industry" to focused, to overcome some key factors as the lack of ICT skills and standardization, the adoption of e-business by European textile industry will surely lead to a competitive edge since, as findings is- it brings - Speeding up information flows in an industry where market trends are rapidly changing ,increasing supply chain efficiency will lead to costs reduction will optimize commercial transactions, improving internal processes and adopting leading companies standards. This is a clear benefit for SMEs in the areas of production, logistics and administration. Extending market reach.

Kerry McNamara(2008): In the "The Global Textile and Garments Industry: The Role of Information on and Communication Technologies (ICTs) in Exploiting the Value Chain" in this sectoral report seeks to use the textile and garments industry to demonstrate the type of analysis needed for a realistic strategy for ICT enabled growth in any sector. Core tasks include understanding the sector's exists global value chain; assessing a country's potential competitiveness as value shifts along the chain; and highlighting any obstacles to growth in the country's domestic economic structure. This list includes tasks for the private sector and for policy makers. Particular aspects of the broader enabling environment will be important for competitiveness at each stage of the textile and garments value chain, including: Infrastructure-roads, ports, and airports, as well as telecoms and other ICT investments. Policy and regulation, such as cost of access to telecoms and the internet, competition policy, banking regulations, customs clearance rules. Relevant business management skills, including the ability to restructure business models and reengineer firms.

O.O. Onilude &O.R. Apampa (2010): In "Effects of Information and Communication Technology on Research and Development Activities" mentioned the FIIRO Experience and Discussed about the study has assessed the effects of ICT on research and development activities at FIIRO. A number of challenges have been identified, if the full benefit of ICT is to be realized. The bandwidth available to the Institute is inadequate compared to the number of users, which accounts for the very low speed connectivity often encountered by users. The inability to monitor the network from a central location underscores the underdevelopment of ICT infrastructure. Virus, malware, and worm attacks are prevalent. Analyses of collected data show that while a majority of staff are conversant with basic

operations of computers, the vast majority require further training.

Federico Biagi (2013): In the "ICT and Productivity: A Review of the Literature", JRC Technical Reports,Joint Research Centre, In this report authors reviewed the literature on the relationship between ICT and productivity. He discussed in broad terms the theoretical relationship between ICT and productivity, while he presented the growth accounting methodology, which tries to measure the contributions to growth from difference sources (ICT and non ICT capital, human capital, total factor productivity). Within the growth-accounting methodology, he also discussed the U.S./E.U. productivity gap and the role of ICTs, and he analyzed that the latter are responsible for the U.S. acceleration in productivity growth observed in the period 1996-2006 and for the widening of the U.S./E.U. productivity gap in the same period.

3. RESEARCH METHODOLOGY

Secondary data was obtain from available sources such as text books, journals, on-line published articles, information from the internet search engines.

4. OBJECTIVES

1. To study the adoption and use of ICT in textile industries.
2. To analyzed the impact of ICT on the overall development of textile industries.
3. To study the challenge in adoption of ICT in textile industries.

5. FINDINGS AND DISCUSSIONS-
Use and Impacts of Adoption in ICT -

Information and Communication Technology has use and impacts on following major parts-

- Design and development of new products and services.
- Marketing and planning of campaigns about product variations to different markets wide variation of modules for production, purchase, sale, distribution, financials, data warehousing and management information etc.
- Optimization of production, planning and warehouse management to generate a satisfying operation and avoid high stock levels and abruptions in feeding of production lines.
- Streamlining of administrative processes to minimize administrative costs and create a sufficient instant delivery of management related information and customer related information services.
- Improvement of existing customer related services and development of new customized service.

- Optimization of administrative procedures and automated generation of management information. Quicker draws of accounts and economical key data and automatic updates of order keeping and pay roles etc.

- Improved access to data extracts and gathering of management information from production lines in real-time helping the company to identify potential bottlenecks. Efficient use of production capacity and better assurance of quality and readjustment of production processes.
- The warehouse management module helps in avoid undesirable high stock levels and optimize its stock portfolio according to production plans and feeding of the production lines. A low stock level relief capital for other investments and reduces economical risk.
- The order handling system and Customer relationship management module allows sophisticate the company's customer care and improve the handling of incoming orders. Confirmation of orders with automatic calculation of potential discounts and precise determination of date for delivery are both essential aspects of good customer service.
- Special considerations to different customers can easily be taken and help the company provide extra value to its customers. The overall business impact of the investment is a rationalized execution of processes and better quality in production processes, warehouse management, document handling, quality control, customer handling etc. Even though that the system has streamlined processes to make them more effective it has not changed general business activities.
- ICT has a considerable impact on production and internal work processes. Furthermore, customer-facing activities (online publishing, marketing, and advertising) are critical. On the other hand, processes with a high e-business potential such as inventory and supply-chain-management are less critical in this sector.
- The food sector, textile and clothing industry, are adopters of ICT compared to the other manufacturing sectors studied. RFID (Radio Frequency Identification) based technologies could play an important role in these areas.
- ICT adoption and e-business activity in construction companies appears to be very limited compared to most manufacturing sectors. However, e-business tools have the potential to benefit complex construction projects where there is a need to coordinate a large number of subcontractors.

6. CHALLENGES FOR ADOPTION IN ICT -
The main barriers to the adoption of ICT in this industry are mainly related to the marketing trends and which influence overall speculation competence..

- Small Scale and Medium Scale industry may have difficulty with the introduction of new technologies not only for financial reasons but

also due to the shortage of technical skills to manage new ways of operating. Moreover, the limited degree of computerization and the diversity of technological equipment are constraints for the adoption of e-business.

- Enterprises which stated that e-business does not play a role in their operations were asked to indicate which the main barriers for adopting e-business were. Most of them justify this statement with 'too small company size'.

- The view that comes from these data shows that the industry's structure has a strong impact on the introduction of e-business applications Textile industry Company size is the main reason reported by companies in this and in the other sectors surveyed by the e-Business W@tch in 2005.

- Other relevant reasons are related to the fact that technology is expensive and complicated. Perceived legal problems and the difficulty of finding reliable IT suppliers are not felt as main reasons for not introducing ICT applications.

- Looking more in detail at concerns about security, the interviewees' perception is that the most common IT security incidents are: failure of services provided by third parties, viruses, Trojan horses or Internet worms and spam. Firewall is the most commonly adopted security measure (45% of firms at sector level and the nearly totality of large enterprises).

- A specific IT security policy and a disaster recovery plan have been implemented by large firms while are not common practice among smaller players.

- Significant problems in the implementation of the system. The main challenge has been to identify the specific needs of the company .and to be precise in the definition of these to the IT-vendor. Was aware of the importance of allocating appropriate resources to train relevant staff to handle the programs.

- Another reflection concentrates on the cost, in time and money, of implementing special modifications to the system's functionality according to the procedures and operations.

- "It has been quite expensive in time and resources to customize the system to our needs and way of working.

- The above indication shows, how it can be an costly project to modify a standard system to meet the existing procedures in a company.

- Instead, the possibility of changing these procedures according to the functionality of a standard system should be considered.

- A further problem is that a customized solution potentially makes implementation of regular updates expensive, as they will often require assistance from external consultants

7. CONCLUSION-

- A major finding for all breakthroughs is that there is a long interval from the time of the original invention until a extensive increase in the rate of efficiency enlargement.

- For the ICT rebellion the maximum efficiency enlargement rates are establish in the ICT-producing industries.

- There is cipher that the exercised of highly developed ICT systems in huge textile companies is rather in line with embracing rates among large companies from the most advanced industrialized sectors. Examples are Enterprise Resource Planning (ERP) and Supply Chain Management (SCM) systems.

- Finally, accumulated stocks of PCs also have a positive impact on the dependent variables: firms with higher previous investment in personal computers have accumulated more knowledge for future investments and are also more likely to use those investments.

- The most interesting finding is that different types of innovations, i.e. product, process and organizational Innovations are influenced by different variables.

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INTELLECTUAL FREEDOM, COPYRIGHT AND INFORMATION LITERACY IN THE INFORMATION AGE

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ABSTRACT:

Today age is characterized by information age and flow of creation, communication and dissemination is very high and it overall position is defined by Richard Wurman as information anxiety. The other side of using the available information is related to law rules and regulation which are enforced by international and national organizations and acts defined by governments. The intellectual property right is a legal right in the industrial, scientific, literary and artistic fields and it is protected by constitutional provision and Governments Acts so it promotes and motivates the creativity of the society. The copyright Act of India gives economic and moral rights to the creator or author of the product whatever may be its form. The academic libraries are powerhouse of knowledge in modern society, it stores and disseminated the knowledge of ages by using and preserving. The Copyright Act also promotes the use of information but it must in a legal standard. Librarians are performing the duties as mediator, disseminator of information but he/she must be aware about IPR, and copyright related issues. Cognizance with acts and information literacy skills inculcation in the user is essential for the fair use of information. Plagiarism must be avoided in creation of unique knowledge.

KEYWORDS: *intellectual freedom, copyright, IPR, Fair use*

INTRODUCTION:

Today humans are living in the age of information, they are information rich. Information is everywhere. The creation and mechanism of communication of information is in a traditional and technological way through internet, book, journal, e resources are the medium of information products. The flow of information is in a explosive manner so we are now anxious about the information it is called as information anxiety according to an article published in the New York Times Magazine portrays that the publishing knowledge of the world "from the days of Sumerian clay tablets till now humans have published at least 32 million books, 750 million articles and essays, 25 million songs,500 million images , 500000 movies , 3 million videos , TV shows and short films and 100 billion public WebPages and those material is preserved in the libraries and archives of the world. (Kelly, 2006)

The speed of information moves is very high, information transmitted, communicated and delivered accurately and in many different forms to number of peoples anywhere on the globe and sometimes in the outer space consequently users of information is in a trapped position how and which information is correct and truthful for their use at that that times simultaneously he or she should be aware about the laws, rules and regulations of the institutions, government and other agencies because in the age of information society intellectual property, authorship, copyright , intellectual freedom and fair use of available information are concerned topics to it.

INTELLECTUAL PROPERTY:

Intellectual property is a legal rights of intellectual creature in the industrial, scientific, literary and artistic fields. Intellectual property law gives safeguarding to the creatures and other procedures of intellectual goods and services by offering certain time limited rights to control the use made of the production. The intellectual property divided into two branches - Industrial property and copyright. World Intellectual Property Organization (WIPO) convention at Stockholm on July 14, 1967 stated the definition of intellectual property and its scope and coverage

- Literary, artistic and scientific works
- Performances of performing artists , phonograms and broadcasts
- Invention in all fields of human Endeavour
- Scientific discoveries
- Industrial designs
- Trademarks , service marks, and commercial names and designations
- Protection against unfair competition and all other rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields are covered in the concept of intellectual property. (WIPO, 2008).

COPYRIGHT:

Copyright refers to the legal right to produce, publish and sell intellectual property of the creator. Copyright holder may be author, publisher or

jointly author and publisher as well as institution. Copyright is a right of intellectual creator in their creation for e.g. book, paintings, drawings, and musical notes etc. which is in a form of expression of ideas. Copyright is a law made for promoting, enriching and disseminating the national cultural heritage. Development of any country or nation depends upon the creativity of their informed citizenry so the motivation or encouragement should be crucial for citizens and finally it lead towards the national development. Copyright law enlists the following types of works of authorships

- Literary works
- Musical works including any accompanying words
- Dramatic works including any accompanying words
- Pantomimes and choreographic works
- Pictorial, graphics and sculptural works
- Motion pictures and other audiovisual works
- Sound recordings
- Architectural works (WIPO, 2008, p. 40)

INTELLECTUAL FREEDOM:

Intellectual freedom exists in the society when allows that individuals have the right to hold any belief on any subject and to express their ideas or concepts in any form which is appropriate for them and second that society makes an equal commitment to the right of unrestricted access to information and ideas. Freedom to express oneself through a chosen mode of communication, including internet becomes meaningless if access to that information is not protected. Intellectual freedom is a freedom of mind and as such it is both personal liberty and prerequisite for all freedoms leading to action. The intellectual freedom has expanded to global level over the past two decades with the advent of potent new communication technologies and growing international recognition of the Universal Declaration of Human Rights Article 19 states that Every human being or people has a right to express his/her thoughts. (ALA, 2006)

COPYRIGHT LAWS AND RULES IN INDIA:

Constitution of India outlined the Copyright in the Seventh Schedule (Article 246) List I—Union List -49 including Patents, inventions and designs; copyright; trade-marks and merchandise marks as well as the freedom of speech and expression is guaranteed by the article 19 (1) (a). It means the right to speak without censorship or restraint by the government. The right or personal liberty is provided by Article 21 which means every citizen has to right to publish a book and sell copies under the standard procedures of law. (Basu, 2011) These fundamental rights also not restricted by copyright act or by laws. The ultimate objective of copyright protection is to protect the intellectual efforts made by real authors or creators of the work and give him moral and economic rights.

Indian copyright act 1957 enacted by parliament in the eighth year of the republic of India , the law is applicable to the whole India from its application 1958.The Fundamental Act is amended by government of India six times i.e. in 1983,1984, 1992,1994, 1999 and in 2012. Copyright Amendment Act 2012 is very comprehensive and specific changer of the face of act. It has included the negotiations of the WIPO. Today's Copyright act is compliant with international standards. Copyright act of India gives stimulations to the national creativity in the field of scientific, technical, ethical, moral, commercial and socio-cultural and useful art solely. (India, 2016)

Information Technology Act 2008 also provides legal recognition for the transactions carried out by means of electronic data interchange and other means of electronic communication. The act also provides guidelines about the copyright act of India and restricts any person from exercising any right conferred under the Copyright Act 1957 or The Patents Act 1970.

ROLE OF LIBRARIES:

Library is a destination of learning where permits to exploration, sharing and building new ideas and concepts on the copyrighted material of other authors for their learning and research and progress of science and useful arts. Librarians knows and cares about copyright because librarian have a unique social responsibility to protect the interest of the public which depends on information to lead full, engaged, informed and rewarding lives. They value for equitable access to information and preservation of cultural records. Copyright law is about the dissemination of information and librarians also disseminate the information but information is not always cost free so they try to facilitate free flow by ensuring the market based model.

It is difficult to be a librarian with a full set of work responsibility and be cognizant of the copyright law and other information policies that affect library users and take action for the betterment of library community. Librarian's job responsibilities may involve reference duties, managing user services, cataloguing, and helping others in use of digital media applications. The user information needs are critical to the healthy informed citizenry so the use should be information literate and librarian should be copyright leader and teacher of

INFORMATION LITERACY:

Information literacy concept described as Information literacy is the ability to locate, evaluate, and use information to become independent life-long learners. Through general literacy one can gain knowledge in a specific subject domain, whilst IL empowers an individual in gaining skills that can serve his eternal and varying information needs and interests for personal and professional accomplishments.

ACCORDING TO CHARTERED INSTITUTE OF LIBRARY AND INFORMATION PROFESSIONALS (CILIP):

"IL knows when and why you need information, where to find it, and how to evaluate, use and communicate it in an ethical manner"

The American Library Association states "IL is a mean of personal empowerment. It allows

people to verify or refute expert opinion and to become independent seekers of truth"

IL is considered as a survival skill for the new century, the key competency for independent study, self-directed learner, lifelong learning, and the foundation of a literate society. It is important for students' achievements and considered a desirable outcome of higher education (Koneru, 2006)

An information literacy skill makes a user competent in using information effectively in ethical and lawful manner. It is a skill about how to avoid plagiarism and use of information with fair techniques proposed by laws.

Plagiarism is a technical term for stealing someone's intellectual property. If user takes the unique ideas or works of other who is a first author or creator and does not given the credit to him/her it is a plagiarism and break of copyright law also. The electronic environment has created the problems in crediting the original work.

Fair use outlined by US copyright act Section 107 express the clearly the fair use rights, taking into consideration by the statute four factors for the assessment in the fair use of copyrighted material. These factors are

1. Purpose and character of the use including whether such use is of commercial nature or is for nonprofit educational purpose.
2. The nature of the copyrighted work
3. The amount and substantiality of the portion used in relation to the copyrighted work as a whole and
4. The effect of the use upon the potential market for the value of the copyrighted work. (Minow, 2003)

WIPO also permits the use of copyrighted material; the permitted use of the materials can be done without authorization of the copyright owner such as exceptions are described as fair use. It is related to reproduction of the work exclusively for the personal and private use by person making quotations from copyrighted work but it must be provided the source of information including name of the author by giving proper citations. (WIPO, 2008, p. 50)

CONCLUSION:

In the age of information society the librarians are performing different duties as a teacher, technology guru, reference librarian. E-resource expert and so on. When librarian discuss the copyright one sentiment is there and that is a fear – fear of breaking laws, regulations. Librarians are performing their duties for the equitable access to information but the fear is dominant in this situation librarian should be copyright leader, he/she can perform the role as making self staying informed about copyright developments and making commitment to educate yourself, to participate in copyright policy development at your institution and to teach others about copyright laws and rules. The librarian can aware to others by teaching information literacy skills.

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IMPLEMENTATION OF INFORMATION SECURITY LAYERS BY CRYPTO-STEGNO COMBINED MODEL

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ABSTRACT:

Cryptography and Steganography are the robust information security disciplines. By considering various attacks, it is necessary to apply unbreakable security for information. In both of the security issues, there are different security algorithms. The function of cryptography is to encrypt the text from plain text and steganography hides data in Images, Audio, and video. In this paper now the information is secured by two layers by using near about not breakable cryptography algorithm AES and most flexible and modern steganography algorithm Least Significant Bit(LSB).

KEYWORDS:

AES(Advanced Encryption Algorithm), LSB (Least Significant Bit), PSNR, MSE, Cipher Text..

INTRODUCTION:

This paper covers the research study regarding the implementation of CRYPTO-STEGNO model for Information security. Both of the concepts of Information Security have discussed here. Cryptography is a discipline that is concerned with communication security, confidentiality integrity of messages and sender authentication. A plaintext can be transferred into a ciphertext with the help of cryptography. This type of security is applicable only for text-based material. Steganogrpahy is another type of information security. It is used for hiding text into images. The researchers have experimented on the use of both these techniques and models combining together for a more authenticated use.

There are many encryption algorithms available and widely used in information security. These algorithms have been classified and categorized into the two- Symmetric ans Asymmetric algorithms. In both of the types, the process of encryption and decryption are performed. In Symmetric type of algorithms, Private key and in Asymmetric type of algorithms Public keys are used. Same key is used to encrypt and decrypt data in Symmetric key encryption, and two keys have employed in Asymmetric key encryption for encryption one is known as public key and another have used for decrypt data is known as Private Key [1]

For better security Asymmetric key encryption algorithms are preferred even though are 1000 times slower than Symmetric key encryption algorithms [2].

FUNCTIONS OF AES ALGORITHM :

In AES,   there are three key lengths 128 bits, 192bits, or 256 bits. Most of the study cover 128 bit AES algorithm. AES consists of ten rounds in Encryption process for 128-bit keys, 12 rounds for 192-bit keys, and 14 rounds for 256-bit keys. All the rounds are identical except last round in each case.

The algorithm starts with an Add round key stage followed by nine rounds of four stages and the tenth round of three stages. These rounds apply for both encryption and decryption with the exception that every stage of a round the decryption algorithm is the inverse of it's counterpart in the encryption algorithm. The four stages are as follows:

1. Substitute Bytes: - Is simply a table lookup using a 16X16 matrix of byte values named an s-box. This matrix consists about all the possible combinations of an 8-bit sequence ($28 = 16 \times 16 = 256$). However, the s-box is not only a random permutation of these values but also, there is a clear method for creating the s-box tables.

2. Shift Row Transformation: This is a simple permutation a nothing more. It works as follow:

- The 1st row of the state is not altered.
- 2nd row does 1-byte circular shift to left.
- 3rd row does 2-byte circular shift to left.
- 4th row does 3-byte circular shift to left

3. **Mix columns**: It is equivalent to a matrix multiplication of columns of the states. A fixed matrix multiplies each column vector. Here the bytes are treated as polynomials rather than numbers.

4. **Add Round Key**: A simple bitwise XOR of the currentblock with the portion of the expanded key.

The inverse function is used fpr the decryption of a text for state 1, 2 and 3. The inverse is achieved by XORing the Add Round Key to the block. The encryption and decryption algorithms are different from the other algorithms in AES algorithm.

Steps followed in AES algorithm:

1.   Determine the set of round keys from the cipher key.
2.   Compute the state array with the Plain text.
3.   Add the initial round key to the starting state array.
4.   Take nine rounds of state manipulation.
5.   The tenth round of algorithm have been used for state manipulation.
6.   Copy the final state array out as the encrypted data (ciphertext). In Rijndael with a 128 bit key, an array of a matrix with four rows and column is formed, where each key is one byte or 8 bits, so there are essentially 16 bytes in total

Plain Text	Cipher Text
53 ca 31 e0	f7 a5 8d 19
43 5a 13 37	ff f1 28 ad
a6 30 89 07	81 28 91 b8
91 8d a2 43	c4 0a 3b a9
After flipping 4 to1 from same plain text	
53 ca 31 e0	9e a7 39 30
13 5a 13 37	6e 29 51 7e
a6 30 89 07	0a c3 73 f6
91 8d a2 43	49 35 82 ab

Plain Text	Cipher Text
66 ca 4b 22	34 a4 90 86
13 5a 13 3a	69 bf e1 d2
b4 23 89 17	48 34 77 78
c4 8c a2 72	3c d5 6d 9a
After flipping 6 to5 from same plain text	
56 ca 4b 22	fb 77 80 c9
13 5a 13 3a	74 11 4c 7e
b4 23 89 17	f7 df a2 8e
c4 8c a2 72	34 0d 6f 10

Fig 1 : Output of AES by flipping 1 bit

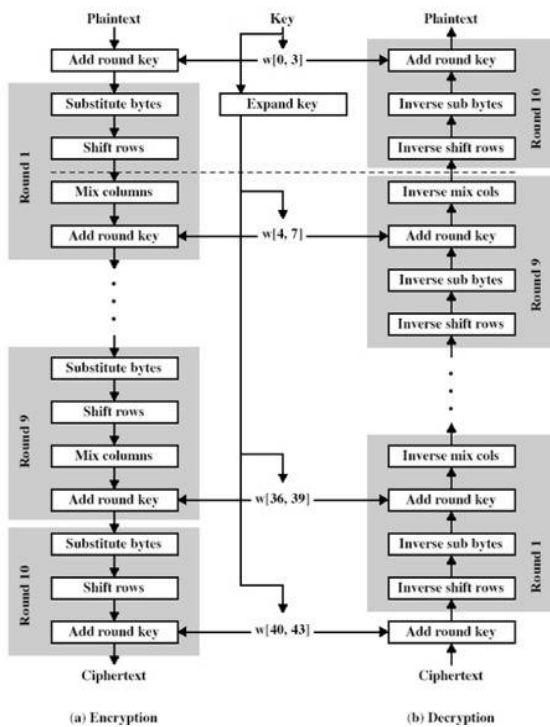A small change in plaintext affects the cipher text.   This is referred to as the avalanche effect

Fig. 2: Alternate design of cipher and inverse cipher

AES Rounds	Changed Cipher Text
Plain Text	0189f067230a128945bc230167de45ff
Initial round key :	0004080c0105090d02060a0e03070b0f
State at start of round 1 :	018df86b220f1b8447ba290f64d94ef0
Round key :	d6d2dad6aaafa6ab74727876fdfaf1 fe
State at start of round 2 :	9db72c5d426e97c1a0a96218a942a746
Round key :	b664be68923d9b30cfbdc5b30bf100fe
State at start of round 3 :	40d0180b56a00d16afb3638a6889536d
Round key :	b6d26c04ffc2596974c90cbf4ebfbf41
State at start of round 4	586b3a1a07c05661345de6d3360c3821
Round key :	4795f9fdf7356c05f73e328dbc03bcfd
State at start of round 5 :	35c02ebd869cffe53c33747bd75f3787
Round key :	3ca950adaa9ff3f6a39daf22e8eb57aa
State at start of round 6 :	f7d366cc216482c0ed61c0342b15b38c
Round key :	5ef7a70a39a655a30f923d1f7d96c16b
State at start of round 7 :	95e71802663faf4ee7dff5dbf4cec97e
Round key :	143444ef95f0aa970e2dfc01a8c4d26
State at start of round 8 :	ca5d6bb6fb 56d5dcf6bce8df0a8e17b3
Round key :	47a4e0ae431c16bf8765ba7a35b9f4d2
State at start of round 9 :	91c0d4b69588a1b0d8a4ecfa593e8391
Round key :	54f010be9985932c3257ed97d1689c4e
State at start of final round	552f61f943e71f0168c34d4e5a2fbd3c
Round key :	13e3f34d1194072b1d4aa7307f178bc5
Final Round	ef f6 1cd485547b31fe65e21e94a99ebf

Table 1: AES round wise changed cipher text

Above table is the output of AES algorithm. After every round plain text gets scrambled and this process continues up to 10 rounds, not only plain text changes after every round but by mixing key which is also different after every round.

Security from Brute Force Attack:

AES is the best and most secure algorithm used for the implementation of CRYPTO-STEGNO model for the purpose of security issue. In the following table for AES algorithms during the execution of 10 rounds with its different key sizes, possible combinations are described.

Key Size	Possible combinations
1-bit	2
2-bit	4
4-bit	16
8-bit	256
16-bit	65536
32-bit	4.2×10^9
56-bit (DES)	7.2×10^{16}
64-bit	1.8×10^{19}
128-bit (AES)	3.4×10^{38}
192-bit (AES)	6.2×10^{57}
256-bit (AES)	1.1×10^{77}

Table2: Key combinations and Key size

Key size	Time to Crack
56-bit	399 seconds
128-bit	1.02×10^{18} years
192-bit	1.872×10^{37} years
256-bit	3.31×10^{56} years

Table 3: Crack time of cryptographic key

For the issue of cracking this algorithm, it is impossible task using Brute Force Attack since this takes 1 billion years to crack the 128-bit AES key.[10]

Concept of Least Significant Bit (LSB):

Information which has been used for data hiding is in the form of Text, Black and White and Color Image, Audio or Video. LSB (Least-Significant Bit) technique is one the very simple, attractive and efficient technique for steganography. [3]. Different researchers proposed many techniques about data hiding but one of the common and most popular data hiding technique is based on LSB (Least Significant Bit) which directly replaces LSB of cover media with secret message bit[4]. This Technique directly replaces LSBs of Cover Images with secret message bit with achieving high capacity.

This is most easiest and common method of hiding the message. In this method, it replaces least significant bit of the image pixel. Human eyes cannot see the difference between original image and stego image. In 24 bit image, there are three components red, blue and green and the three LSB replaces at a time [7]. In LSB technique nearby fifty percentage bits of the LSB are replaced. These changes cannot be perceived by the human eyes.[8].

One of the common techniques is based on manipulating the least-significant-bit (LSB) planes by directly replacing the LSBs of the cover-image with the message bits. LSB methods typically achieve high capacity [5].

It is proud that LSB technique is good steganographic mechanism, since it yields only few changes in original image[6]. Suppose, for example letter 'Z' its ASCII number is 90 , if translate this decimal value to binary "01011010" , replaces with pixel value as follows.

This is the simplest data hiding most vulnerable technique. Following are the steps for Substitution of LSB of the image pixel for the bit message.

1. Convert the plaintext from decimal to binary.
2. Read cover image.
3. Convert the cover Image from decimal to binary.
4. Break the byte to be hidden into bits.
5. From cover image take first 8 byte of plain text (original).
6. Replace the LSB by one bit of the data to be hidden.
7. Continue Step 6 for all pixels.

Pixel 1 = R=10011010, G=00111010, B=01011011 after LSB replacement

(R=10011010, G=00111011, B=01011010)

Pixel 2= R=01100101, G=10001101, B=00011010 after LSB replacement
(R=01100101, G=10001101, B=00011010)

Pixel 3= R=11011000, G= 00111000, B=11001110 after LSB replacement
(R=11011001, G= 00111000, B=11001110)

Proposed Stegno-Crypo Algorithm:

1. Read Image file (.BMP, .JPG, .PNG).
2. Read clear text file or Plain text file.
3. Convert Image file into Binary bit Conversion.
4. Apply AES algorithm on text files which convert plain text into encrypted text.
5. Convert encrypted text into binary form.
6. Apply LSB algorithm.
7. Hide encrypted text into Image. A pictorial representation of the combined concept of cryptography and steganography is depicted in figure.
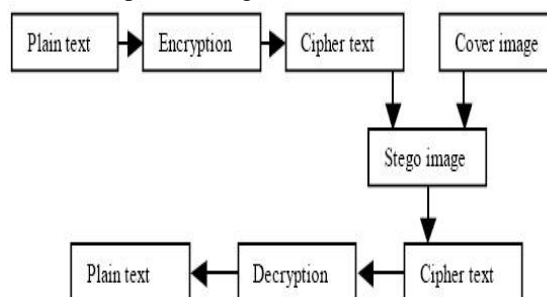
Fig. 3: Crypto-Stegno model

Point out the noise occurs when original data disturbs by hiding something in that is easily calculated by PSNR via MSE. . High value of PSNR indicates the high quality of image. [9]. Both of the Quality measurement ratio calculated by using following formula.

$$PSNR = 10\log 10 \, [\, 255^{\,2} \,/\, MSE]$$

$$MSE = \frac{1}{mn} \sum_{0}^{m-n} \sum_{0}^{n-1} \| f(i,j) - g(i,j) \|^{2}$$

Implementation of CRYPTO-STEGNO process:

To improve data protection and data security, Steganography is used by hiding encrypted data within another data file, generally bitmap images, testing has been done with the combination of both LSB method of steganography and AES symmetric algorithm for encryption as follows.

Plaintext: Steganography and cryptography is double security layer for security

Encrypted text by AES algorithm:

8zhzÌ¸\®5²°¸ë¿ˆMí†D}h²³òÓò–Ÿ°·~¸mÕ¶ C°Ð92TØm¹1$

Fig.4: Embedded text in image

Extracted text from Stego image:

8zhzÌ¸\®5²°¸ë¿ˆMí†D}h²³òÓò–Ÿ°·~¸mÕ¶ C°Ð92TØm¹1$

Decrypted text: Steganography and cryptography is double security layer for security.

Table 4: Histogram for BMP files

Table 5: Histogram for PNG files

By applying proposed algorithm for BMP and PNG files the difference in the histogram are negligible since Human Vision System cannot detect this error easily.

Fig. 5: Effect on PSNR and MSE

Following Table shows the results of Cover and Stego images with different formats .JPG, .BMP, .PNG. This analysis shows minor MSE for various text size files. PSNR ratio is comparatively same for all the file formats.

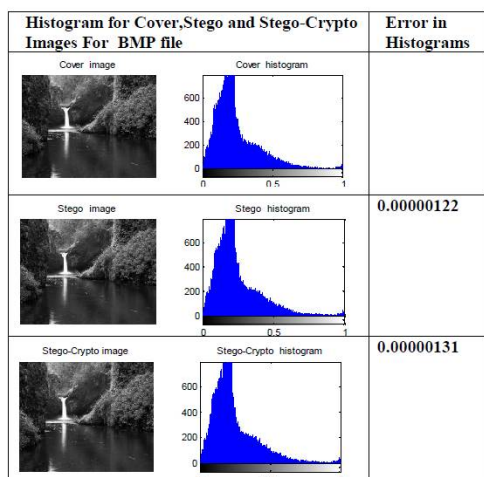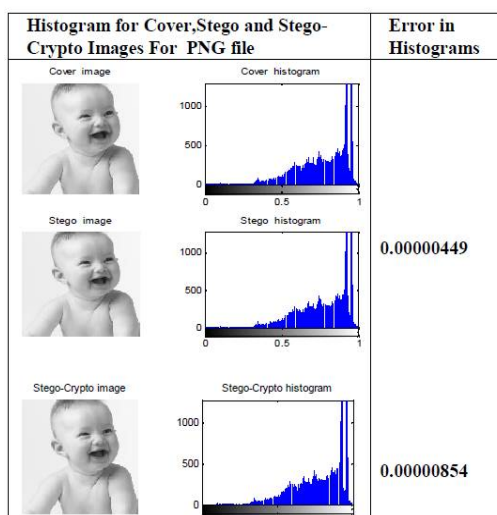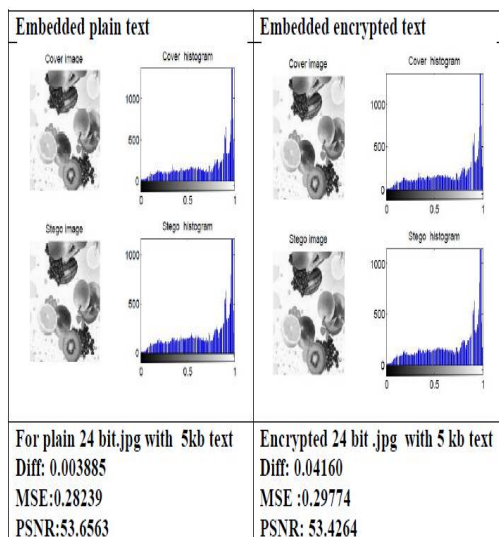| Cover Image	Stego Image		Text file Size (kb)	MSE (Mean Square Error)	PSNR (Peak Signal Noise Ratio)
		JPG Files	1	0.03	64.1155778
			2	0.03	63.1160303
			3	0.03	63.5107998
			1	0.03	63.1392307
			2	0.08	59.2581698
			3	0.06	60.5060757
		PNG Files	1	0.03	63.9490061
			2	0.03	63.8765432
			3	0.07	59.5583577
			1	0.02	65.0811486
			2	0.03	64.6654571
			3	0.07	59.6386562
		BMP Files	1	0.03	62.8713250
			2	0.08	59.1270765
			3	0.06	60.3685605
			1	0.04	62.6565337
			2	0.08	59.1145257
			3	0.06	60.3367918

Table 6: Quality Measures for various types of Image formats

CONCLUSION:

The proposed method of information security performs high volume embedding and secures it from attack: LSB is the most flexible and high payload capacity. It is an embedding algorithm which hides more data. In this method, both encrypted data is embedded in the image with the combination of AES and LSB algorithms. The result of this algorithm proves its efficiency and level of security. The proposed method generates quality stego image with tiny noise in the image. This is determined by calculating PSNR and MSE for plain text and cipher text embedded in an image. Stego-image is one of the important secure objects in this method. This object consists of the combination of encrypted text with created key by encryption algorithm and users password.

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HYBRID STEGANOGRAPHY AND IMAGE ENCRYPTION USING VISUAL CRYPTOGRAPHY

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ABSTRACT: *In Data Communication (DC) the main problem is the security. If the data is not secured the users are not going to use it. There can be many types of data which are used in communication like text, images, and sound etc. In the years many cryptosystems were made to protect the data, amongst them Visual Cryptography (VC) is one of popular method for protecting image based data. It splits the secret image into shares in encryption process and the original image can be retrieved by stacking using required number of secret shares. Whereas steganography is another method of cryptosystems which is also used to protect data. Here it will hides the data inside another data making the original data invisible to user. While we use these techniques they are still not so to enhance the security the hybrid of both is created. This paper studies the visual cryptography scheme, steganography scheme and various hybrid approaches which provides security for image based data*

KEYWORDS: Visual Cryptography, Steganography, Hybrid Cryptography

1. INTRODUCTION

Visual Cryptography (VC) was introduced by Naor and Shamir in early 90's for encrypting visual information such as images and other data types. Here the secret image splits into multiple scrambled images called as shares and stacking here the shares revel the secret information. Ateniese, blundo and Stinson also proposed an extended version of VC.The above cited scheme along with many other VC schemes only scrambles the original information and creates shares/cipher data.The cryptanalyst used the cryptanalysis technique to decrypt these shares/cipher data into the original information.To protect the data being hacked steganography technique is proposed.

This pattern can also be used by an intruder/steganalyst to retrieve secret information.If the secret information is difficult to get but then also it can be guessed by the intruder. Therefore to protect the data hybrid approaches is used which combines the Visual Cryptography and Steganography together. This paper focuses on various hybrid cryptosystems for image based data.

2. VISUAL CRYPTOGRAPHY

A visual cryptographic is a cryptographic scheme used to encrypt data like images, diagrams, signatures, hand written notes etc. At the receiving side the decryption is done directly by human visual system without any computers computation. In this scheme the secret data is split into multiples shares such that they have no singular value and cannot revel the secret data. Secret data can only be seen if the correct or number of shares are joined with one another. During decryption the shares are needed to be printed out in a transparency sheets/papers and by stacking the desired number of transparencies with each other that reveals the secret information. Therefore, it is very different than traditional cryptography since here need not necessary complex calculations.

Noar and Shamir took a very basic concept to proceed in VC. They generate shares for binary images. Here it will generate two shares namely share1 and shar2. In the given table you can observe that a single pixel is divided into two sub pixel. If we got a white pixel then any row can generate those shares. If we got a black pixel then any one row from the bottom can generates the two shares.

Table I
Vc Scheme For Encoding A Binary Pixel Into Two Shares

While superimposing each pixel of share1 and share2 should retrieve the pixels as shown in last column of the table. The Fig1 shows the pictorial representation of visual cryptography. In the figure you can see that the secret symbol here is rupee and it has to send to a receiver. Here the VC schemes splits it into two shares these shares will not provide any information regarding the secret image. Once the receiver stacks these two images then he can see the

recovered image. That in some fashion specified by the scheme.

The basic VC scheme leads to some problem like pixel expansion, low visual quality of recovered image etc. Subsequently, various VC scheme has been proposed to overcome existing problem, such as size invariant VC schemes, VC scheme for halftone images, gray scale image and color images etc.
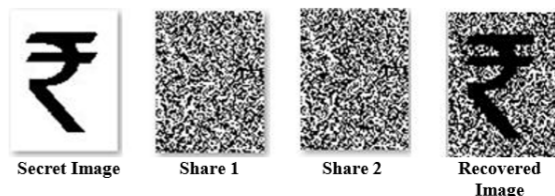

Fig 1. VC scheme for binary image

3. STEGANOGRAPHY

Steganography is use to secure the data inside other data. This other piece of data is called cover media. Steganography is derived from Greek word steganos that means covered and graptos means writing. Steganography helps to protect the contents of secret information. It is an art of hiding information (in the form of text image or a video) inside another data. Secret information is communicated through an unknown carrier data. The embedding of secret information is done in a way that it is invisible to any viewer. In steganography, the image media is most popular as a cover data because it has large number of redundant bits in it. The following image shows the encryption and decryption process of steganography.
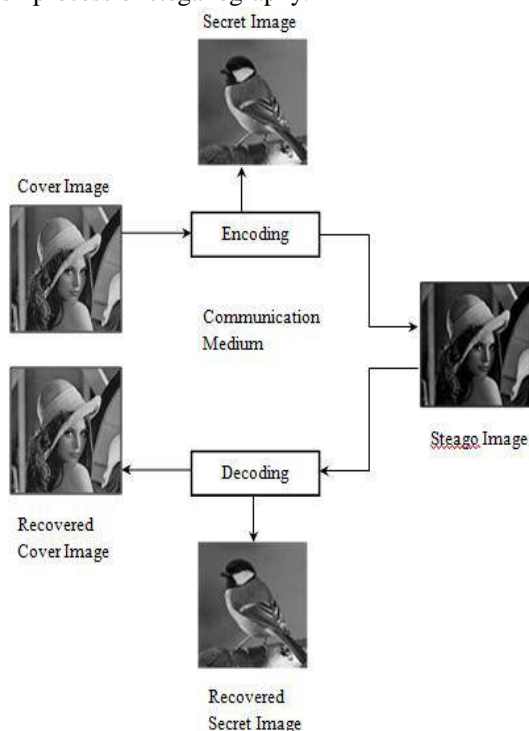

Fig. Encryption and Decryption process of steganography technique.

Image steganography has many methods to conceal information inside another image. Most popular methods used in steganography are as follows

A. LEAST SIGNIFICANT BIT (LSB) METHOD

The lowest bit in a sequence of binary number is the LSB. For example, if the bits of binary number are 10101001, the least significant bit is far right 1. Steganography inserts the secret data into the least significant bits of the pixel values in a cover image. In this method minimal changes are done in the cover image, the human visual system cannot notice such minimal changes, hence LSB insertion is the most popular and easy method in steganography techniques.

ALGORITHM USED IN LSB BASED STEGANOGRAPHY

For Encryption:
Step 1. Read the cover image. The secret dta is to e hidden in the cover image.
Step 2. Read the secret data and convert in binary form.
Step 3. Determine the LSB of each pixels of cover image.
Step 4.One by one the LSB of each bit of data is replaced.
Step 5. Write stego image

For Decryption:
Step 1. Read the stego image.
Step 2.Determine LSB of each pixel from the stego image.
Step 3. Retrieve bits and convert each 8 bit into corresponding character.

B. TRANSFORM DOMAIN TECHNIQUE

In transform domain technique, the secret information is embedded in the cover image by altering the discrete cosine transform coefficient (DCT). It transforms the signal from the spatial domain to frequency domain.

The image is spilt into high, middle and low frequency components. In this technique the secret information is hidden in the significant areas of the cover image, these cover images increases in size and cause a problem in compression, cropping and other functions.

ALGORITHM USED IN DCT BASED STEGANOGRAPY

For Encryption
Step 1. Read carrier image or cover image.
Step 2. Read secret data/ image and convert it into binary form.
Step 3. The cover image is splits into 8×8 block of pixels.
Step 4. Start counting from left to right, top to bottom.
Step 5. Apply DCT to each block.
Step 6. Each block is compressed through the value of quantization table to scale the DCT coefficients.
Step 7. Compute least significant bit of each DC coefficient and replace with each bit of secret data/image.

Step 8. Write stego image.

For Decryption:
Step 1. Read stego image.
Step 2. Stego image is splits into 8×8 block of pixels.
Step 3. Start counting from left to right, top to bottom.
Step 4. Apply DCT to each block.
Step 5. Each block is then compressed through quantization table.
Step 6. Compute LSB of each DC coefficient.
Step 7. Retrieve and convert each 8 bit into corresponding character.

C. STATISTICAL METHODS

In statistical method, the data is encoded by altering some statistical properties of a cover image and uses a hypothesis testing in the decoding process. In the above process the cover image is modified in such a way that some statistical characteristics are changed significantly.

4 HYBRID APPROACH

Hybridization enhances the data security by incorporating cryptography techniques with steganography, digital watermarking etc. It can be achieved by the following ways

- First encrypt the data with visual cryptography and the data is embedded by steganography.
- Firstly by using steganographic technique the secret data is embedded inside any cover data and then visual cryptography can be applied.

Following are few schemes proposed for data security by hybridization.

A.HYBRID APPROACH -VISUAL CRYPTOGRAPHY FOLLOWED BY STEGANOGRAPHY SCHEME:

Visual cryptography encryption scheme secret shares/cipher data are generated from original secret information and these are watermarked into host images using digital watermarking. It provides double security to the secret shares that are generated from the secret image.

In this method the secret image is broken into n shares using visual cryptography and then the shares are hidden inside some cover using digital watermarking. The embedment of secret share into cover images is achieved by discrete cosine transformation techniques. DCT changes the image into frequency domain.

The following figure shows the process of encryption and decryption of this hybrid approach.

Fig. A HYBRID APPROACH- VC scheme first and digital watermarking on it.

The decryption process is a reverse order of encryption process. This technique provides extra security because of key encryption before sharing and using steganography in secret sharing.

B. HYBRID APPROACH – STEGANOGRAPHY FOLLOWED BY VISUAL CRYPTOGRAPHY:

Firstly, the secret image is embedded inside a cover image using steganography and then the embedded image that is a stego image is divided into different shares by using visual cryptography. This process provides more security to the secret data. When one authenticated image has been fabricated into a cover image, two bits in each pixel are embedded in four bits of LSB of cover image. This is how the gray scale image is converted from the binary image.

Cover Image   Secret Message

Embedded Image   Share 1 of Embedded Image

Share 2 of Embedded Image
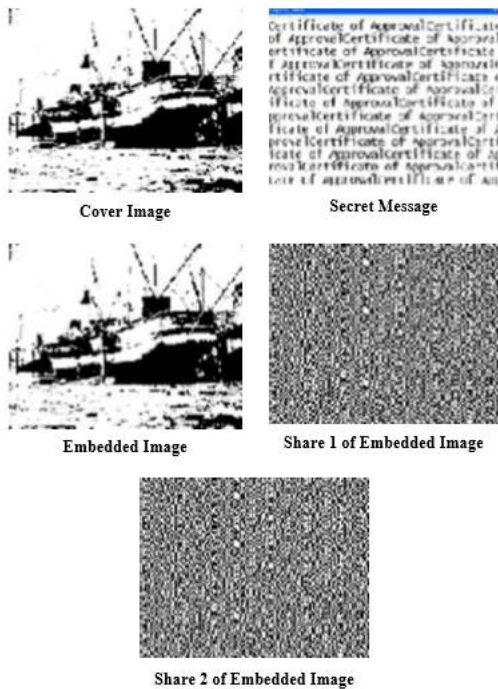
Visual cryptography is used to generate shares from it. The authenticated image is regenerated by the combination of shares, from where the secret image is obtained, at the time of decryption.

5 KNN CLASSIFIER

K Nearest Neighbors (kNN) algorithm is used as a database in which the data points are separated in several separate classes.Here in this system we will use this algorithm to arrange the shares in the system so that we can get a perfect output. Here we will consider each of the characteristics in our training as different dimension. Here we see the similarity of two points to be the distance between them in this space under some appropriate metric.

The algorithm decides which of the points from the training set are similar enough to be considered when choosing the class to predict for a new observation is to pick the k closet data points to new observations. The algorithm is as follows:

1. A positive integer k is specified, along with a new sample

2. We select the k entries in our database which are closest to the new sample

3. We find the most common classification of these entries

4. This is the classification we give to the new sample.

6 CONCLUSION

The visual cryptography is very much useful to protect the image based data. As the decoding is done directly by human visual system, the time consumption and computation complexity is very less. The beauty of steganography technique is its enveloping nature that makes secret data invisible to the users. It left no clue of the existence of secret data being transmitted inside the cover image. Hybrid approach provides double layer security to the data.

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LIBRARY SERVICES IN CLOUD COMPUTING ENVIRONMENT
A LITERATURE REVIEW

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ABSTRACT: *The ultimate aim behind this review paper is to highlight some progress and work done upon cloud computing in libraries. The library is the gateways to disseminate universe of knowledge. In recent days cloud computing is term which commonly known by most of persons. A large number of people group mostly using cloud computing in their routine life. Library is remarkable in the implementation of cloud computing because knowledge Acquisition, Classification, Preservation and Dissemination are the core areas of library. Cloud computing strongly defined this areas into cloud based services.*

KEYWORDS: Cloud Computing, Iaas, Paas, Saas, Resource Pooling, Pay per Use.

1.INTRODUCTION

"Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. This cloud model is composed of five essential characteristics, three service models, and four deployment models" (Mell & Grance, 2011)

Cloud computing is a new technology model for IT services which many organizations and individuals are adopting. It allows them to avoid locally hosting and operating multiple servers over an organization's network and constantly dealing with hardware failure, software installation, upgrades, backup and compatibility issues and also enables them to save cost. In other words, it refers to "the delivery of computing as a service rather than a product, whereby shared resources, software, and information are provided to computers and other devices as a metered service over a network, typically the internet". In this model rather than investing on hardware and software, organizations buy and pay for the services as needed basis. Cloud computing also helps to increase the IT requirements quickly and easily to accommodate the changes in demand.

Characteristics of Cloud Computing

- *On-demand self-service.*
- *Broad network access.*
- *Resource pooling.*
- *Rapid elasticity.*
- *Measured Service.*

Cloud computing has lot of dimension to define but ultimately the aim of the term is to outreach via internet. This is the objective behind cloud computing.

Service Models of Cloud Computing:

- *Cloud Software as a Service (SaaS).*
- *Cloud Platform as a Service (PaaS).*
- *Cloud Infrastructure as a Service (IaaS).*

Service models of cloud computing is nothing but the way of communication. There are some issues related to delivery of cloud services they are Software issues, Platform issues and Infrastructure issues are to be faced by Cloud computing technology and they all are depend upon customers requirement and service delivery pattern.

Deployment Models Cloud Computing

- *Private cloud.*
- *Community cloud.*
- *Public cloud.*
- *Hybrid cloud.*

After the service and it required mechanism is defined, it is essential to implement cloud computing in available deployment model. The deployment model is nothing but the service area where your users demanded the services.

2.CLOUD COMPUTING IN LIBRARIES

Cloud computing has large potential for libraries. Libraries may put more and more content into the loud. Using cloud computing user would be able to browse a physical shelf of books, CDs or DVDs or choose to take out an item or scan a bar code into his mobile device. All historical and rare documents would be scanned into a comprehensive, easily searchable database and would be accessible to any researcher. Many libraries already have online catalogues and share

bibliographic data with OCLC. More frequent online catalogues are linked to consortium that share resources. Data storage cloud be a main function of libraries, particularly those with digital collections storing large digital files can stress local Server infrastructures. The files need to be backed up, maintained, and reproduced for patrons. This can strain the data integrity as well as hog bandwidth. Moving data to the cloud may be a leap of faith for some library professionals. A new technology and on the surface it is believed that library would have some control over this data or collections. However, with faster retrieval times for requests and local server space it could improve storage solutions for libraries. Cloud computing or IT infrastructure that exists remotely, often gives users increased capacity and less need for updates and maintenance, and has gained wider acceptance among librarians.

Cloud computing offers many interesting possibilities for libraries that may help to reduce technology cost and increase capacity reliability, and performance for some type of automation activities. Cloud computing has made strong inroads into other commercial sectors and is now beginning to find more application in library science. Cloud computing in libraries is to deliver library resources, services and expertise at the point of need, within user workflows and in a manner that users want and understand. It will free and ease libraries from managing technology so that they can focus on collection building, improved services, innovations and initiatives practices. The cloud computing model will promote libraries and their users to participate in a network and community of libraries by enabling them to reuse information and socialize around information. It can also create a powerful, unified presence for libraries on the web and give users a local, group and global reach.

3. LITERATURE REVIEW

Vlete, A. T. (2010) in his book entitled "Cloud Computing: A practical Approach" explain the terminology of Cloud computing, as well as it describe its models in details. This book defined clear views about cloud computing. The authors deeply explain the benefits of cloud computing technology. Whenever we plan to implement this technology what are the assumption where raised in our mind also determine.

Mitchell, E. T. (2013) in his book 'cloud based services of your library' focuses areas of cloud computing as well as defined models of cloud computing. Then he differentiates cloud computing with the Virtualization Technology. This is an attempt of author to define the library services with the cloud computing environment. In this book author conducted a survey to measures the level of cloud computing usage at various level in libraries and information center.

Goldner, M. (2010) in his research paper entitle 'Wind of Change: Libraries and Cloud Computing' defines cloud computing and shows how it is different from other types of computing. It also

discusses how cloud computing solutions could be beneficial to libraries in three basic areas: technology, data and community. The research paper suggests that libraries can focus on collection building, improved services and innovation. The cloud computing model will encourage libraries and their users to participate in a network and community of libraries by enabling them to reuse information and socialize around information.

Wang, X. Huang, J. (2011), in his research paper 'What Cloud Computing mean to libraries and information service' focuses on some current status of cloud computing in society. This paper defines cloud computing application along with their benefits in libraries.

He said that 'advantages of cloud computing are hard to ignore', also define that along with advantage there are some risk when we implement cloud computing in libraries. He also convinced that we cannot put everything on cloud, it require periodical evaluation of this technology when it implemented in libraries.

After literature review we are able to identify the research gap in cloud computing in libraries. This literature review strongly suggest that it is necessary to evaluate the impact of cloud based services

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4. CONCLUSION

Cloud computing has brought us a new perspective to look at the current resource-sharing problem, cloud computing can be applied to digital library resources to improve information sharing capabilities, improve resource utilization.

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STATUS OF DIET & ITS LIBRARIES IN MAHARASHTRA: A CRITICAL STUDY

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ABSTRACT

The quality of education is a function of effective use of resources provided to the educational institutions. The study was conducted to see how far the DIETs have been able to provide the necessary facilities to the teacher trainees and faculty members of these institutions. The main objectives of the study were: (i) to collect information about availability of adequate educational facilities in DIETs.(ii) To study the problems faced by the teacher trainees in DIETs Primary schools teachers, 33 DIETs. A questionnaire with minor changes was developed and used for the collection of data from the respondents. The questionnaire was primarily structured to keep the research within predefined boundaries. Data collected were analysed in light of objectives of study and it was found that availability of educational facilities in DIETs is satisfactory in respect of teacher training program.

KEYWORDS: primary education, primary school teacher, DIET, National Education policy

INTRODUCTION:- National Policy of Education 1986 on the basis of the needs and necessities of education the deep meditation was done for the equal coordination and the quality improvement at national to serve the purpose .here in Maharashtra work fork group has formed the action plan separately. To provide academic and resource support at each grass root level for the success of the various strategies and programmers being undertaken in the areas of elementary and adult education. Introducing District Institute of Education and Training in each district of the state is one of aspects of this action plan. District Institute of Education and Training is started at District level in 1987 but actually functioning in 1997 in Maharashtra. At present 33 District Institute of Education and training working in Maharashtra state. To improve the quality in primary education is the major object behind the formation of DIET. In Maharashtra there are four major sections in District Institute of Education Training (DIET) to control and implements the work properly as follows.
1) Pre- service and in -service training section.
 2) Syllabus developments and evaluation section.

3) Educational Technology, Informational Education and work experience section.
4) Planning, managements and Administration section.

DIET is the small reflected unit at district level of Maharashtra state .State council of Education Research and Trainings. (SCERT) Pune in the Mother institute of state level and District Institute of Education and Training (DIET) is the mother institute of education at District level.

Branches in DIET

- Pre-service Teacher Education (PSTE)
- Work Experience (WE)
- District Resource Unit (DRU)
- In-service Programs, Field interaction and Innovation and Coordination (IFIC)
- Curriculum Material Development and Evaluation (CMDE)
- Educational Technology (ET)
- Planning and Management (P&M)

The role of DIETs

has great significant in order to improve the quality in the primary and secondary education though the four major sections of the institute it runs following programme.
1) Action research project.
2) Orientation class for the resources person.
3) Teaching to D.Ed.(Diploma in Education).Now D.T.Ed
4) Postal D.Ed classes and short term programme.
5) Orientation progarmme for the adult education.
6) Preparing self learning material.
7) Follow up programme though field work.
8) To maintain and improve the quality in education through District Resource person.
9) Provide pre service training.
10) Conduction of various activities for social services.
11) To develop local need based syllabus, teaching learning material and evaluation techniques.
12) Advance guidance to the trainees through teleconferencing.
13) Gradation to primary and secondary school district level for grants.

14) Recommendation of new primary and secondary school in order to fulfil the need of primary and secondary education in the district.

Role Of Libraries In District Institute Of Education And Training (Diet). In general a DIET is regarded as institution of higher secondary students which usually offers a two year and six months course i.e. D.Ed. now D.Ted. A District Institute of Education and Training. Library is an integral part of institute .It plays a very important role in education Process for the development of good teacher in the state. Its main role to support the institutional programme for the district institute of education and training providing different types of reading Material and services, but now functioning only 33 out of which four DIETs are functioning in the year 2010.Following table show the name of District in Maharashtra and place of DIETs most of the DIET are in the same District and some DIETs are in nearest Taluka places. Now Nandurbar, Washim, Gondia Hingoli these four DIET library are functioning in the year 2010.

District Institute of Education and Training Libraries in Maharashtra its place of library Sr. Name of District Place of DIET & No its Library

Source; Demand and supply of school teachers and Teacher educators (2007-08-2016-17) in Maharashtra by National Council for Teacher Education, New Delhi. December 2010

Statement of Problem:

The present study intended to study the Growth and development of DIET Libraries In Maharashtra state – A Critical Study Definition of related terms:

1) DIET: - District Institute of Education and Training. It is mother Institute for District.

2) Library: Collection of sources, books, and resources and other reading materials in room or building where in they kept and maintained by institute.

3) Maharashtra: - Maharashtra is located on west cost of India and has linguistic identity of Marathi language speaking people.

Objectives of Study:

Following were the objectives of the study

1) To study Growth & Development of Libraries in Maharashtra.

2) To study librarians post position of Libraries.

3) To study computerization of libraries.

4) To study infrastructure of library. Methodology of the Study: The present study indented to A Critical Study of libraries in District institute of Education and Training (DIET) in Maharashtra

Research methodology:

Researcher used descriptive method for his research. Hence survey method is adopted to collect the data. Tools: Questionnaire, Observation, Interview these tools are used for data collection. A questionnaire, Observation, Interview is used for collection of data. Questionnaire is designed by the researcher and interview schedule is designed by researcher, and it is Marathi and English language. Sample: Sampling for his study is quota sampling method is used for sampling .Sample for data collection from 30 DIETs libraries of Maharashtra.

Data collection: Questionnaire is distributed to 30 Librarian of DIETs out of which 24 Librarians questionnaires are responded and return.

Limitation of study

1) Study is only limited to 33 DIET libraries of Maharashtra.

2) Study in only limited to DIET s libraries.

Conclusions: 1) Most District Institute of Education and Training libraries are in District Places and few libraries are in the Taluka places. . 2) All District Institute of Education and Training libraries have not it own buildings. 3) Most of the libraries have only one room for libraries and few libraries have two and three rooms for library. 4) More than 85% libraries have full time librarians and few libraries have in charge librarians it is good think for library professions. 5) All libraries are full qualified and acquire higher qualifications in his professions. And experience persons. 6) Most of the DIET libraries are not computerized but few libraries are in process for computerization of libraries. 7) Most of the librarians are appointments' in the year1998 and year 2004.The formation of DIET in 1997 but appointment of librarian is in 1998 and 2004.

List of DIET & its Libraries in Maharashtra:

1. Shikshan Nirishak, Bruhan Mumbai South Region.Cent.Rail Station, Mumbai.
2. District Instiute of Education and Training , Raigad
3. District Institute of Education and Training, Jawhar, Thane
4. District Institute of Education and Training, Loni Kalbhor, Dist. Pune.
5. District Institute of Education and Training, Sangamner Dist. Ahmednagar.
6. District Institute of Education and Training, Malshirus, Dist. Solapur.
7. District Institute of Education and Training, Nashik.
8. District Institute of Education and Training, Jalgaon.
9. District Institute of Education and Training, Dhule.
10. District Institute of Education and Training, Nandurbar.
11. District Institute of Education and Training, Shahupuri, Kolhapur.
12. District Institute of Education and Training, Phaltan, Satara.
13. District Institute of Education and Training, Sangli.
14. District Institute of Education and Training, At Post Kudal Dist. Sindhudurga.
15. District Institute of Education and Training, Vaijapur, Dist. Aurangabad.
16. District Institute of Education and Training, Jalna.
17. District Institute of Education and Training, Ambejogai, Dist. Beed.
18. District Institute of Education and Training, Parbhani.

19. District Institute of Education and Training, Hingoli.
20. District Institute of Education and Training, Murud, Latur
21. District Institute of Education and Training, Tambri Vibhag, Usmanabad.
22. District Institute of Education and Training, Nanded.
23. District Institute of Education and Training, Amrawati.
24. District Institute of Education and Training, Buldhana.
25. District Institute of Education and Training, Akola.
26. District Institute of Education and Training, Washim.
27. District Institute of Education and Training, Yavatmal.
28. District Institute of Education and Training, Nagpur
29. District Institute of Education and Training, Bhandara
30. District Institute of Education and Training, Gondia
31. District Institute of Education and Training,Wardha.
32. District Institute of Education and Training, Chandrapur
33. District Institute of Education and Training,(Gadchiroli) Chandrapur

CONCLUSIONS:

Regarding the infrastructural facilities there was a gap between the facilities proposed in the DIET guideline and their availability in DIETs. The facilities available in all DIETs were Library, science laboratory, Educational technology display room, computer, Television and furniture. The facilities not available in and DIETs were Lecture hall, common room, reading room, music room, craft room, and store room. But the utilization of available facilities was not satisfactory.

1. As per guidelines, DIET campus area should preferably 10 acres. But it is found that these facilities were not sufficient and the maintenance of the campus was not satisfactory.

2. The residential facilities for the teaching and non teaching staff, particularly for warden was not available in all the DIETs, wherever available it was not fully utilized.

3. Out of 3 DIETs the hostel facilities were available only in one DIET for boys and girls. Another two DIETs, though the hostel facilities were available for boys, they have not been sufficient for them and lack of a warden.

4. The computer cell is available all the four DIETs. In general, it is found that this facility is mainly used for various administrative purposes. DIETs faculty members are not well trained in the utilization of computers.

5. All the DIETs have requisite facilities for physical education and sports but due to the non availability of Health and Physical Education Instructors they have remained unutilized.

6.According to DIET guidelines each DIET should have Institute Clinic manned by a part time Medical Officer to treat common ailments of trainees and staff. But it is found that no DIETs have this facility.

1) Most District Institute of Education and Training libraries are in District Places and few libraries are in the Taluka places. .

2) All District Institute of Education and Training libraries has not it own buildings.

3) Most of the libraries have only one room for libraries and few libraries have two and three rooms for library.

4) More than 85% libraries have full time librarians and few libraries have in charge librarians it is good think for library professions.

5) All libraries are full qualified and acquire higher qualifications in his professions. and experience persons.

6) Most of the DIET libraries are not computerized but few libraries are in process for computerization of libraries.

7) Most of the librarians are appointments' in the year1998 and year 2004.The formation of DIET in 1997 but appointment of librarian is in 1998 and 2004

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E-LEARNING: AN OVERVIEW

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ABSTRACT:-

E-Learning is a combination of learning services and technology to provide high value integrated learning, any time any place. It is being presented in the market place as the next evolution of the training, education sector and next phase in the digital revolution. In the area of information technology emergence of computers, access to electronic media advanced telecommunication system, audio-visual technology, multimedia has created. Now possibilities to deal with the collection, organization and dissemination of vast among of digital information.

KEYWORDS: - E-Learning, Advantages of e-learning, Objective and tools, Role of Librarian's in E-Learning, future of E-Learning, Career Opportunities

WHAT IS E-LEARNING?

When the World Wide Web was launched in 1991, there was a surge of interest in the possibilities of electronic of electronic learning. The use of the web as an educational medium was hailed as a harbinger of profound changes for communities, organizations and markets. By now, well over a decade later, one might expect that the concept of e-learning would be well defined and clearly differentiated from others forms of learning. Yet there is still a lack of consensus about what e-learning represents. For all the publicity it has received in recent years, e-learning remains something of an enigma, and its boundaries are far from clear. E-learning intersects numerous field of thought and practice, and cannot be trivialized into a simple formula for success. As Figure suggested, writing on the 'theory' of e-learning encompass an array of academic perspectives: training and education, learning and knowledge, technology and the investigation of individual market segments. In this new industry, key concepts and understanding are still emerging. Any study of the effectiveness and efficiency of e-learning there for has to engage with multiple issues, including the role of e-learning in knowledge and learning, its contribution to competent performance, its relationship to organizational transformation and strategies for embedding e-learning into other forms of electronic interaction.

DEFINITION OF E-LEARNING :-

Allan & Barbarg:-

"E-learning is the delivery of education which inquires activates related to instruction, instruction teach teaching and learning through various electronic media such as a interest television video/audio tape and CD/DVD".[1]

"**E-learning** is the delivery of education, which includes activities related to instruction, teaching and learning through various electronic media, such as internet, intranet, extranet, satellite television, video/audio tape and CD-ROM."[2]

Derek Stockley(2003) :-

"The delivery of a learning, training or education program by electronic means. E-learning involves the use of a computer or electronic device (e.g. a mobile phone) in some way to provide training, educational or learning material".[4]

E-LEARNING ADVANTAGES:-

➢ E-Learning really does score against the traditional system of learning and education the many aspects and the many gaps present in the traditional system of education are nearly filled by e-learning.

➢ Another set of the people who can really benefit are the working professionals.

➢ The potentials benefit of e-learning can be repeated by individual interested in developing skills at a personal level as well as organization who are looking to developing the skill set of their employees.

➢ Lower costs

➢ Faster Response & Time saving.

➢ Flexibility& Better Competeiveness.

➢ Learning resources can be pace easily developed using a variety of standard pakeges.

➢ It is easy track learner activity and progress.

OBJECTIVE OF E-LEARNING:-

➢ To train large number of people simultaneously.

➢ To create more and more opportunities for lifelong learning.

➢ To developing instant education.

➢ To give update knowledge's.

E-LEARNING MECHANISM
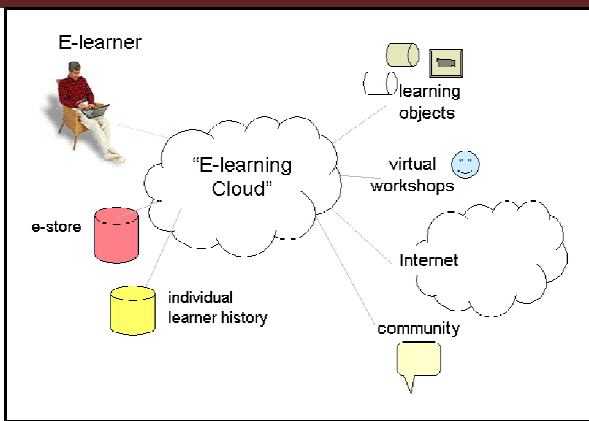
E-LEARNING STAKEHOLDER :-

The above diagram depicts the main stakeholder of e-learning environment. This environment is the enabled users to assured delivery of e-learning services.

The following stakeholders play important role :-

- **Internet as a way of communication :-**
  This is essential to user e-learning tools. In the cloud based e-learning, there is only login & password essential to use remote environment.

- **E-Learner :-**
  Is a user who use the e-services in e-learning environment. To use effective services is depends on quality of service which is developed for the user. User awareness is one of the feature when we say about e-learning, because effective and optimum utilization of e-learning environment is depend upon how much specific user acquire the knowledge about use of e-learning tools.

- **Learning Object :-**
  Learning object are the courseware which designed and developed for the user. This today in digital format. Once the object get created, we can deliver to the uses. The learner objects sometimes called as course module.

- **E-Store :-**
  In the open access environment, the majority of e0learning facility is available free of cost, but in some institutes / vender's it is available with minimum cost. This can be available online. The e-learner can pay the fees for the course module online using net banking, debit, and credit cards. etc.

Community member or expert on solves the query.

- **Community Development :-**
  It is another feature of e-learning. We can enroll with course with a specific community. The benefit of community is that specific community member can raised a query upon the community, and available community member or export on solve the query.

- **Virtual Workshop :-**
  This is the heart of e-learning. The specific topic lecture or demonstration available online, so the demonstration will explain the topic and instantly the learners can ask the question. Another feature is that the entire session can be preserved.

INDIVIDUAL LEARNER HISTORY :-

When any learner registered with the institution, the usage statics will automatically maintain. The particular course/module require particular learner time to watch the lecture. So each time and in between the lecture, most time timely tags are also preserved.

This historical data is important because it is recorded and particular result will generate according to learner performance.

TOOLS OF E-LEARNING:-

➤ In E-Learning several kind of tools are used a part from internet, intranet and network tools such as –

- Blogging tools
- E-mail
- New group
- Bulletin boards
- Web forms
- Polling
- Wikis
- Instant messaging
- Online discussion
- White board
- Course management system
- Internet telephony

ROLE OF LIBRARIAN'S IN E- LEARNING:-

- E-Learning now a day's becomes the order of the day and it is being used to impact distance education.
- Libraries are the information intermediates who can help the users in making use of e-recourses.
- The librarians need to be made aware of the internet and the resources available here in and now to make efficient use of terms.
- The idea behind E-Learning module is to train both the librarians as well as the users regarding the efficient use of e-resources.
- The emphasis is on the resources related to librarian ship in addition to general topics of interest.

THE FUTURE OF E-LEARNING AND CAREER OPPORTUNITIES:-

Peter Ducker the father of modern Management Said that way back in 1997. This Couldn't seem more accurate now seeing that e-learning is one of the fastest growing sector in the world, e-learning is already huge and is cooking to completely revolutionary , certainly unimaginable thanks to the advent of the various e-learning, technologies. It has definitely changed the way, we approach knowledge and skill acquisition.

The filter of e-learning does look extremely promising. There is bound to be opportunities galore for both students willing to learn new things online, and for people looking to make some money by jumping on the e-learning main stream.

CONCLUSION:-

E-Learning has many obvious benefits; it offers more opportunities to the learner

community and researcher troops. It reaches out to a number of people virtually and simultaneously, yet it can be blended along with regular teaching methods to become an influential force in higher education today.

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INFORMATION COMMUNICATION TECHNOLOGY (ICT) IN HIGHER EDUCATION IN INDIA

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ABSTRACT

Globalization and technological changes have created a new global economy powered by technology, fueled by information and driven by knowledge. The emergence of this new global economy has serious implications for the nature and purpose of educational institutions. As the access to information continues to grow rapidly, schools and colleges cannot be contented with the limited knowledge to be transmitted in a fixed period of time. They have to become compatible to the ever expanding knowledge and also be equipped with the technology to deal with this knowledge. Information and communication technologies (ICTs) which include radio and television, as well as newer digital technologies such as computers and the Internet have been proven as potentially powerful tools for educational change and reform. When used appropriately, different ICTs can help expand access to education, strengthen the relevance of education to the increasingly digital workplace, and raise educational quality by helping make teaching and learning into an active process connected to real life. This paper is an attempt to take review of ICT in Higher Education in India and to address the issues and challenges in implementing it. Keywords: ICT, Higher Education, Globalization, Global Economy, Teaching and Learning.

KEYWORDS: Information Communication Technology (ICT), Higher Education, Higher Education in India

Challenges and solutions of applying ICT for learning:

Certain challenges also exist for the ICT based teaching learning. One of the great challenges for quality control in education is lack of standards for parameters to measure the quality of education. For the solution of this all the accreditation bodies like NAAC,NBA,AICTE,CBSE and other authorities must sit together and circulate a standard list of parameters to decide the quality of education. Development of ICT has changed the epic centre of knowledge and hence in many of the cases student is more informed than the teacher. Teachers lack adequate qualification and training and their lesson plans are most often outdated or irrelevant. Setting up the ICT devices can be very troublesome. It is expensive to afford it is hard for teachers to use with a lack of experience using ICT tools. These reasons destroy the available quality of education. ICT enabled distance education, to a great extent, can combat this problem. One of the important barriers is lack of trained teachers to exploit ICT proficiently. Most of the teachers are not willing to introduce new technologies to themselves first and subsequently to their students. There is resistant from teachers, basically from older teachers as compared to younger ones, to apply ICT in their subject.. Hence teachers need to update their knowledge and skills as per change in the curriculum and technologies. At present, ICT in school education is strictly limited to a handful of elite schools. Beyond that, it's just a computer lab that's held apart from the conventional educational process [19].Though computers came to Indian classrooms in the year 1984-85, the level of adoption of modern technology in the teaching and learning process has been limited and uneven[15]. Various ICT tools must be available and it must be accessible at demand. Many schools have limited resources for buying books, stationery, furniture and other classroom materials. Role of private sector providing services in such sectors may be taken into account. Rural population may not be able to pay hefty amount to utilize such ICT resources for education. One of the major challenges in the implementation of ICT in education is the initial thinking that is based on the technology. ICT hardware and software are not designed as per educational purposes rather they are designed for general purpose. One first thinks about the available technology and then a try is being made to apply it into education field, but if we look at in reverse way then possible outcomes may be more useful and may give good results. As per latest tradition only special subject like IT or ICT is available and that is also optional one there is need for to have basic knowledge of computers and IT to utilize various ICT tools to be used for teaching learning. Only computer teachers would not

be able to carry this important mission of being agents of change. To sort out infrastructure problems for providing ICT education in schools one can split the screen in half vertically and at two sets of an application can be displayed and used by two users (students) simultaneously.

OBJECTIVES:

To determine the Evolution of ICT in Indian education sector To determine the role of ICT in teaching, learning, administration, research and society development To draw implications of impact of ICT on students, teachers, research work, institutional and societal effectiveness To explore how ICT as a change agent in higher education and society To determine the problems and prospects of ICT integration in higher education

Major ICT Initiatives in Higher Education India:

has taken up major initiatives in terms of content delivery and furthering education through Information and Communication Technology. For instance Gyan Darshan was launched in 2000 to broadcast educational programs for school kids, university students, and adults. Similarly Gyan Vani was another such important step which broadcast programs contributed by institutions such as IGNOU and IITs. Under the UGC country wide classroom initiative, education programs are broadcast on Gyan Darshan and Doordarshan's National Channel (DD1) everyday. E-Gyankosh which aims at preserving digital learning resourcesis a knowledge repository launched by IGNOU in 2005. Almost 95% of IGNOU's printed material has been digitized and uploaded on the repository. The National Programme for Technology Enhanced Learning (NPTEL) launched in 2001 is another joint initiative of IITs and IISc which promotes education through technology. Moreover, the ambitious National Mission on Education through ICT was launched by the government to harness ICT's potential throughout the length and breadth of the country. In 2009, the government approved the landmark "National Mission on Education through ICT" scheme. The National Mission on Education through ICT is centrally sponsored scheme submitted by the Ministry of HRD and approved by the Cabinet Committee on Economic Affairs (CCEA). The Mission has planned a variety of initiatives aimed at developing and standardizing digital content for Indian higher education segment. The Mission envisions catering to the learning needs of 500 million people in the country

ICT CHALLENGES FOR HIGHER EDUCATION:

Are powerful tools having potential to transform the educational systems and opportunities for all students including those who are normally excluded by virtue of their special circumstances and special educational needs. Use of ICTs can break down some of the barriers that lead to underachievement, student disaffection and educational exclusion (Swarts, 2006). However, when one looks around, in most of the colleges and universities across the country lack of harnessing of this potential is visible. In spite of the fact that planning and implementation of initiatives for enhancing role of technology in education have received priority, analysis of the existing scenario reveals number of factors which have been impeding the integration of ICTs in educational sector

EVOLUTION OF ICT IN INDIAN EDUCATION:

Involvement of ICTs in different dimensions of the Indian education system is taking place at a fast pace. Use of audio visual aids, radio, TV to support education and dissemination of information for national development is not new. The use of satellite in education started as Satellite Instructional Television Experiment (SITE) in 1975-76. This led to the establishment of CIET-SIET studios for production and transmission of school oriented programs, initiation of the country-wide classroom of the UGC with CEC as the nodal agency by creating educational media resource centers (EMRCs) and audio-visual resource centers (AVRCs) in several universities. Presently these programmers" are continuing as Vyas Channel supported by the CEC and various EMRCs, Gyandarshan II of the IGNOU, Open School and NCERT broadcast channel. EDUSAT was conceptualized to meet the communications requirements of the education sector. The Eleventh five year plan is further giving impetus to use of ICTs in education by setting up a National Mission in Education through ICT. In this regard, use of ICTs would contribute significantly to enhance the access and quality of education but at the same time it may generate situations, which warrant attention. For instance to promote technology driven education and open and distance learning the country launched a dedicated satellite EDUSAT on September 20, 2004. It was expected that EDUSAT would bring both quantitative and qualitative revolution in education. However, the quantitative expansion appears to have been achieved in being able to reach out to large numbers, yet the qualitative revolution envisioned due to introduction of new services and better quality teaching with learning materials, has not been quite visible (Bhatia, 2009). In higher education sector also, a National Mission in Education through ICTs is planned to be launched to increase ICT coverage in all the 378 universities and 18064 colleges. The Mission will focus on digitization and networking of all educational institutions, developing low cost and low power consuming access devices, and making available bandwidth for educational purposes. These initiatives would provide significant opportunities and pose new challenges as well for effective use of ICT in programmed delivery (11th FYP). Notable initiatives like various universities and colleges use of ICT in education in India include Indira Gandhi National Open University (IGNOU) uses radio, television, and internet technologies. National Program on Technology Enhanced Learning is a concept similar to the open courseware initiative of MIT. It uses Internet and television technologies. An Eklavya initiative uses Internet and television to promote distance learning. IIT-Kanpur has developed "Brihaspati", an open source e-learning platform (Virtual Class Room). IIT-Bombay has started the program of CDEEP (Centre for Distance Engineering Education Program) as emulated classroom interaction through the use of real time interactive satellite technology. ERNET & EDUSAT (GSAT-3) systems provide support to Tele-education system of Distance learning to reach the un-reached people of India in every nook and corner. INFONET and CEC (Consortium for

Educational Communication) services of University Grants Commission supporting E-content, E-learning and E-course systems. Information and Library Network (INFLIBNET) Centre is an Autonomous Inter-University Centre (IUC) of University Grants Commission (UGC) involved in creating infrastructure for sharing of library and information resources and services among Academic and Research Institutions. (Neeru snehi 2009)

ROLE OF ICTS IN PEDAGOGY FOR QUALITY TEACHING LEARNING

Another most important dimension of higher education sector influenced by ICT integration is improving quality of teaching-learning. Also, the changes taking place due to globalization and internationalization attach premium to knowledge and information. Therefore, the integration of ICTs would not only help in promoting personal growth but also in developing "knowledge societies". The call of the hour is the need to provide education for everyone, anywhere, and anytime. Lifelong learning has become the driving force to sustain in the contemporary competitive environment. Therefore to strengthen and/or advance this knowledge-driven growth, new technologies, skills and capabilities are needed. In this regards however the research available is scarce, though the efforts for improving pedagogical practices/ approaches are being undertaken in many countries. The scope includes development of infrastructures, content ware and trained personnel. Adoption of ICTs in education requires establishment of infrastructural facilities, acquisition of technologies and their periodic updating, management and professional support services. However, initial investments for the process of developing interface between technology tools and delivery of education are exorbitant

ROLE OF ICT IN HIGHER EDUCATION:

role in higher education is solicited for improving quality, widening access and enhancing operational efficiency across all functions in higher education sector and to create new dynamics in higher education both at micro and macro levels (J.Meenakumari, krishnaveni)Introduction of ICTs in the higher education has profound implications for the whole education process ranging from investment to use of technologies in dealing with key issues of access, equity, management, efficiency, pedagogy, quality, research and innovation. ICT applications provide institutions with a competitive edge by offering enhanced services to students and faculty, driving greater efficiencies and creating enriched learning experiences.

ICT IN TEACHING AND LEARNING

While for Higher Education sector is planned to build a knowledge repository of multidisciplinary subjects, as a strategy to counter the shortage of faculty in higher education, EDUSAT will be used to share the available expertise through modular programmes. This will be done by networking institutions, creation of virtual laboratories, creation of database, access to expert lectures and technological developments in Industries and Research organizations etc. Teaching and learning can further be improved by replacing of conventional teaching instead of the usual age old method of chalk and talk for teaching by

innovative methods4 like Power point presentations and animations, modeling and simulations, video clips and using AV aids, LCD projectors etc. This enhances the learning ability of the student and also helps the teacher to elaborate the difficult concepts effectively within a short time span. Seminars of the students can also be arranged allowing the references to be done using internet and the presentations using high tech display devices as LCD projectors. Different online courses of the foreign universities are made available for the students in the internet centre in collaboration with the universities. (Savita Desai, Prashant Shah). ICT in higher education change the view of learning from teacher centered to student centered learning system and the teachers are the facilitators, coachers and mentors were ICT support the learning environment to students.

PROBLEMS AND PROSPECTS OF ICT IN HIGHER EDUCATION

Problems Implementation of ICT in educational institutions• is one of the big challenge due to high cost incurred for acquiring, instilling and replace of latest software and addition to that various opportunity cost to institutions for infrastructure development. This is not possible to tire 3 or self financing institutions until unless they have financial aid from government and sponsors etc. Speed of change reduces the comprehensive• planning and researches the effects of new technologies in the education and society. And it is one the drawback for the successful implementation of the ICT in education in the initial periods because the stakeholders are not trained to accept the change Establishment of ICT infrastructure is not sufficient• to achieve the goals of successful integration of ICT in educational institutions. However the development of e-content , its dissemination, selection and evaluation requires large scale networking among the users and producers and intellectual property rights among the stake holders is the major concern for the holistic integration ICT in education Besides the lack infrastructure to accommodate the• technology ,problems in electricity , network availability, lack of awareness towards technology and utilization technology with improper knowledge were adding complexities for the successful implementation of ICT in educational institutions Despite of increase access the availability of• advance technology and various opportunities to educational institutions to move forward in a competitive environment but many institutions are still in a nascent stage in the integration of ict in education because many institutions are still accustomed with traditional learning practices and lack of motivation and knowledge among teachers to adopt ICT in teaching tool are the other challenging factor for the potential benefit of the ICT in higher education

CONCLUSION:

Information and Communication Technology has no doubt brought about tremendous change in education, but we are yet to achieve the desired level of IT adoption in higher education in the country. The optimal utilization of opportunities arising due to diffusion of ICTs in higher education system presents enormous challenge. Nonetheless, it has become an indispensable support system for higher education as it could address some of the

challenges facing higher education system in the country. Moreover , it can provide access to education regardless of time and geographical barriers. Similarly wider availability of course material in education which can be shared by means of ICT, can foster better teaching. While technology can influence the way how students are taught, it would also enable development of collaborative skills as well as knowledge creation skills. ICT enabled education will ultimately lead to the democratization of education audit has the potential for transforming higher education in India. Education is the driving force of economic and social development in any country. Considering this, it is necessary to find ways to make education of good quality, accessible and affordable to all, using the latest technology available Use of ICT in education develops higher order skills such as collaborating across time and place and solving complex real world problems. ICT integration in higher education brings a change in student and teacher learning behavior and the Collaboration of all stakeholders in the universities and colleges by sharing the information for mutual benefit. Thus the successful integration of ICT in higher education dependson the collaboration of national policies and institutional policies. The actions taken for the implementation of ICT needs to be a proper action plan and training to all stakeholders involved in the integration and bring change on them. In addition to this there should be proper controls and licensing, quality assurance and accreditation of technology must be compulsory to reduce the complexities of implementation.

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INFORMATION SYSTEM AUDIT

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ABSTRACT: - *This paper is mainly focus on the changing scenario of the information system and the role and coverage of information system audit. The present increase in computerization the risk of security and vulnerability also increased. So the role and audit procedure is also changing. Skill and competencies of auditor also the key issues.*

KEYWORDS: - Skill & Competencies of auditor, Audit Procedure, Classification of system audit,

1. INTRODUCTION

Information system audit is the assessment of effectiveness of control of information technology environment of business organization

It is useful to assured or guarantee of validity, reliability and security of information and system.

Understand and to assess the effectiveness and efficiency of information system and its control.

Information system control audit reseals the measures and evaluate theadequacy of internal control regarding computer data, application and networks.

Information system audit is the technique and skill of auditor and expertizeness and experience.Auditor may use various tools and techniques to evaluate the system performance and control tools.

The effective control of system may assess by the auditor using their following skills.

1) Adequate knowledge of business, culture, management and control techniques.

2) Technical and professional qualification and certification of authorized institutions.

3) Understanding of risk and control.

4) Understanding and knowledge about internetand avoidable risk.

5) Best professional, knowledge and knowledge of international standards.

2. AUDIT PROCEDURE

1) Defining scope and objective

Information system audit is to undertake to verify the present system. Auditor must decide the scope and object of the information system audit. It is nothing but the targeted area in which auditor assess the system for vulnerability and risk evaluation.

2) Planning to gather data

The auditor must follow variouse procedure and techniques to collect data. System log file, System audit trails are the basis sources of system audit data. Because it shows the log and alteration and modification details in the system and authority.

3) Analysis of present system and controls.

The Auditors must verify the existing system implemented at the clients computer. Analyze the present security control and risk and reliability of the present system using the various audit techniques. The auditor may enter the trail data and get the result of it and test such results with the actual solution. This may assure him about the procedural working and its results.

4) Valuate the vulnerability and system draw backs.

After testing of the present information system the auditor valuate the risk involved and vulnerability in the present system that may damaged to the system.

5) Reporting and judgmental decision

After getting all the working result auditor has to prepare the report based on his judgment and experience and findings in the audit. His report is based on the subject matter and scope of the objective. This report is prepared according to the expectation of the management.

3. INFORMATION SYSTEM AUDIT CLASSIFY UNDER VARIOUS CATEGORIES:

1) Application level

IS audit verifying the application level efficiency of the information system and control established for valid, reliable timely, accurate and secure data.

2) Information procession level.

Auditor verify and assess the processing of the information system under normal situation and in case of disruptiptive situation with view to avoid data loss and delay.

3) System preparation and development.

Auditor must verify the system developed and modules developed. Whether these system full fill the objectives of the management. The objective of the system development is to provide integrated, secured and reliable data.

4) System Updating and management level

Information system audit is further classify according to the upgradation and maintenance level audit. Audit is undertaken while present system is updated because to verify that the updation get desired results and whether updation is according to the specification. And auditor may use various techniques to satisfy himself about the effective updation of system.

5) Network and telecommunication internet level security.

Auditor must verify the information security at the network level. Auditor use their general judgment and experience to verify the network security. It is commonly related with the open nodes, unsecured data base, unauthorized access to system, data alteration etc.

4. CONCLUSION

The Ultimate aim of the research paper is to gain the benefit on changing scenario of the information system and audit. This information useful to overcome the difficulty in the information system audit. And these concepts are very practical implication.

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O! ARE WE GOING TO PRODUCE TECHNOCRATS? : PLACE OF ETHICS IN THE ICT AGE

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ABSTRACT:

 Use of information technology has changed the face of the entire globe. It has turned it into a global village. Each and everything in this global market today is at one's fingertip. The entire globe is witnessing a constant change in the wake of scientific development and technological advancements. It is impossible to imagine life without computers, laptops, smart phones, i-phones, i-pads and tabs, television and radio, telephones and the everyday use of satellite technology that has almost reached each door. And we have become technology savvy in one way or the other whether we like it or not. It has come to us in a scientific way, not the religious one and has helped in influencing our life to a great extent and so it is our responsibility to see it functions properly. By providing proper mechanism we can reduce the threats posed by the misuse of information and communication technology to the growth and development of our country. So, the dire need of the time is to emphasize on the human values, moral ethics, and computer ethics in using the technology in our day-to-day life for the betterment of the human civilization on this lovely, beautiful, planet we live. The advancements in science and technology are mind-altering, society-altering and world-altering, depending on how we use the technology. At such a move of time, each one of us needs to ask ourselves: 'what we are going to do with this technology! Are we just going to produce technocrats by turning our back to ethics and values? Or are we going to develop a society with human values rating high than the smart instruments?

KEY WORDS: information technology, human values, moral ethics, education, research, technocrats

INTRODUCTION

 No doubt, information technology has emerged an innovative tool today. It has helped in enhancing the quality and quantity of research experience in all the spheres of knowledge and life. There is no field that is not marked by the use of information technology. It is used extensively almost in all the fields. It has brought digital revolution. Information explosion is the other name for information technology. It has turned the entire world into a digital house. But this digital house is not free from certain obligations and responsibilities that we must abide to make this beautiful planet a paradise. Otherwise, it might result in troubles, dooms and destruction. Technology is best when it is used for the upliftment of the

poor and progress of the nation but the ultimate misuse of it can turn it into a curse by inviting the troubles in the form of anarchy, and degradation of our human society.

USE OF ICT AND NEED OF VALUE EDUCATION:

 Students are the pillars of our nation so, while imparting education to them in any discipline, human values and moral rational ethics must have to be imbibed to make them better world class citizens in the world. Without human values, they can be the best technocrats but cannot be the best human beings with better understanding of the human values like freedom, fraternity, equality and social justice. Without the sense of good and evil, the students will be machines or robots; they would be empty boxes without feelings as to do the mountain work in a globalized village. Would they serve to humanity in its entirety? So, the students in the global village must have to be well equipped with human values as without it the field of science and information technology will be a desert where there will be hardly any space for human growth and development. Margaret Somerville acknowledges the development and growth made by the science and technology in "Searching for Ethics in a Secular Society," and also invites the readers' attention to the responsibilities we need to shoulder. She states, "The possibilities these advances open up are mind-altering, society-altering and, depending on how we use them, could radically alter our human nature or even annihilate us." (18) So, the growth of any society, state or nation is measured by the productive use of ICT in education and each sphere of life to produce the world class technocrats with human solidarity for the entire globe around.

 Students are the asset of the nation and if they are ill-equipped to deal with information technology, there is always a fear that they can misuse it by getting addicted to porn sites which propagate masculine agenda in projecting women as objects than human beings. To avoid all this, sex education must have to be imparted in schools by using the same technology that provides them with such dirty stuff. So, there is the dire need of ethics in computer to bring more awareness in our behaviour that must have

to be responsible in every possible way. The role of teachers is not just to create technocrats but to inculcate computer ethics and human values among students so as to behave in a just way. But before we do it to the students, let us do it for ourselves as Maner Walter puts it: "We should study computer ethics because doing so will make us behave like responsible professionals." (4).Our study in ethics will definitely make us land safe on our own planet and fly high in this advanced era of science and information communication technology.

IT has made learning happen in a more natural way. Akcay Behiye's observation regarding our entry into an electronic future is important as he presents the pros and cons of IT. He states: "Inclusion of teaching in any course has great potential to increase learning and expand students' knowledge. Educators have argued that free access to a wide range of information will be beneficial, as society moves into an electronic future." (124).On one hand, he presents the bright side of IT as we are in electronic age and on the other; he brings our attention to the widening gap between the rich and the poor. He comments: "The economic impact of technology is mostly seen in economically challenged places. It creates a digital divide between poor and rich, rural and urban, developed countries and undeveloped countries." (125) If this gap is not abridged the rich will become technocrats and rule and spoil the globe with their elite class mentality and the poor will be left at the mercy of the rich, imperialists and anarchists. And it has already begun with the change of electronic machines being used in the elections of our country.

IT has become significant research tool in a digital world. Students, research scholars and research supervisors use it in their research fields. And as per as their research is concerned in any discipline, there are a number of websites available on internet. Web sites such as *JASTOR, SHODHGANGA, GOOGLE SCHOLAR, PROJECT MUSE, BOOKZZORG, & QUESTIA RESEARCH, WIKI-PEDIA WEB PORTALS* etc., have become very significant research tools in exploring the information on any research topic. Immense research material made available on these web sites includes research articles, book reviews; MPhil and PhD dissertations and thesis. Such web sites have proved of immense value in research areas to the research scholars and students worldwide for their study purposes. But the fact is very shocking that the students who need to concentrate on the very important input that is, and many more things in the area of research study, do nothing, but the method of cut and paste from the internet. Hence, there is a dire need to create awareness among students regarding the use of information on internet to avoid 'plagiarism' a punishable crime that can destroy students' careers and result in losing jobs and respect in our human society.

USE OF SOCIAL MEDIA AND ITS CONSEQUENCES:

Information and communication technology is used extensively almost in all the fields including commerce, science, humanities, social sciences, film industry, electronic and print media, arts and fine arts, in army and navy, astronomy and nuclear society and so on. In past, the world was far apart but today, it has come very close and has turned it into a global village due to the spread of science and information technology. Within some fragments of a second, one can get information about any corner of the globe and this has just become possible due to the information explosion. Of course, information communication technology has its prime role in it. It is with the help of video conferencing; one can have a dialogue with any one from any corner of the globe and can have discussion and share opinion on any topics and find solutions to any crisis that happens under the light of the sun.

Information technology is information explosion. It is worldwide source to update information continuously. It is a vast ocean of knowledge. It is with the help of internet one can get information on any topic within some fragments of seconds. So, it is right to say that the world today is at one's fingertip, if information available is accessed through proper channels available on World Wide Web and internet. IT has also provided the latest smart phone technology with internet facility to update knowledge and information constantly. IT with multi-media expertise has changed the face of villages, cities and states in our country. But it is not free from demerits. The proper use of information technology can bring best results whereas the misuse of it can be harmful and destructive. In the global economy, the misuse of technology is the result of conflicting interests which is usually stimulated into the open market. Schultz Robert draws the distinction between the two. He states, "IT examples include: music downloaders vs. music rights owners; corporate managers or stockholders vs. outsourced professionals; spammers vs. email users." (2006: x) These issues of conflicting interests need to be tackled neatly by the concerned. Therefore, the makers of law in relation to IT should take utmost care to frame the just laws to address the issues effectively without any bias. Not only this, but the educational boards also should give appropriate emphasis on the inclusion of human values and moral ethics and computer ethics in our syllabi and educational curriculum. It can help in tackling the issues systematically in a near future. If not done so accordingly, then it would turn this beautiful planet into an infertile land that would be ruled by the law of barrenness caused by the excessive use of chemicals, pesticides and fertilizers used for producing more gains in an open global market. Henk Have's opinion in this regard is remarkable. He says:

The current revolution in science and technology has led to the concern that unbridled scientific progress is not always ethically acceptable. The need to establish common values and benchmarks, as well as to promote ethical principles and standards to guide scientific progress and technological advancement is, becoming increasingly acute, especially in developing countries that do not equally enjoy the benefits of scientific and technological advances. (6)

The students, research scholars, teachers, professors, scientists, academicians, thinkers, writers, social workers, politicians, media persons, doctors, engineers, bankers, publishers, tradesman and salesman, housewives, maids, waiters, servants, fruit and vegetable vendors, and farmers use information technology to get information regarding their fields of work to update their knowledge and information. They also use telecommunication regularly. It has geared up the speed of work and efficiency. The other social media forms such as Facebook, Twitter, and Whatsapp too are used widely by them to spread the information rapidly. Earlier the mode of communication was expensive and time consuming, but now it has become faster ever before. Internet blogs, e-groups, and emails have changed the very concept of communication itself. Use of IT has positive prospective whereas the misuse can be harmful and destructive in certain ways. First, the doctored videos made by fraud technocrats are used in the media houses (that are influenced by anti-national elements) in the country for their selfish motives. It can divide the masses into the fanatics or the extremists' ideologies aiming at anarchy and destruction only. Second, the misuse of information technology by the terrorists, the hijackers, the enemy countries and the anti-elements and the fundamentalists who want to uproot Indian constitutional values can harm to the internal security system, the public life and national property and can cause violence in any form. The hijackers by misusing technology can break into any system and can pose serious threats to the national economy and growth. Third, the religious fanatics like the hijackers too can break into any system and can pose the serious threat to the secular structure of the nation. Last, the misuse of technology on the battlefield or in guerrilla warfare can cause destruction to both the human beings and the beautiful earth, the paradise we live in. Earth is the only better place to live, and then there is no other place to go. So, technology is best when it is used for upliftment of the poor, progress of the nation and the protection of Mother Earth, but the ultimate misuse of Information technology can turn it into a curse and destruction.

CONCLUSION

To sum up, we need to concentrate seriously on the ultimate aim of education and that is not to create frauds, technocrats and religious fanatics, but it is to create the HUMAN BEINGS those who can turn this planet into a paradise. Without human values and moral ethics, the knowledge of ICT will turn human beings into missile machines and there is a fear that will make people to land on an alien land with destructive resources invented to annihilate our human existence.

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TEACHING ENGLISH WITH ICT

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ABSTRACT

The constant, extraordinary expansion of information and communication technology (ICT), united with the globalization of the wealth, has created a huge challenge for education. The achievement of ICT is in the front position of education reform locally, regionally, nationally and internationally. Together e-learning practices and approaches have opened up a propel of different new and old learning theories to match against the more complicated learning contexts and audience in our schools, colleges and universities. Elastic learning has been facilitated not so much by changes in curriculum and learning theories but through the range of different escape methods and new tools that have arisen. Over time however substantial changes in curriculum and learning may become more notable. With the popularization of ICT, now people have the opportunity to learn from and to learn with technology. The opportunities and virtues of e-learning rather loop the changes of potential of learning in the present era, offer the teachers a chance to review and adapt learning and teaching practices, orientating ourselves for the decades of change that lie ahead. Of all the subjects, English has been proved the most suitable for the use of ICT. English teachers in our times have the right of using ICT for supplementing their class with motivating interactive exercises, audio-visual materials to provoke and sustain the interest of their learners, they need to motivate the unenthusiastic learners to explore the mode of learning through the multi-media which promises to be both useful and enjoyable.

Key words: E-learning practices, ICT, globalization, ELT and technological innovations.

INTRODUCTION:

ICT has posed a challenge as well as an opportunity to the teacher educators. According to H. Anandan, "The animation in the diagrams can go a long way in facilitating quick understanding." (5) This indicates clearly that the ICT has been so much influential aspect in the field of English language teaching learning. ICT mainly acts as audio visual aids to make learning more exciting, interesting, motivating. It deals with the pragmatic aspects of using ICT with the student community. The wide-ranging use of web, internet, blogs, e-groups, SMSs, emails, socializing portals, e-dictionaries, e-encyclopedia, power point presentations, webcasting, and audio-video, VCDs, VCRs, multimedia aspects, projectors as teaching gear have been made in the classroom. The student community was provoked to make use of internet wealth and smart phones to interrelate with the teacher.

THE ROLE OF TEACHER: PAST AND PRESENT SCENARIO

It is reality that teachers are at the center of curriculum change and they manage the teaching learning. In usual English language teaching methodologies, teachers depend more on books. The teachers are seen as the main source of knowledge to the students. By motivation to students to use modern technology the teacher can facilitate rational group argument. The new teaching methodologies spotlight on the teaching strategies of deciding what information to be focused. The teachers become facilitators to help learners to be trained in selecting of language structures, accessing, and evaluating, organizing and storing information. These strategies are vital to handle huge amounts of information. The teachers also need to handle the time and courses and build knowledge separately in fundamental learning communities which use English language.

THE POTENTIAL OF ENGLISH LEARNERS:

Study done so far shows that the most significant achievements of ICT are as follows: 1) Increase the quality of learning and teaching English language to the students. 2) Reduction of some educational expenses of teaching and develop the quality, accuracy and systematic texts for academic disciplines in English language. 4) Indirect creation of learning experiences boost learning opportunities of English language.

ICT AS A TOOL OF TEACHING AND LEARNING

Dr. Prabhakar rightly asserts, "Teacher can benefit considerably from lingua-phone records because they can listen to the sound of the native speaker of English." (185) ICT can be used to

integrate speaking, listening, reading and writing. It enhances interactive teaching and learning styles. It also extends pupils' capability to train choice, work separately and make associations between their works in English. ICT helps English language learners by enabling them to communicate, edit, annotate and organize text rapidly and gymnastically. Moreover, by using ICT learners can use a wide range of strategies to find out contrasts, comparisons and connections energetically see texts in alternative versions use a wide range of analytical and critical techniques sort and process text and data rapidly and professionally

USE OF LANGUAGE LAB

Robert Lado states that, "The language lab can provide good models of the speech of target language for imitation and manipulation by scholars." (175) so the empirical education implies learning from experience of communication. This is a learning process, where knowledge is formed through the alteration of experience in international language like English. The internet facility assists the students to look through instructional substance without assassination much of their time. It enhances the students' motivation through the effective use of the familiar technology in speaking the target language like English. ICT-based support works very well with engineering students – captivating benefit of their customary and favourite hobbies – functioning on the computer, surfing the Internet, chatting, and watching videos. At the same time, ICT compliments their isolated learning styles of English language and needs as well as learners' own pace. A variety of skills and activities can be mixed and blended effectively via technological applications which are used by teachers in teaching English language.

THE ROLE OF ICT IN EMPIRICAL LEARNING:

Kaur cultivated, the role of empirical teaching-learning such as: 1) No wastage of time in rubbing out, drawing and writing in the board. 2) Graphs and diagram can be reproduced perfectly. 3) Provide gear to bear knowledge building, world building in English. 4) Be the information driver to explore knowledge to support learning by constructing variable structures of grammar as well as sentence pattern. 5) Be the foundation of learning by doing practical on the related pattern of the sentences as well as structure in English. Teachers can direct the pupils in empirical teaching with the help of technology as to integrate social learning and interface into online learning, make students total specific coursework using technology, use technology that employs sensory input makes possible partnership, technology continues to be used for all sorts of specific language learning activities, such as oral practice and reading and writing skills development. However, ICT seems to be particularly successful when integrated into project-based language learning, where English can be acquired naturally through themed activities and dissimilar subject disciplines. Technologies to support oral skills: Active Worlds and Open Sim afford learners the possibility of 'living' within a 3D space,

collaboratively developing content and interacting with peers through virtual experiences: debates, role play, exhibitions, performances and the like. Asynchronous tools like email, blogging and the collaborative development of wikis also have a important role to play in facilitating the co-creation of content, where learners interrelate with peers by composing, editing and exchanging texts. These technologies offer learners the chance to connect in activities.

USE OF ICT IN ENGLISH COMMUNICATION:

The following tools are required in language lab for teaching and learning English, to master and improve English communication, ICT is a ready and easy tool box being used almost everywhere. Language is one of the most useful media for effective teaching learning English communication.

1) **From Word Processor to Web tool:**
MS Word offers useful gear menu, which can be applied in improving writing skill. For example, spell check, Grammar check, Thesaurus Dictionary, Synonyms, antonyms, etc assist the teachers to teach the pupils to modify and reorganize their compositions which in turn influence the quality if writing.

2) **Internet:**
Internet resources like BLOGS encourages the students to share the information on any topic and they themselves can publish their opinions to be shared globally.
E groups like Google, Yahoo, Chrom, Enternate Exploser, opera enhances the threaded Interaction which has dual advantage

3) **Social Media:**
What's App, Facebook, Twitter, Google+ , Hike messenger, give vast chance to teachers to be in touch with the students to keep an eye on the usage of language.

4) **E-tools that facilitate language practice:**
E- tools and web links like www.owl.english.purdue.edu and www.writng.engr.psu.edu.com help the teachers to teach the writing skill to the students. On Using English.com, you'll find an unbelievable set of gear and resources for learning and teaching English as a second language, including a grammar glossary, pintables, and teacher handouts.

5) **Everything ESL:**
Everything ESL is an overwhelming place to find ESL teaching resources, from lesson plans to teaching tips and resources. Colorin Colorado: Colorin Colorado is full of useful information, activities, and resources for ELL teachers, particularly those at the Pre-KG to third grade level. However, most activities can be tailored all the way up to high school, making this a diverse and useful website. The expansion of oral capability obviously tends to lead a more precise focus on reading and writing. The interdependence of reading and writing cannot be over-emphasized; 'reading makes the writer. Wordle (www.wordle.net) is the best example of a web-based instrument that can help cement the boundary between reading, writing and the implication of visual literacy in a 21st century

world. The instrument produces word clusters based on the incidence of words occurring in a trial of writing. Digital texts and electronic books (e-books), mainly when accessed on cool, moveable technologies, can motivate students to read. To teach communication skills, the authors have used the smart phones where the students are permissible to download certain apps like audio books, Videos, charts which helps the listeners to perk up their articulation, accentuation and intonation and they have also be given an chance to analyze and give the reviews. Effective telephonic communication is a fundamental key to conquer success in this exceedingly effective way. It enhances the students' inspiration through the efficient use of the well-known technology. TextHelp's Fluency Tutor (www.texthelp.com/UK) is a complicated reading programms that records a user's reading of a text and offers a quick quiz to test their understanding of what they have read. This enables a tutor to mark a learner's efforts online beside a range of indicators such as mispronunciation, hesitation, omission, substitution, repetition, transposition and self-correction. Digital games, in meticulous prove well-linked because they can be successfully used to facilitate teaching content, core skills and language acquisition.

CONCLUSION

The English language teachers teaching in engineering colleges should expand new and stirring means of integrating language in all aspects with pioneering technologies. Learning that is limited to the four walls of a classroom cannot show to be very effective. There is a need to join classrooms to the world outside to realize the true potential of learning and make it effective. Connecting our students to the world has great educational potential.

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