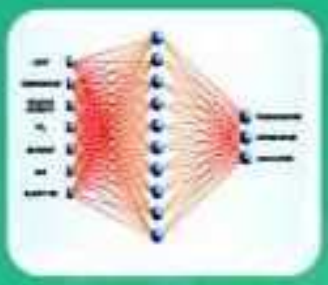
ISSN NO
2454-7719

International Journal of Computer Research & Technology (IJCRT)

A Peer Reviewed Half Yearly Research Journal

Vol-5 Issue - 1
Jan-June,2019.



Special Issue

Proceeding of the 4th National Conference on
" Emerging Trends in Computer and Information Technology"
held on 25th January ,2019.

Editor in Chief

Dr. B. H. Barhate

।। विद्या दानम् महत् पुण्यम् ।।

Tapti Education Society's

Dept. of Computer Science and Information Technology

Bhusawal Arts Science & P.O.Nahata Commerce College,
Bhusawal - 425 201 Maharashtra

NAAC Re-Accredited : Third Cycle Grade 'A' (CGPA : 3.30)

UGC Honoured ' College with Potential for Excellence

Affiliated to Kavayitri Bahinabai Chaudhari North Maharashtra University,Jalgaon

IJCRT
ISSN 2454-7719
International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019

Special issue on

4th National Conference on

"Emerging Trends in Computer And Information Technology"

Held on 25th January, 2019

About Publisher of IJCRT

Bhusawal, as recalled and noted down in records has a prominent place on the map of the nation; proudly housing two ordnance factories, a thermal power station in the region, and itself being one of the major railway junctions of Central Railway from where, residents proudly say, you may visit any corner of India. A mixture of farmers, tribal people from adjoining areas with the servants from all over India, Bhusawal serves as a slice of the nation; and honorably has unity in diversity. It is 25 kms away from the district, Jalgaon, famous as a city of gold; and few kms away from Yawal and Raver tehsils, famous all over nation for bananas. It is the only 'A' graded Municipal Corporation in the district. Another identification as well as benefit of the city is that it is situated at the banks of the Tapiriver, the only river that flows from east to west. The city of Bhusawal has been a home place for the British authorities, and it is famous for railways since British rule. It is historically remarkable for the grave of Major Robert Gill, who invented world famous Ajanta caves; and for the tomb of Sant Gadgebaba, a famous and truly a leading social reformer in Maharashtra. It is believed that the parental home of Rani Laxmibai (famous as Queen of Jhansi) is situated at Parola, 50 kms away from the city. Bhusawal is also famous for many mythological stories like that of Shravana, coming from Ramayana who is said to be killed at Hartala, which is near to the city. Besides, the city was once famous in Bollywood for film distribution companies. The world famous Ajanta caves are just 60 kms away from the city.

Summing up the physiognomies of the city, Bhusawal stands as a glorious city in the eyes of everyone. However, it was the time- besides all assets of the city- when Bhusawal was a degenerated city in terms of higher education even after a long time from independence. There were few schools imparting high school level education but none of the colleges. It was only in 1958, under the motivation of Late Hon'ble Madhukarrao Chaudhari, ex-speaker of Maharashtra Legislative Assembly, a group of social well-wishers came together and established the Tapti Education Society in 1958. Simply having the wish in mind to provide potential students higher education facilities near their home, they started the Bhusawal College of Arts and Commerce in 1963. Their philanthropic view may be seen in the motto: *Vidya danam mahat punyam.* Yet difficulties were innumerable. The college with two faculties was started in the place of rent of a high school in the city.

It is wisely said that *vidya danam* is *mahat punyam*. The dedicated faculty, the sublime view of the management soon started to produce good academicians. Inspired by the results the trust purchased a barren land of 7 acres out of the city which is soon to be developed as a centre of imparting quality higher education in the area. The barren land with sustaining hard work, and devotion was then transferred into a naturally beautiful campus. The college is then shifted to a new place in 1972 with the introduction of Science stream. The philanthropist Late Mr. Poonamchand Nahata donated to the college, hence the college is renamed- and which today itself is a brand- as Bhusawal Arts, Science and Poonamchand Omkardas Nahata Commerce College, Bhusawal.

The college is then marching forward with a goal to **creatively contribute the society through the pursuit of learning at higher level of excellence**. The institute has contributed in many ways for economic, social and cultural uplift of the society by offering quality education. Since the inception it has been known for academic excellence, inventive pursuits and athletic dynamism. The college is a multi-stream institute catering to the needs of the young minds primarily from the rural areas. Our society runs not only the college but also the Institute of Management and Career Development and much-sought Tapti Public School (affiliated to CBSE Board, New Delhi) within a minimum space of 7.3 acres. The institute is developing vertically in all of the fields.

The Tapti Education Society's Bhusawal Arts, Science and P. O. Nahata Commerce College was accredited as **four stars** in 2001, reaccredited as **'A' Grade** with CGPA3.28 in 2008 **and recently reaccredited 3rd cycle as 'A' Grade with CGPA 3.30 in 2015** as the **first College** in Kavayitri Bahinabai Chaudhari North Maharashtra University jurisdiction. It is also the first college to volunteer for the third cycle of accreditation in the jurisdiction of the university. It is also recognized by UGC as **College with Potential for Excellence**. Recently, the society is certified as ISO 9001:2008 institute. Our institute is one of the renowned institutes in the adjoining area. We welcomed the upcoming students from rural areas who made remarkable progress and set theirs and college's image in society. Many of the students of this institute secure top position in various fields. This make us feel great.The college achieves 'A' grade in three subsequent cycles of Re-accreditations and it brings the college towards autonomous status.

Initially the college was affiliated to the Pune University, and got permanent affiliation in 1990. Since the inception of Kavayitri Bahinabai Chaudhari North Maharashtra University in 1991, the college is permanently affiliated to the same. The university spreads all over three districts: Jalgaon; Dhule; and Nandurbar, being on the boundaries of Gujrat and Maharashtra, and one being the district of tribal people. The university is trying hard to uplift the downtrodden, while keeping in touch with the rapidly changing world.

Last but not least, the college has the advantages of developing youth coming from rural area, and forming them into sensible youth as they are mixed in the cosmopolitan society. The college is aware that every coin has two sides: hence students coming from rural areas have inferiority complex, their vernacular background being most disadvantage for them. The college has faced challenges to improve their communication skills, to boost their confidence to bring them into modern current while making them aware of great Indian culture. As recently, the college has celebrated its golden jubilee, it will be a golden, in fact a platinum moment for us when the students coming from different backgrounds will be essentially Indian serving for the welfare of humanity. With this view the college is making progress towards quality excellence so that it will be a lead college that will stand as a lighthouse for the confused.

IJCRT
ISSN 2454-7719
International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019

Published By

Tapti Education Society's

Department of Computer Science and I. T.

Bhusawal Arts, Science and P. O. Nahata Commerce College, Bhusawal.

Contact: 9890966830

Email.**ijcrtponc@gmail.com,**

Website.**ijcrt.basponccollege.org**

The International Journal of Computer Research and Technology "IJCRT" is issued half yearly.

The College assumes no responsibility for the statements and opinions advanced by contributors.

ETCIT-2019
Organizing Committee

Patrons

Dr. Mohan Phalak
President,
Tapti Education Society, Bhusawal

Mr. Mahesh Phalak
Chairman,
Tapti Education Society, Bhusawal

Mr. Vishnu Chaudhari
Secretary,
Tapti Education Society, Bhusawal

Mr. Sanjaykumar Nahata
Treasurer,
Tapti Education Society, Bhusawal

Prof. Dr. M. V. Waykole
Principal,
BASPONC College, Bhusawal

Dr. S. V. Patil
Vice Principal,
BASPONC College, Bhusawal

Advisory Board

Dr. B. V. Pawar, KBCNMU, Jalgaon
Dr. R. J. Ramteke, KBCNMU, Jalgaon
Dr. Satish R. Kolhe, KBCNMU, Jalgaon
Dr. Manish R. Joshi, KBCNMU, Jalgaon
Dr. Ajay S. Patil, KBCNMU, Jalgaon
Dr. Manoj Patil, KBCNMU, Jalgaon
Dr. Ajay Surwade, KBCNMU, Jalgaon
Dr. R. P. Bhavsar, KBCNMU, Jalgaon
Dr. Sandeep Bhamare,KBCNMU, Jalgaon.
Dr. S. V. Kapse, KBCNMU, Jalgaon
Dr. Sameer Narkhede, KBCNMU, Jalgaon
Dr. A. N. Chikate, KBCNMU, Jalgaon
Dr. K. B. Mahajan, MJ College, Jalgaon
Dr. Parag Narkhede, IMR, Jalgaon
Dr. Parag Bhalchandra, SRTMNU, Nanded
Dr. A. N. Patil, Prin. Naik College, Shahada
Dr. Bhaskar Koshidgewar, Degloor
Dr. S. D. Punwatkar, VNGIASS, Nagpur
Dr. Priti Agrawal , GHRIBM , Jalgaon
Dr. Vaishali Patil, IMRD,Shirpur
Dr. Prashant Warke, GIMR, Jalgaon
Dr. Rakesh Deore,Symbiosis, Pune
Dr. Sunil Nimbhore, BAMU, Aurangabad
Dr. Vinay B. Patil, ADPM Women's College,Jalgaon
Dr. A. N. Chaudhari, Prin. Bodvad College, Bodvad
Dr. D. M. Deshmukh , PONC, Bhusawal
Mr. Kiran P. Chaudhari, IBM, Texas
Mr. Kishor Ingale, TCS, Pune
Mr. Vijay Wani, Sydny.

Organizing Secretary
Prof. Mrs. Swati Pravin Phalak
Asst. Professor

Mobile: + 91-9403480333

Convener
Dr. B. H. Barhate
Vice-Principal,
HOD of Comp. Sci. and Info. Tech.,
BASPONC College, Bhusawal
Mobile: +91-9890966830

Organizing Committee Members

Dr. S. N. Kotkar, Dhule	Dr. M. V. Bildikar, Chalisgaon	Dr. K. C. Deshmukh, Chalisgaon
Dr. S. D. Patil, Navapur	Dr. Varsha Pathak, Jalgaon	Mr. S. M. Sinkar, Jalgaon
Mr. B. S. Panchbai, Shirpur	Mr. S. E. Pate, Chalisgaon	Mrs. Hemlata H. Patil, Jalgaon.
Mrs. Vandana V. Chaudhari, MKNgar	Mrs. Priyanka Barhate, Jalgaon.	Mr. Girish Desale, Dhule
Dr. Pritesh Shah, Chopda	Mr. Anil Patil, Shahada	Mr. Vishal Bhosale, Shahada
Mr. S. V. Mishra, Nandurbar	Mrs. Shubhangi K. Patil, Faizpur	Mrs. Pushpa Patil, Amalner
Dr. B. H. Barhate	Mr. G. R. Wani	Dr. Gouri M. Patil
Miss. Archana Bhalerao	Mr. Harshal V. Patil	Mr. Sandip S. Salunke.
Miss. Snehal V Chaudhari	Mr. Tushar M. Patil	Mr. Jayant T. Bendale
Miss. Vaishali Y. Patil	Miss. Swapnali G. Waghulde	Miss. Vaishali A. Patil
Miss. Lubdha M. Bendale	Miss. Sanjeevani U. Wagh	Miss. Pooja A. Rathi
Miss. Leena B. Patil	Miss. Bhagyashri S. Patil	Miss. Khushabu P. Bhole
Miss. Minal H. Waykole	Dr. S. P. Zanke	Dr. Rashmi Sharma
Miss. Riya V. Agrawal	Mr. Ashish V. Chaudhari	Mr. Chudaman Kolhe
Mr. Vinay Chaudhari	Mr. Kishor Narkhede	Mrs. Nandini R. Mahajan
Mr. S. D. Tayade	Mr. Nitin Joshi	Mr. Vilas Jawale

President's Message

I am very happy to know that Department of Computer Science and I.T., Bhusawal Arts, Science and P.O. Nahata Commerce College, Bhusawal is organizing a one day 4th National Conference "Emerging Trends in Computer And Information Technology" (ETCIT-2019) on 25th January 2019. I assure that this conference will provide a platform to bring together researchers from various research and industrial organizations and educational institutions under a common environment and discuss the emerging trends in Computer and Information Technology. My best wishes to all the participants and wish the conference good luck and grand success.

From principal's Desk.....

It's pleased to publish that after productive success of third National Conference ETCIT-2017, the Department of Computer Science and Information Technology is organizing one day 4th National Conference on "Emerging Trends in Computer and Information Technology" (ETCIT-2019) on 25th January 2019.

Wide-ranging vision of research topics are manage to present and discuss the research ideas among the practicing academicians, research scholars, scientists and industrialist one day.

All the staff of Department of Computer Science and Information Technology is always make such ground-breaking and challengeable events successful beyond our expectation and make me proudly. Passion of organizing committee of the national conference ETCIT-2019 is very admiring.

I ensure enormous success for this one day 4th national conference ETCIT-2019 from my bottom of heart.

Convener's Message

Knowledge of advance and enhanced technology is useful in the world of modernization. Nowadays researches with emerging trend in Computer and Information Technology together makes on hand the source which is useful for assembly and moving towards the auspicious intend. The event 4th one day national conference entitled "Emerging Trends in Computer Science and Information Technology - (ETCIT-2019)" is organized by Computer Science and IT department. This conference is the platform for researchers as well as students.

We feel grateful to all who submit their research work for this conference. The selected papers will be published in the International Journal of Computer Research and Technology (IJCRT), a peer reviewed, half yearly research journal, Volume-5, Issue-1, Jan-Jun 2019, ISSN: 2454-7719. We are please to our patrons, principal, resource persons, vice principal for their blessing and moral support. I assure great success of the National Conference.

Dr. B. H. Barhate
Vice-Principal,
HOD of Comp. Sci. and Info.Tech.,
BASPONC College, Bhusawal
Mobile: +91-9890966830

I N D E X

IJCRT
ISSN 2454-7719
International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019

Paper ID: CS- 01

A STUDY PAPER ON ROUTE OPTIMIZATION TECHNIQUES FOR VEHICLE ROUTING PROBLEM

Mrs.Rupali Narkhede

KCES's Institute of Management & Research,Jalgaon affiliated to KBC NMU,Jalgaon
Email- rupalinarkhede@gmail.com

ABSTRACT:

This paper is a study of three route optimization techniques which can be used to solve the daily vehicle routing problems of milk run vehicles,courier distributions etc.In this paper roue optimization techniques are elaborated and studying these techniques,we have to select one or combination of two sothat vehicle routing problem is solved.

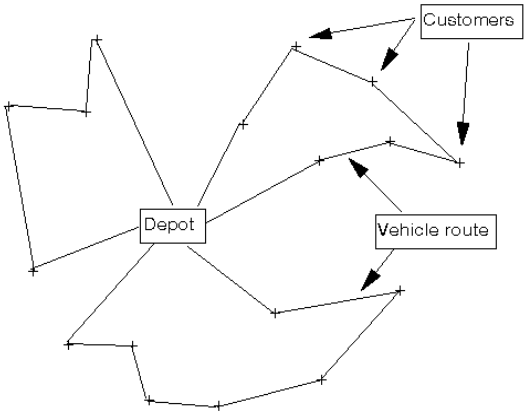
KEYWORDS:*Vehicle routing problem, Dijkstra's algorithm,Bellman-Ford's algorithm,Genetic algorithm*

I.INTRODUCTION

To find shortest vehicle routes for the courier systems,milk run vehicle systems is a challenge nowadays.In this paper study of Dijkstra's algorithm, Bellman-Ford algorithm and Genetic algorithm.VRP problem is faced by many people who are working for daily distribution of products in different areas of the city or among different cities.To satisfy customers and to increase number of customers ,it is needed to deliver the products before time.

II.VEHICLE ROUTING PROBLEM

Vehicle routing problem is a generalization of traveling salesman problem.In a VRP,the goal is to find the optimal set of routes for a fleet of vehicles delivering goods or services to various locations.The VRP was first proposed by Dantzig and Ramser in 1959.The VRP can be represented by a graph with distances assigned to the edges.VRPs can also have additional constraints on the vehicles—for example, lower and upper bounds on the number of locations each vehicle visits, or the length of each route.The depot manager faces the task of designing routes (such as those shown below) for his delivery vehicles and this problem of route design is known as the vehicle routing or vehicle scheduling problem.



Here the vehicle routing problem can be defined as the problem of designing routes for delivery vehicles (of known capacities) which are to operate from a single depot to supply a set of customers with known locations and known demands for a certain commodity. Routes for the vehicles are designed to minimise some objective such as the total distance travelled.

III.DIJKSTRA'S ALGORITHM

Dijkstra's Algorithm is a single source shortest path algorithm.It efficiently solves the shortest path problems for weighted graphs.This algorithm can be described as generalized form of BFS(breadth-first-search) in which the order of traversed nodes is not determined by number of edges from the root,but as a distance from the root (sum of all edges along the path from root to the given node).Time complexity for this algorithmis O(|E|+|V|log|V|) using fibbonaci heap.

PSEUDOCODE:

```
/*

 * Dijkstra's algorithm

 * @param d matrix of legths, position [0 1] = 2 means that from node 0 leads an edge to node 1 of length 2

 * @param from root node

 * @return tree an ancestors (denotes path from the node to the root node)

 */

procedure int[] doDijkstra1(d1, from) {


    Q1 = InsertAllNodesToTheQueue1(d1, from)

    CLOSED1 = {}

    predecessors = new array[d1.nodeCount]

    while !Q1.isEmpty() do

        node = Q1.extractMin()

        CLOSED1.add(node)

            for a in Adj(node) do

          if !CLOSED1.contains(a)

              if Q1[node].distance + d1[node][a] < Q1[a].distance

                                  Q1[a].distance = Q1[node].distance + d1[node][a]

                  predecessors[a] = node



    return predecessors
```

Example

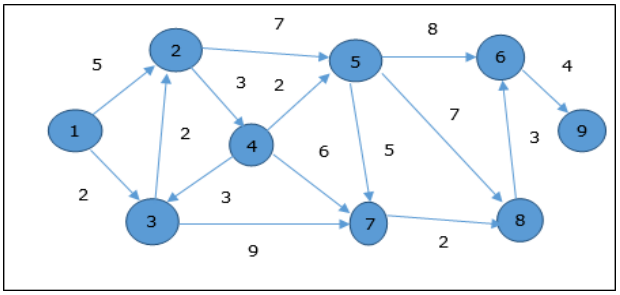
Let us consider vertex ***1*** and ***9*** as the start and destination vertex respectively. Initially, all the vertices except the start vertex are marked by ∞ and the start vertex is marked by ***0***.

Vertex	Start	Step I V_1	Step II V_3	Step III V_2	Step IV V_4	Step V V_5	Step VI V_7	Step VII V_8	Step VIII V_6
1	0	0	0	0	0	0	0	0	0
2	∞	5	4	4	4	4	4	4	4
3	∞	2	2	2	2	2	2	2	2
4	∞	∞	∞	7	7	7	7	7	7
5	∞	∞	∞	11	9	9	9	9	9
6	∞	∞	∞	∞	∞	17	17	16	16
7	∞	∞	11	11	11	11	11	11	11
8	∞	∞	∞	∞	∞	16	13	13	13
9	∞	∞	∞	∞	∞	∞	∞	∞	20

Hence, the minimum distance of vertex ***9*** from vertex ***1*** is ***20***. And the path is

1→ 3→ 7→ 8→ 6→ 9

This path is determined based on predecessor information.



IV.BELLMAN-FORD ALGORITHM

Bellman-Ford Algorithm helps us to find shortest paths from vertex to all other vertices in a weighted graph.It is similar to Dijkstra's algorithm but can work with graphs in which edges can have negative edges.Time complexity for this algorithm is O(|V||E|).

PSEUDOCODE:

```
function bellmanFord1(G1,S1)

    for each vertex V in G1

        distance1[V]<-infinite

        previous[V]<-NULL

        distance1[S1]<-0

    for each vertex V in G1

    for each edge11(U,V) in G1
```

tempDistance1<-
distance1[U]+edge_weight1(U,V)

if tempDistance1 < distance1[V]

distance1[V]<-tempDistance1

previous[V]<-U

for each edge11(U,V) in G1

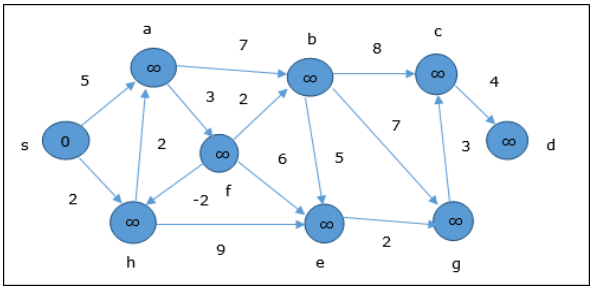
if distance1[U]+edge_weigh1t(U,V) <
distance1[V]

return distance[],previous[]

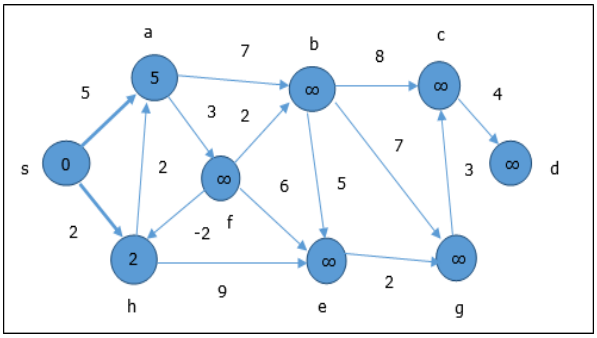
Example:

The following example shows how Bellman-Ford algorithm works step by step. This graph has a negative edge but does not have any negative cycle, hence the problem can be solved using this technique.

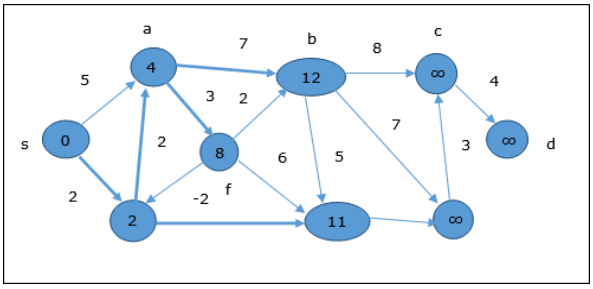
At the time of initialization, all the vertices except the source are marked by ∞ and the source is marked by **0**.



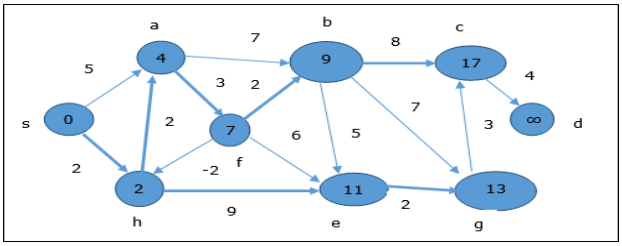
In the first step, all the vertices which are reachable from the source are updated by minimum cost. Hence, vertices ***a*** and ***h*** are updated.



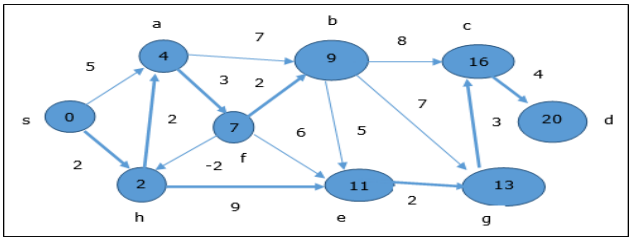
In the next step, vertices ***a, b, f*** and ***e*** are updated.



Following the same logic, in this step vertices ***b, f, c*** and ***g*** are updated.



Here, vertices ***c*** and ***d*** are updated.



Hence, the minimum distance between vertex **s** and vertex **d** is **20**.

Based on the predecessor information, the path is s→ h→ e→ g→ c→ d

V.GENETIC ALGORITHM

A Genetic algorithm is search heuristic algorithm that is inspired by Charle's Darwin's theory of natural evolution.A typical genetic algorithm requires: a genetic representation of the solution domain, and a fitness function to evaluate the solution domain.The GA operations consist of several key components: genetic representation, population initialization, fitness function, selection scheme, crossover and mutation. It is also called „standard GA" or „SGA".

Five phases are considered in genetic algorithm as follows-

1.Initial population 2.Fitness function 3.Selection 4.Crossover 5.Mutation

• Genetic Representation: A routing path is encoded by a string of positive integers that represent the IDs of nodes through which the path passes.

• Population Initialization: each chromosome corresponds to a potential solution. The initial population Q is composed of a certain number, denoted as q, of chromosomes. a certain number, denoted as q, of chromosomes.

• Fitness Function: We should accurately evaluate the quality of a solution, which is determined by the fitness function. In this algorithm, the aim is to find the least cost path between the source and the destination. .

• Selection Scheme: Selection plays an important role in improving the average quality of the population by

passing the high quality chromosomes to the next generation. The selection of chromosomes based on the fitness value.

• Crossover and Mutation: Genetic algorithm relies on two basic genetic operators - crossover and mutation. Crossover processes the current solutions so as to find better ones.

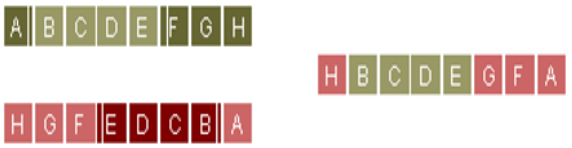
Mutation helps GA keep away from local optima. Chromosomes are expressed by the path structure, here a single point crossover technique to exchange partial chromosomes (sub-path) at positionally independent crossing sites between two chromosomes.

The values of the two strings are exchanged up to this point

If C1=000000 and C2=111111 and the crossover point is 2 then C1'=110000 and C2'=001111

The two new offspring created from this mating are put into the next generation of the population

By recombining portions of good individuals, this process is likely to create even better individuals



Mutation and selection (without crossover) create a parallel, noise-tolerant, hill-climbing algorithms.

• Repair function: Both crossover and mutation may produce new chromosomes which are infeasible solutions. Therefore, we check if the paths represented by the new chromosomes are acyclic. If not, repair functions will be applied to eliminate the loops.

PSEUDOCODE:

Choose initial population(Random)

Repeat (until terminated)

Evaluvate each individual Fitness

Prune population(Typically all; If not then the worst)

Select pairs to mate from best-ranked

individuals Replenish population(Selected pairs)

Apply Crossover operator

♣ Apply mutation operator

♣ Check for termination criteria

Loop if not terminating(Repeat from step 2)

VI.CONCLUSION

After studying these algorithms ,I come to know that Bellman-Ford algorithm is a single-source shortest path algorithm, so when you have negative edge weight then it can detect negative cycles in a graph. The only difference between two is that Bellman-Ford is capable also to handle negative weights whereas Dijkstra Algorithm can only handle positives.Dijkstra's algorithm and genetic algorithm finds the same optimal solution but genetic algorithm is faster as compared to dijkstra's algorithm.

REFERENCES:

1]https://developers.google.com/optimization/routing/vrp
2]http://people.brunel.ac.uk/~mastjjb/jeb/or/vrp.html
3]https://www.commonlounge.com/discussion/ac37fe9386fd4088990447c3400b8063
4]https://www.programming-algorithms.net/article/45514/Dijkstra's-algorithm
5]https://www.tutorialspoint.com/design_and_analysis_of_algorithms/design_and_analysis_of_algorithms_shortest_paths.htm
6]https://www.programiz.com/dsa/bellman-ford-algorithm
7]https://towardsdatascience.com/introduction-to-genetic-algorithms-including-example-code-e396e98d8bf3
8]https://www.tutorialspoint.com/genetic_algorithms/genetic_algorithms_mutation.htm
9]Arun Biradar, Dr. Ravindra C. Thool "Effectiveness Of Genetic Algorithm In Reactive Protocols For MANET", International Journal of Engineering Research & Technology (IJERT) Vol. 2 Issue 7, July - 2013 IJERT ISSN: 2278-0181
10]S.Aravindh*1 and Mr.G.Michael "HYBRID OF ANT COLONY OPTIMIZATION AND GENETIC ALGORITHM FOR SHORTEST PATH IN WIRELESS MESH NETWORKs", Journal of Global Research in Computer Science,ISSN -2229-371X,Volume 3, No. 1, January 2012
11]https://en.wikipedia.org/wiki/Dijkstra%27s_algorithm

International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019
ISSN 2454-7719

Paper ID: CS- 02

DNA: NEW TREND OF DATA STORAGE

Bhagyashri S. Tayade

Bhusawal Arts,Science & P.O.Nahata Commerce College,Bhusawal.
Email- tayadebhagyashri1112@gmail.com

ABSTRACT:

Data storage demand is growing exponentially, but existing storage media capacity is not keeping up. UsingDNA to Stored data is ansmart probability becauseit is tremendously dense, with a rare limit of 1exabyte/mm3observed half-over 500 years.Hypothetically, one can encode 2 bits per nucleotide in DNA which can store 455exabytes per gram maximum data in single-stranded DNA.

This paper presents astructural design for a DNA-based archival data storage system. Deoxyribonucleic acid (DNA) can be possiblyused for data storage purposes as it is not much different from the traditional method used in a computer. DNA can used as a robust. It also high-density storage device even under unfavorable conditions.

General Terms
Storage method and compression.

KEYWORDS
DNA, encoding, compression, storage mechanism, digital data, secured storage,data storage

INTRODUCTION

As far as 2018 data trends go, the rate of data creation growth remains exponential.Today about 90% of all the data in the world has been created in the past few years. Devices
such as optical discs, flash drives, and portable Hard drives are used to store data. Silicon and the other non-recyclable materials used in manufacturing data storage,such material pollute the environment. Also, they are available in limited quantities. Thus, they would be tired in the future. The linear density of the digital storage device is 10 kb per square mm. Hence,for data storage, newer technology is needed and archival process. As the data increases every day, the current data storage technology would not be enough to store data. Each day there are 2.5 quintillion bytes of data created at our current momentum, but that momentum is only accelerating with the growth of the Internet of Things (IoT).Even due to the deficiency of storage space important information can get lost.

Accidentally deletion of files without getting backup is one of the most common causes of data loss. Every day many people lose their important data because of deleting files accidentally because they do not have proper backup systems.Data loss also caused by poor handling of the optical disk. Data loss can also occur due to trash of hard drive. Mechanical damage to the hard drive is common as it contains a lot of delicate parts moving at very high speed. Hard drives can get spoiled due to accidental drop of computers. Hard drives can get damaged if any liquid enters it. The hard disks can also get damaged due to fire. Hard Drive has a limited number of write cycles, thus it is not possible to write data on them. A printed book has better life anticipation than best of the data storage method.

There are many ways to back up the data. Cloud services can use to store data. Howeverall the time it needed an internet connection to access data which stored in a remote cloud. Thus without an internet connection, it is impossible to access the data. Another mode is to store data on an external drive, but external drives suffer data loss too.

Current long-standing archival storagesolutions require refreshes to clean corrupted data, to replacefaulty units, and to refresh technology. If we are to protectthe world's data, we need to pick significant advances instorage density and durability.DNA sequences have long been synthetically considered apotential medium for digital data storage.DNA has Four polymers which are Adenine, Cytosine, Guanine, and Thymine make up these nucleotides that consist of oneof a five-carbon sugar, four nitrogen bases and phosphategroup. An infinite amount of information is stored in DNAto utilize a significant number of combinatorial issues, DNAregistering methodologies are utilized. It can be a possibilitythat a few grams of DNA has the chances of storing alldata in the world. This DNA can be kept in dry, dark and cold conditions. There are many reasons to use DNA as data storage due to its ubiquity and its very smallsize.DNA has a long shelf life and it has a very robust material. The information stored in

DNA can be retrievedeven after thousands of years.By using Polymerase Chain Reaction techniques (Method of molecular biology to make many copies of a specific DNA segment), it is possible to get as many copies as required. Thus, the copy of data can be done easily, and many copies of data can be obtained.

As DNA can maintain information for centuries, DNA was used for long-term storage.Basically 1 gram of dry DNA can store about 455exabytes of data. The DNA can store a hugequantity of data in very small space due to high density. It is possible to read concurrently and arbitrarilyfiles stored in DNA. Also, the compression technique is used to compress data without any loss.

RELATED WORK

While DNA has many properties that make it different fromexisting storage media, there are similarities between usualstorage and DNA storage. At the lowest levels, usualstorage media store raw bits. The storage device abstracts thephysical media, which could be the magnetic state, or the chargein a capacitor, or the stable state of a flip-flop, and presentsthe storage hierarchy raw digital data. Similarly,the concept of DNA storage is the nucleotide: though anucleotide is an organic molecule consisting of one base (A,C, G, or T) and a sugar-phosphate backbone, the conceptof DNA storage is as a contiguous string of quaternary (base-4) numerals.

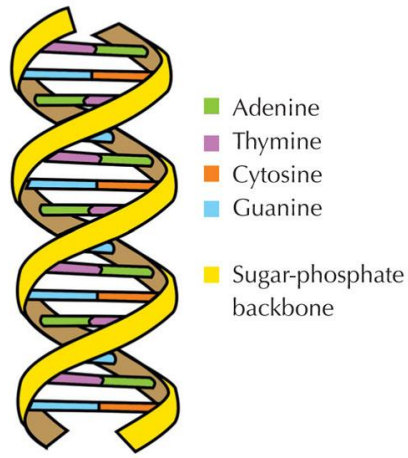


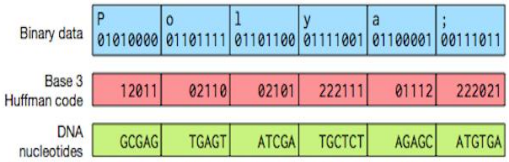
Figure1. DNA Structure

To store binary data in DNA is toconvert the binary data in base 4, generating a string ofn/2 quaternary digits from a string of n binary bits. Thequaternary digits can then be plotted to DNA nucleotides(e.g., mapping 0, 1, 2, 3 to A, C, G, T, respectively). Forexample, the binary string 01110011 maps to the base-4string 1303, and then to the DNA sequence CTAT.

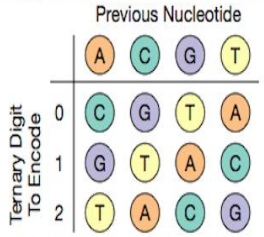
To stored information into DNA, the data is converted to ASCII format and then encoded using Huffman code given and converted to base-3 format. The index is calculated using parity, file ID and length. This information is converted to nucleotide format using a defined table and avoids nucleotide repeats. They synthesized DNA of the data and recovered it 100%. Although they have used good compression technique, the data cannot be read arbitrarily easily. A lot of calculations are required to encode and decode data using this method.

Another way to store data in DNA is, Each letter on the keyboard was mapped to a combination of 4 nucleotides. This method allows storing data in 50% space than a traditional digital storage system. Even though this method is highly customized, it only considers letters on the keyboard. Other characters are not taken into consideration. There is no indexing in this method. Hence, random access of information is not possible. Thus, to find information whole DNA to be scan.

Figure2.Encoding a stream of binary data as a stream of nucleotides.A Huffman code converts binary to ternarydigits, and a rotating encoding translates ternary digits tonucleotides.



(a) Translating binary data to DNA nucleotides via a Huffman code.



(b) A rotating encoding to nucleotides avoids homopolymers (repetitions of the same nucleotide), which are error-prone.

COMPARISON

Terms	Hard Disk	Flash Memory	DNA
Read- Write Speed (µs per bit)	~ 3000-5000	~100	<100
Data Retention (years)	>10	>10	>100
Power Usage (watts Per gigabytes)	~0.04	~ 0.01-0.04	$< 10^{-10}$
Data Density (bits per cm^3)	$\sim 10^{13}$	$\sim 10^{16}$	$\sim 10^{19}$

BENEFITS

- DNAs cannot destroy over a long period (10,000s of years) which makes it a safer place to store digital information.
- DNA can maintain its consistencywithout any power supply. Also, its small size and weight make it easy to store and transport.
- DNA is less vulnerable to technical failures.
- Digital storage media will soon become outdate. The different storage media like-floppy disks, CDs, DVDs, portable hard drives, thumb drives, and cloud storage all have a limited period of life. HoweverDNA data will read as long as living things and biologists exist.

DRAWBAKS

- DNA synthesis per data stored required high cost.
- Data is read back at low speed.
- DNA is not rewritable, i.e., it cannot update the information it holds without redoing the entire information storing process.
- DNA does not allow random access either, meaning, to access a particular part of the data stored, the entire stored information should be decoded.

CONCLUSION

Thus, it is possible to storea huge amount of data in very small size by using DNA data storage.As DNA can maintain data for millions of years, it is possible to store data for a long time.By using this technique, security is provide to the data and data is compressed into a small unit.Parallel reading of files is also possible. By using this technique, many copies of data maintain. Thus in case if data is a loss, its copy can be used to read data. If any error occurs during encoding, it restricted to that particular file and no other file is affected due to that error. This technique can be used to store big data into very small space with little computational overhead. This method can also be used to store big files. Also, multiple copies can be made easily.DNA-based storage method is used in remote future to store data protectedmode and for long time storage and solve the problem of restricted space.

REFERENCES

1) J. Gantz, D. Reinsel. Extracting value from chaos. International Data Corporation (IDC), Framingham, MA (2011),www.emc.com/collateral/analyst-reports/idc-extracting-value-fromchaos-ar.pdf.

2) J. Bornholt, R. Lopez, Douglas M.Carmean, Luis Ceze, Georg Seelig,KarinStrauss,University of Washington Microsoft Research,https://homes.cs.washington.edu/~bornholt/dnastorage-asplos16/

3) R.Laddha,K.Honwadkar Extract from International Journal of Computer Applications (0975 – 8887) Volume 142 – No.2, May 2016

4) George M. Church, Yuan Gao, SriramKosuri. Next-Generation Digital Information Storage in DNA. Science, 337, 1628 (2012).

5) SiddhantShrivastava and RohanBadlani. Data Storage in DNA. International Journal of Electrical Energy, Vol. 2, No. 2, June 2014.

6) Mohan S., Vinodh S. and Jeevan F. R. International Journal of Computer Applications (0975 8887) Volume 69 No.in 19, May 2013.

7) Willerslev,E.etal.Ancient biomolecules from deep ice cores reveal a forested southern Greenland. Science 317, 111114 (2007).

8) L. Garibyan and N. Avashia. Polymerase Chain Reaction. Journal of Investigative Dermatology (2013) 133, e6. doi:10.1038/jid.2013.1

9) A.Salunke., S. Gupta, V. Agarwal, and M. R.Ghalib. International Journal of Applied Engineering Research, Vol. 8, No. in 19, 2013.

10) Watson, J. D., & Crick, F. H. C. A structure for deoxyribose nucleic acid. Nature 171, 737–738 (1953).

11) S. Rana, R. Kamra,International Journal of Technical Innovation in Modern Engineering & Science (IJTIMES)Impact Factor: 3.45 (SJIF-2015), e-ISSN: 2455-2585Volume 4, Issue 5, May-2018

IJCRT
ISSN 2454-7719
International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019

Paper ID: CS- 03

REAL-TIME TRACKING MANAGEMENT SYSTEM:USING GPS, GPRS AND GOOGLE EARTH

Pooja A. Rathi, Riya V.Agrawal
Department of Computer science and I.T
P.O.Nahata College, Bhusawal
Email-poojah1990@rediffmail.com
agrawal3939@gmail.com

ABSTRACT:

Due to the high cost of fossil-based energy, several methods are the proposed to reduce the usage of energy in logistics and fleet management to be even more. GPS(Global Positioning System)tracking system is a common approach to get vehicle location information in real-time for the fleet planning. We proposed GPS tracking system called Goo-Tracking i.e composed of commodity hardware, open source software and an easy-to-manage user interface via a web server with Google Map or via Google Earth software. The system includes a GPS/GPRS module to the location acquisition and message transmission.It has shown vast stability and also strong message transfer protocol that most of locations are correctly acquired and transmitted to the server in real-time.

KEYWORDS: GPS ,GPRS, Google Earth and Google Map, Goo Tracking

I.INTRODUCTION

Effective transportation and logistics has becomes a very important part of the business due to the constantly increasing of oil price. Several efforts have tried to arrange methods of making transportation even more capable to reduce cost due to the increasing oil price. Vehicle tracking is one of the methods to reduce the cost by the current location of a vehicle such as a truck or a bus. The location of a vehicle is used by a fleet operator to professionally plan a schedule in order to reduce the transportation time and distance. This research introduces a vehicle tracking system using Global Positioning System (GPS) for positioning, General Packet Radio System (GPRS) for data transmission, and Google Earth software for location displaying.

The tracking system can also be very useful for Intelligent Transportation System (ITS) . For example, it can be used in explore cars to measure real-time traffic data to identify the congesting area. It can also be a life saver in an emergency case to quickly and automatically report a vehicle position to secure a agent when an accident happens to the vehicle. It can be close to a vehicle with an anti-theft system to classify its location when it is stolen. Our system offers a real-time tracking system using a client-server model. Our client is an fixed device with a GPS/GPRS module to identify device location information that is occasionally transmitted to a server. Our server is the personal computer with the web server program to receive the location information that is then converted into the format that can be shown by using Google Earth software or Google Map technology. Therefore, our planned system for real-time tracking management system is called Goo-Tracking.

II.GPS TECHNOLOGY

Global Positioning System (GPS) is a system self-possessed of a 24 satellites network of the United States, which are initially used in military services, and afterward allowed for profitable use. The satellites occasionally emit radio signal of short pulses to GPS receivers. A GPS receiver receives the signal from minimum three satellites to calculate distance and uses a triangulation technique to calculate its two-dimension position or at least four satellites to calculate its three-dimension position. Once a location is computed, it can analyze an average speed and direction of traveling. Therefore, GPS is a key technology for give device its position.

Application of GPS

1. GLOBAL POSITIONING SYSTEM (GPS) APPLICATION GPS is considered a dual-use technology, meaning it has significant military and civilian applications

2. Current Applications of GPS • Public security • Environmental resource agents • Aviation • martial • Local planning • survey • activity • Business

3.Tracking Devices One of the easiest applications to consider is the easy GPS tracking device

4. Using the 'GOTO' function, the GPS will guide you to a predefined Waypoint using a range and "pointer" You can program the GPS to "beep" when you are within a certain distance of the defined Waypoint

5. Navigation • Speed GPS's calculate your ground speed as you walk, run, drive or fly • height In addition to providing you with your latitude and longitude, GPS provides you with altitude information.

6. GPS has become a widely deploy and useful tool for commerce, scientific uses, tracking, and scrutiny. GPS's accurate time facilitates everyday activities such as banking, mobile phone operations, and even the control of power grid by allowing well coordinated hand-off switching GPS watches, for example, tend to use radio waves to transmit their location to the tracking center, while GPS phones use open cell phone technology.

7. Intelligent Vehicle Highway Systems (IVHS) IVHS will combine GPS technology with communications, controls, navigation and information systems to improve highway safety, ease trace congestion, and reduce damaging environmental effects. A car navigation system uses a specific computer that use the signals from GPS satellites to track the driver's progress on a digital map. It may provides services like the express route, etc.

8. Geographic Information Systems (GIS) GPS technology is used widely in geographic information systems. These systems combine cellular data networks for communication,

9. Aviation GPS technology is being applied in plane safety systems, air traffic control system, and zero visibility landing. GPS technology can be used to plot airplane altitude to a pitch of one-tenth of one degree. In future, it is expected to reduce the number of people necessary in the control tower and cockpit.

10. Emergency Systems GPS technology is being used to develop tragedy messaging products. With the aid of a wireless communication link, the tragedy system communicates the GPS original position information and the specifies the situation to the base station. GPS based car alarm with GPS to locate stolen cars are being measured by the automobile industry.

11. Atmospheric Sounding using GPS Signals During explorer missions, spacecraft trajectories were planned so that radio signals from the spaceship would transect a planets feeling. Earth-based receivers were able to spot phase changes in the radio signals based on the refractivity of the environment. Information obtained in this fashion could include atmospheric refractivity, density, weight temperature and humidity.

12. GPS Aides for the shade Real time GPS along with digitized maps and possibly audio capability can provide useful navigational capabilities to the blind.

13. Tracking of Wild Animals are equipped with GPS receivers and with wireless transmitters. The GPS resolute position is the transmitted to the control station. This information used to track animals & for studying their drifting patterns.

III.GPRS TECHNOLOGY

General Packet Radio Service (GPRS) is an development of GSM networks support the packet switched data services such as a email & web browser in addition to accessible GSM data Services available for fax transmission is Short Message Service(SMC) & Circuit Switched Data (CSD). GPRS operates on the existing GSM network communications that it utilizes available time slots during each frame transmission. Thus, it does not excess the existing GSM network traffic and can professionally provide data services. The GPRS can transfer data at the highest rate of 115.2 kbps (with the eight available slots of the each frame). Due to a very big coverage area of GSM networks around the world, GPRS becomes the major data service network accessible and always-on; thus, it is most correct for a real-time tracking management system.

Application of GPRS

GPRS has opened a broad range of exclusive services to the mobile wireless subscriber. Some of the characteristics that have opened a market full of improved value services to the users. Below are some of the characteristics:

Mobility - The facility to continue constant voice and data communications while on the move.

Immediacy - Allows subscribers to obtain connectivity when required, regardless of location and without a long login session.

Localization - Allows subscribers to obtain information applicable to their current location.

Using the above three characteristics diverse possible applications are being developed to offer to mobile subscribers. These applications, in general, cbe divided into two high-level categories:

- Corporation
- Consumer

These two levels further include:

Communications - E-mail, fax, united messaging and internet access, etc.

Value-added services - Information service and games, etc.

E-commerce - sell, ticket purchase, banking and financial trading, etc.

Location-based applications - map-reading, travel conditions, airline or rail schedules and location finder, etc.

Vertical applications - goods delivery, fleet management and sales-force mechanization.

Advertising - Advertising may be location perceptive. For example, a user entering a mall can receive advertisements detailed to the stores in that mall.

Along with the above applications, non-voice services like SMS, MMS and voice calls are also achievable with GPRS. Closed User Group is a familiar term used after GPRS is in the market, in addition, it is considered to implement additional services, such as Call Forwarding Unconditional and Call Forwarding on Mobile subscriber Not Reachable .

IV. GOOGLE EARTH AND GOOGLE MAP

Google Earth is a very accepted free software that provide maps by satellite images around the world . Google Map is a description of Google Earth that shows the maps on-line using with a web server and a web browser. The program offer plug-ins for society to show objects in the program. Such objects are i.e 3D objects of skyscrapers using Sketch Up software, pin objects to show a point of interest and line objects to show a track. To show such objects, Google Earth utilizes its individual programming language called Keyhole Markup Language, which is an extensible markup language that is written to describe how the object are render. The KML(Keyhole Markup Language) -based objects can also be used with Google Map to illustrate line and pin objects. In our future system, we use Google Earth software and Google Map as our choice of track displays to show locations of vehicles.

V. PROPOSED SYSTEM AND IMPLEMENTATION

The real-time tracking management system is an open management System that uses a free and open source software and it is collected of service hardware that is easy-to-find. Our system is collected of three components, a GPS Tracking Device, a server & database as shown in Figure. The GPS tracking device is an fixed system that transmits position information to the server through GPRS networks. The server is a private computer that receives the information and put it in to the database. The database format the information in a special form that can be search and display using Google Earth software or Google Map

GPS Tracking Modules

The GPS Tracking Module is based on 8-bit AVR RISC microcontroller which is low power MCU through 32k ROM& 2k RAM and has some peripherals such as UART, SPI and I2C to unite to GPRS/GPS module, MMC module and GPIO Control module . The UART interface is linked to all in one GPRS and GPS module. The module have two functions, the GPS function locate device's position and the GPRS function transmits the device's position to the server. The SPI interface is linked to MMC module that supplies location information when the communication is not accessible or for backup. The information is stored in FAT file system format for plain transfer to a private computer. The I2C edge is associated to GPIO Control module which an I/O interface to supervise external devices such as a car alarm system or a Electronic Control Unit (ECU) of a vehicle for restriction.

Goo-Tracking Firmware

The firmware of the GPS Tracking module is printed and compiled using an open source AVR compiler. The firmware perform three phases, the initialization, the GPS location reading, and the GPS data formatted and transmitted to Goo-Tracking server using GPRS networks.

The initialization phase prepare the module for reading andtransmitting spot information. It is collected of three functions. The first function is to initialize parameter on AVR microprocessor for UART, GPIO and timer for GPS reading. The second function is to initialize GPRS or GPS modules to set up parameter to warm up GPS steam engine, to make a connection to a GPRS network and to connect to a server via TCP/IP socket. The third function is to initialize MMC modules into a SPI mode for data read or write.

In the GPS location reading phase, the MCU send a series of AT commands to GPRS or GPS modules via the UART port. To obtain the current position of the device, we issue the AT+WGPSPOS command to get data in NMEA standard format.

The format includes the device ID, session ID, time, flags, latitude, longitude, speed, date, and reserved fields. Each line broken with the symbol (^) represent one example of data from a GPS Tracking module in one session or fleet. Samples are bundle mutually, ended with the character \n, and transmitted to the Goo-server.

Goo-Tracking Server

Once the GPS Tracking Module is linked to GPRS networks, it transmits location information to Goo-Tracking Server which is a service of personal computer running a Linux operating system (OS) with an open source software such as Apache web server, PHP& MySQL program. The serverhas three functions to obtain the information, to store information in a database, and to show the information. The getting function opens a non-blocking socket to get data from multiple GPS Tracking Modules concurrently. The storing function format the receiving data into our database that is considered to provide real-time query reaction for realtime tracks and to provide search query reaction for the post analysis of vehicle tracks.

VI. CONCLUSION

In this paper, we have planned an open source GPS tracking system, Goo-Tracking system, using service hardware and open source software. The Goo-tracking system has revealed the possibility of using it for fleet management. It can also be used for missing vehicle tracking when working with a car alarm system.

VII. REFERENCES

1. Phongsak Keeratiwintakorn, "Real-time tracking management system using GPS, GPRS and Google earth", Source: IEEE Xplore, Research Gate, DOI: 10.1109/ECTICON.2008.4600454.
2. E. D. Kaplan, "Understanding GPS Principles and Applications", Artech House Publishers, ISBN 0890067937, Feb1996
3. R. J. Bates, GPRS(General Packet Radio Service), McGraw-Hill Professional, 1st Edition, ISBN 0071381880, Nov 12, 2001.
4. Scott Pace, Gerald P. Frost, Irving Lachow, Dave Frelinger, Donna Fossum, Don Wassem, Monica M. Pinto. "The Global Positioning System, Assessing National Policies, Chronology and Budgets, monograph/report products, Rand corporation" .
5. "Temex Times Galileo", GPS World , Feb. 1st, 2006

International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019
IJCRT
ISSN 2454-7719

Paper ID: CS- 04

COLLABORATION OF WSN AND IoT: INTEGRATION APPROACHES, ISSUES AND CHALLENGES

Dr. Gouri M. Patil, Asst. Professor,

DOCS&IT, BASPONC College, Bhusawal-425201, India.
gourimpatil@gmail.com

ABSTRACT:

Living in smart world, demands for rapid development of technologies. Smart world requires for Internet of things (IoT) to support smart industry, smart life, smart homes, smart workplaces, and smart city. Internet of Things ensures smart human being life, through communications between objects and machines in concert with peoples. Wireless sensor networks (WSNs) has wide area of applications in different domains, like controlling networks, enhancement in living scenarios, healthcare, industry, production monitoring and many more [4]. To collaborate and achieve these tasks consequently, migration of Internet from People towards an Internet of Things (IoT) and integration of Wireless Sensors in to Internet of Things enables sensors nodes connect internet dynamically. A wireless sensor network (WSN) becomes one of the most important parts for IoT as things become proactive actors of the Internet by generating and consuming information for IoT applications. Building a smart world requires solution towards this collaboration, like communication among heterogeneous entities which pose challenges like architecture, data fusion, security and identifying useful information [2]. The research, attract contributions from academia and industry on the recent advances in different aspects of WSN design for IoT applications [5]. As WSNs being a part of the Internet of Things, this paper study and explore the integration issues and challenges in WSN and IoT [1] collaboration.

KEYWORDS: *WSN, IoT, Integration approaches, Issues, Challenges, Networks, Internet, Security, MANET.*

I. INTRODUCTION

In the recent past years many technological evolution like moving from the analog world into its digital world, from centralized wired to distributed and then into pervasive wireless systems. In our everyday lives wireless sensor networks are increasing tremendously. Wireless sensor networks (WSNs) are ad hoc networks consist of a large number of small sensor nodes with restricted resources and one or more base stations. Internet of Things (IOT) is a global web of things that are uniquely addressable based on standard protocols [4].

The upcoming future will provide the intelligent environment for human being. Where every surrounding entity, will have intelligence built in them with ability to exchange information with us. The interaction between living and non living entity is possible by including computational capabilities in these entities [2]. In smart world systems will synergistically interact with each other to build holistic, new, common and unpredictable services. To access any data anywhere by anyone in the world, needs to integrate the WSNs into the Internet as part of the IoT. Figure-1 shows the integration of WSN in IoT. A wireless sensor network (WSN) consisting of spatially distributed autonomous devices using sensors to cooperatively monitor physical or environmental conditions, such as temperature, sound, vibration, pressure, motion or pollutants, at different locations [4].

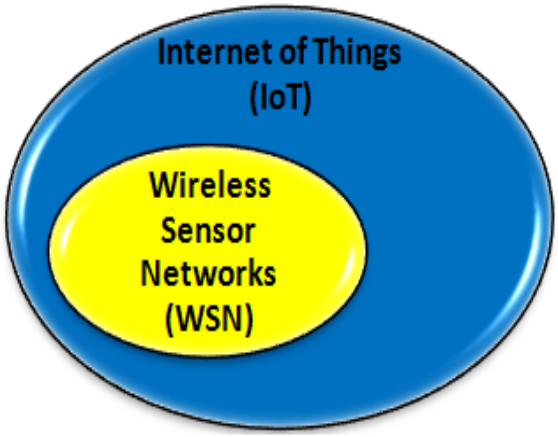


Figure-1: Relation of WSN and IoT.

Developing a smart world like smart agriculture, smart city, smart industry, smart car, smart homes to smart bracelet and many mores requires integration of different research like Internet of Things (IoT), Mobile Computing (MC), Pervasive Computing (PC), Wireless Sensor Networks (WSNs) and Cyber-Physical Systems (CPS) [6]. Still one of the most important elements of IoT paradigm is WSN [6]. Building a smarter world, the fundamental pillars are sensors. As sensor node joins the Internet

dynamically, the integration of WSN and IoT must be carefully investigated. By considering main features of network, three integration approaches are analyzed such as, Independent Networks, Hybrid Network and Access Point Network [4][7].

II APPLICATIONS of WSN-IoT

♦ Smart home

The most recommended Internet of Things application is Smart Home. Near about 256 software companies and startups, analysis the database for Smart Home than any other application in the field of IoT. Some prominent startup names are Nest or AlertMe as well as a number of multinational corporations like Philips, Haier, or Belkin having total amount of funding for Smart Home currently exceeds $2.5bn. The home automation has been brought to a whole new level to enhance the living experience with the invention of Smart Speakers like Google Home, Amazon Echo Dot leveraging Alexa skills development and HomePod leveraging voice-assistant technology. Over 50000 unique Amazon Alexa Skills are developed globally now Jan 2019. In the US by 2020, there will be an estimated 21.4 million smart speakers.

♦ Wearable

Global shipments of wearable devices are forecast to increase by 25.8% year over year to $225 million (GBP 176.3 million) in 2019, according to the latest figures from Gartner. The research firm also predicted that that the end-user spending on wearable devices will reach to $42 billion (GBP 32.9 million) in 2019. It has been estimated that 74 million smart watches will be shipped in 2019 which will make them the top segment of all wearable device form factors. As per Gartner, by 2022, ear-worn devices shipments will take over as the top wearable segment with 158 million units shipped compared with 115 million smart watch shipments in 2022. Devices like Apple AirPods, Samsung's IconX and Plantronics' BackBeat FIT and will account for more than 30% of all shipped wearable.

♦ Smart City

Gartner predicts as, up to 2050 near about 70 percent of the world's population is expected to live in cities. This fast growth make strain on the existing infrastructure, and a lot of people moving to urban areas, this going to get worse in the coming years. Municipalities around the globe are turning to the Internet of Things innovation to enhance their services, reduce costs, and improve communication and interaction to furnish new demand of cities. Smart city plans cases from traffic management to water distribution, to waste management, urban security and environmental monitoring which solve traffic congestion problems, reduce noise and pollution and help make cities safer.

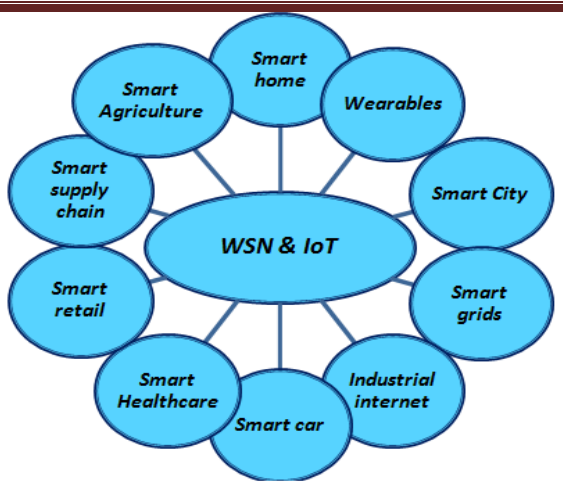


Figure-2: Applications of WSN-IoT

♦ Smart grids

A smart grid is a special technology has the power to ready today's cities for tomorrow's needs. Most of people move into cities, the demands for energy will rush forward. Up to 2040 net electricity generation will rise by 69%, compared to 2012, which keeps consumer demands. This raise will place unprecedented stress on grids that will impact citizens, cities as well as utility infrastructures.

♦ Industrial internet

Industrial Internet of Things (IoT) has been a huge success in manufacturing industry to automate multiple devices and processes to gather real-time data with robust security and make predictive analysis for better decision making. Usage of IoT in Industrial manufacturing is projected to grow from 2014's $472B to $890B in 2020.

♦ Smart car

Smart vehicles are increasingly becoming reality. A study by PwC suggests that worldwide sales of connected vehicles will almost quadruple between 2015 and 2020. It will generate more than 110 billion euro / 149 billion dollars in revenue in the passenger segment alone. From the average citizen's car to trucks carrying heavy loads, standards will change all over the world. The manufacturers crafted self-driving cars, controlled through Wi-Fi, smart phones, and technology smartly. Up to 2020, it has been estimated that 10 million self-driving cars will be on the road with companies such as Tesla, BMW, Chevrolet, and Mercedes leading the charge.

♦ Smart Health (Digital health/ Telehealth/ Telemedicine)

IoT based Smart healthcare solutions include remote monitoring, smart sensors and medical device integration to a custom IoT mobile application leveraging custom mobile app development services for healthcare industry. As per Google, Life sciences

and IoT Application in Healthcare are expected to grow to $1.335T in 2020, amounting to 17% CAGR.

- **Smart retail**

In the coming years IoT will dramatically transform and innovate the retail industry. The integration of IoT solutions in the retail will enable retail companies to create successful marketing campaigns based on customer behavior, deliver high-quality services, improve inventory management, and reduce operational costs. A growing need to increase customer loyalty and deliver the best in-store experience is driving the adoption of IoT in the retail sector. According to research by Global Market Insights, Inc., IoT in the retail market is predicted to reach over $30 billion up to 2024.

- **Smart supply chain**

Already supply chains have been getting smarter. The solutions for tracking goods while they are on the road, or getting suppliers to exchange inventory information, have been on the market from many years.

- **Smart Agriculture**

Smart agriculture IoT in general is not as popular as consumer connected devices, yet the market is still very dynamic. The implementation of IoT solutions for agriculture is constantly growing. BI Intelligence predicts that the number of agriculture IoT device installations will reach high up to 75 million by 2020, growing 20% annually. And the global smart agriculture market size is expected to triple up to 2025, reaching $15.3 billion as compared to being somewhat over $5 billion back in 2016. Smart agriculture includes fungal detection of plants and can follows precise agriculture using digital image processing [8][9] with data provided by MANET which are incorporated into the IoT .

III. INTEGRATION APPROACHES

Different approaches are discussed in this paper for connecting WSNs to the Internet, which is mainly considering the WSN integration degree into the Internet structure.

In an Independent Network approach a single gateway is used to connect the independent WSN to the Internet as shown in Figure-3. This approach is used for connecting most of the WSNs to access the Internet, and also interaction between networks. In this it is noticeable that the failure of Gateway functioning causes to the breakdown of connection between Internet and WSN.

From growing integration degree point of view, another approach of hybrid network is formed. It consists of two independent network structures but few dual sensor nodes can access of the Internet. Figure-4 shows the Approach of Hybrid Network consist of multiple gateways or base stations connecting to WSN through sensor nodes. This approach is preferable as per distance point of view, and for the WSNs organized in Mesh topology.

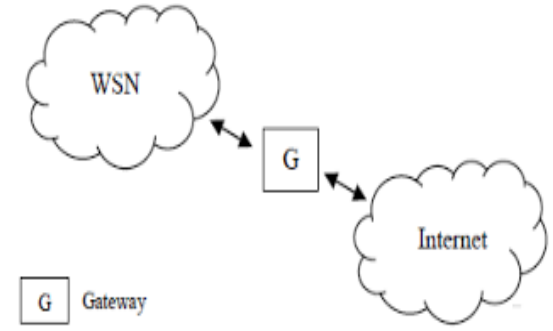


Figure-3: Approach of Independent Network

Approach of Access Point Network is shown in Figure-5. In this approach multiple sensor nodes are joining the Internet in one hop. Access Point Network is similar to the WLAN structure which forms 802.15.4 access point network.

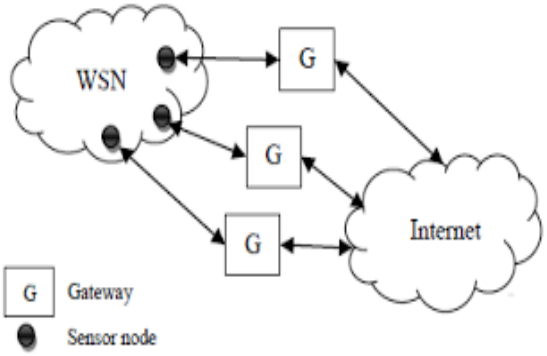


Figure-4: Approach of Hybrid Network

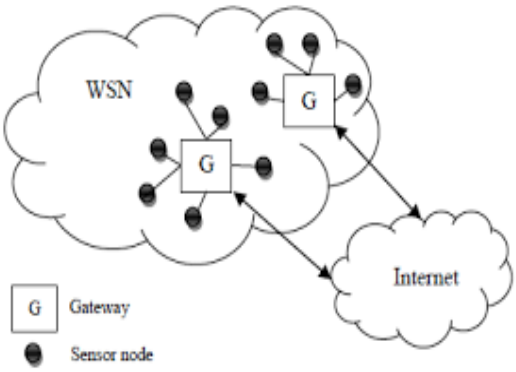


Figure-5: Approach of Access point Network

Because of multiple gateways exists in the Hybrid Network and Access Point Network approaches the network failure will not be noticeable. Hence depending on the WSN application scenario, any one of these approach would be prefer if network structure is supported by the required application. Hybrid Network Approach is preferred for WSN application as monitoring space and monitoring interactions between objects and space. So, according to the proposed WSN applications for monitoring of objects and human beings this approach is preferred. WSN applications requiring low latency prefers Access

Point Network approach since in this Internet can be accessed in one hop [2].

The integration approaches are also in two different types stack-based and topology-based as shown in Figure-6. In the stack based approach, according to similarities between their networks stacks the integration among WSN and the Internet takes place. WSN and the Internet are connected with the help of single gateway. A WSN can exchange data with Gateway Internet hosts even they can share a well suited network layer protocol TCP/IP.

The topology based approach forms a hybrid network in which integration of nodes mainly depends on the real location in order to give access to the Internet. It consists of independent network from where sensor nodes can access the Internet. Because of failure of gateway in this approach, the connection between WSN and the Internet can be disconnected which may cause problems. The topology based approach is adopted because WSN can conserve such organization by having a centralized gateway rather than having common individual base station without Internet access. On the other hand, in topology approach the hybrid network and access point network provides static network configuration.

The new devices try to connect to the Internet needs programming for consuming gateway which needs flexibility is expected by the future which cannot be achieved by this recent form. To complete this expectation "IP to the Field" model can be used [4] in which sensor nodes are expected to be smart network elements which will have no limitations for sensing tasks. The gateways process would be restricted to protocol translation and repetition by passing the control of sensor nodes. Consequently, dynamic network configuration could be attained and no more operations required for gateway reprogramming [4].

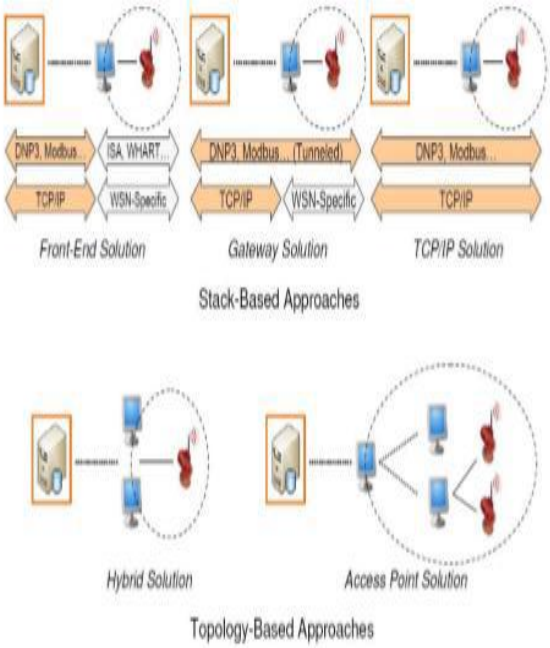


Figure-6: Stack based and Topology based Network

IV. CHALLENGES FOR WSNs IN AN IoT

WSN is part of Internet of Things as shown in Figure-1, with usual sensing functionality new tasks and challenges are to be faced by the sensor nodes in Internet of Things for scalable nodes in the network. Out of these, three tasks such as Security, Quality of Service (QoS) management, and Network Configuration are that sensor nodes should complete is discussed in this paper [3][4].

A. Security

The attacker has to introduce malicious nodes physically in the existing network near the WSN intended to cause damage to a computer system, to jam or to steal private information from a WSNs. However, integration of WSN into the Internet of Things enables attackers to perform their malicious activities from everywhere. The security of IoT, need to be assumed from a global point of view. Currently, WSNs ensure efficient protection through central and unique powerful gateway. But, it is difficult to reuse the existing security mechanism due to the inadequate of computational resources, energy and memory constraints. IOT component provides security mechanism at network level as well as provide means of interaction between services and objects. Having safe interaction between objects and services is an interesting challenge in IOT.

In WSN's sensor nodes has main responsibility to provide integrity, confidentiality, availability and authentication according to the sensitivity of an application. Additionally Novel location diversity, WSNs may address new threats such as malware, worms which is introduced by Internet and the attackers. Similar to the other Internet services, for better confidentiality sensor nodes are yet to support the cryptography with key lengths like RSA-1024. Further, to avoid different attacks arising from Internet, it is required to develop better security mechanisms taking into account of the existing resource constraints.

B. Quality of Service (QoS)

Sensor nodes at gateway act as protocol translator and repeater as well as it take part in quality of service management enhancing the resource consumption of future devices of Internet of Things.

In fact, resource differences may be demoralized to share the current workload between nodes offering available resources.

With the intelligence sensor nodes are also required to contribute to quality of service by utilization of all heterogeneous devices of the Internet of things. All heterogeneous devices make the possibility of the workload distribution between the nodes with the available resources. Due to dynamic network configurations and link characteristics, it is not sufficient to utilize the existing approaches of QoS available on the Internet. Hence, better approaches are

required to developed to avoid latency and loss of data, security mechanisms for improving the QoS.

C. Configuration

Sensor nodes should be able to handle manage their network configuration for new node joining the in the network like in a MANET [10][11] as well as ensuring self-healing capabilities through detection and elimination of faulty nodes and address administration to ensure scalable network constructions, handling their own features, etc. with providing better performance[11].

Self-configuration [11] of new node in WSN and IoT is not a common feature in the Internet. However, user is expected to install required applications, avoid and recover the system from crashes, for smooth operation of this network configuration [2][4].

V. CONCLUSION

WSN provides us a new opportunity to handle every activity in a smarter way and gives us smart interaction standards which empowers setting up smart network capable of managing applications that evolve from user requirements. IoT will grow in future lives with the wide range of applications and improve security into WSN integration and IOT and as well as will help to put a great impact on our daily life.

In this paper various issues and challenges in the integration of IOT with WSN has been discussed. Gateway plays an important role in the integration of IOT and WSN. Failure of the gateway can bring down the entire network to stand still. In order to increase the reliability of the Network there is need for a fault tolerate gateway.

Analysis of these challenges results that, the existing solutions in the Internet are not suitable for these sensor networks having dynamic network configurations. Hence, better mechanisms are to be developed or MANET should be adapted considering the constraints of WSNs with Internet of Things (IoT).

REFERENCES

1. B. LasyaSri, L. Nirmala Devi, “Integration Approaches and Challenges of WSN for IoT”, International Research Journal of Engineering and Technology (IRJET), Vol-05 Issue-05, May 2018, ISSN: 2395-0072, e-ISSN: 2395-0056, Impact Factor value: 6.171, Page 1246-1248
2. Mamatha, T., and Smriti Srivastava. "Issues and Challenges in the Integration of Wireless Sensor Network and IOT."International Journal of Computer Applications, Vol-146, Issue-No.7, July 2016, pp. 7-10, (0975 – 8887)
3. Christin, D., et al. "Wireless Sensor Networks and the Internet of Things: Selected Challenges. 8th GI." ITG Ku VS Fach gesprch Drahtlose Sensornetze, 2009.
4. Rohini “Wireless Sensor Networking in the Internet of Things”, International Advanced Research Journal in Science, Engineering and Technology, Vol-4, Issue-2, February 2017, pp. 124-126. ISSN (Online) 2393-8021 ISSN (Print) 2394-1588.
5. Jaesung Park, Mikhail Gofman, Fan Wu, Yong-Hoon Choi, “Challenges of wireless sensor networks for Internet of thing applications”, International Journal of Distributed Sensor Networks, 2016, Vol-12, Issue-8, pp. 1-2.
6. John A. Stankovic, Life Fellow, “Research Directions for the Internet of Things”, IEEE-INTERNET OF THINGS JOURNAL, Vol-1, Issue- 1, Feb 2014, 2327-4662, pp. 3-9.
7. Rashmi Raj, Amitesh Kumar, “Integration between WSN (Wireless Sensor Networks) and IoT (Internet of Things)”, International Journal of Advanced Research in Computer and Communication Engineering, Vol- 6, Issue-4, April 2017, ISSN (Online) 2278-1021, ISSN (Print) 2319 5940, pp. 338-342.
8. Gouri M. Patil, "Digital Image Processing-An Elegant Technology to Perceive Diseases in Plants", International Journal of Scientific Research in Computer Science and Engineering, Vol.06, Issue.01, pp.43-47, 2018.
9. Vidya S. Barhate, Gouri M. Patil, Sweta G. Sonawane, "Fungal Disease Detection of Lotus Leaf Using Digital Image Processing", International Journal of Scientific Research in Computer Science and Engineering, Vol.06, Issue.01, pp.81-83, 2018.
10. Patil, Gouri M., Ajay Kumar, and A. D. Shaligram. "Performance Comparison of MANET Routing Protocols (OLSR, AODV, DSR, GRP and TORA) Considering Different Network Area Size." International Journal of Engineering and Management Research, Vol-6, Issue-3, 2016, pp. 475-484, ISSN-ONLINE: 2250-0758, ISSN-PRINT: 2394-6962, Impact Factor: 3.105, UGC approved-No- 49201.
11. Patil, Gouri M., Ajay Kumar, and A. D. Shaligram. "Performance Measurement and Analysis of MANET Routing Protocols on nodes Scalability." IJMSS-International Journal in Management and Social Science 4: 443-451, Vol-04, Issue-05, May 2016, pp. 443-451, ISSN: 2321-1784, Impact Factor: 6.178, UGC approved-No-48563.

International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019
ISSN 2454-7719

Paper ID: CS-05

USE OF IOT TO CONTROL HEAT PROBLEM IN SMART CITY

Sunil DhonduMone[1]
R. C. Patel Arts, Com & Sci. College,
Shirpur, Dist. Dhule (MS)
Corresponding Author

DipakEknathChavan[2]
R. C. Patel Arts, Com & Sci. College,
Shirpur, Dist. Dhule (MS)

Sanjay Ekanath Pate[3]
NanasahebY.N.Chavan Arts, Sci. & Com. College,
Chalisgaon, Dist. Jalgaon(MS)

sunil.d.mone.edu@gmail.com

ABSTRACT:
Smart city faces challenges in many aspect including health problem, pollution problem, traffic problem, environment related problem etc.

In this paper we consider "Heat problem" face by citizen of a city who is important resources, in which temperature varies area wise. Also note that temperature is increasing every year as compare to previous year.

To face this temperature problem agencies like municipal corporation , village council etc. is responsible to do plantation, where plantation is more essential can know with the help of IOT, also area in which rules need to make stick on home appliances which produce more heat, to reduce heat . We propose a solution that every area will have temperature measurement apparatus, which shall be connected thru IOT and agencies like municipal corporation, village council etc. will collect data and by analyzing this data of a year it may concentrate area where more plantation or make rule stick is require.

It helps to manage heat face by human resources, so that responsible agency can do resource management more efficiently and effectively. It may leads to more plantations to reduce heat generation at right place, where essential.

INTRODUCTION:-

(Oleksii Duda, May 14-17, 2018) The concept of Internet of Things (IoT) was offered by Kevin Ashton in 1999, whenthe distribution of devices with intelligent sensors integrated with the appropriate communicationtools started. Internet of Things are defined as self-organized systems havingno conceptual limitations, being the part of the convergent systems and are designedto increase the efficiency of processes in these systems.

In its turn the IOT-applicationsare defined as sets of connected or integrated objects or devices into the environment.These objects or devices use the standard communication protocols for informationexchange. The results of the carried out investigations prove that at present thenumber of connected Internet of Things, exceed the number of the planet populationand their variety and diversity include a lot of devices which can be used as unifiedblock solutions while implementing the innovative projects of the future "smart cities".

(Maclche, 8 Aug. 2015)In IoT objects are equipped with microcontroller and sensor devices and various software application and suitable protocol stack enable them to talk to other objects. The objects in IoT can be any „thing" such as people, devices, animal, building, vehicle or any physical thing which is part of our daily life. IoT is everything-to-everything communication. In general IoT can be described as a combination of Sensors, Connectivity and People & Processes.

IOT can Attend Problems to be a smart city:-

(Saber Talari, 2017)

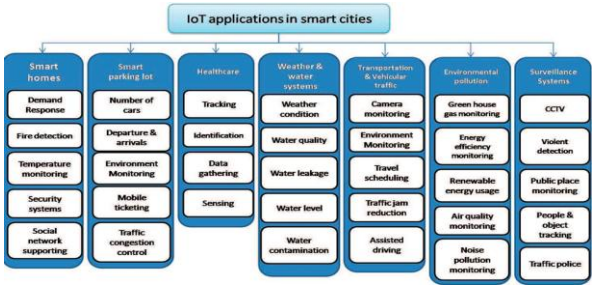


Fig a) Applications of IoT

METHOD:-

Data shall be collected from various areas, by placing censor at different points of cities; it is collected thru internet and do analysis, based on this analysis remedial action is taken so that it shall be efficient and effective too.
In Padova, Italy, the University of Padova, in collaboration with the municipality of the city, started a project called Padova Smart City, which is an obvious example of private and public cooperation for running a smart city.

Consider following example,

(Cenedese, 31 January 2016.)

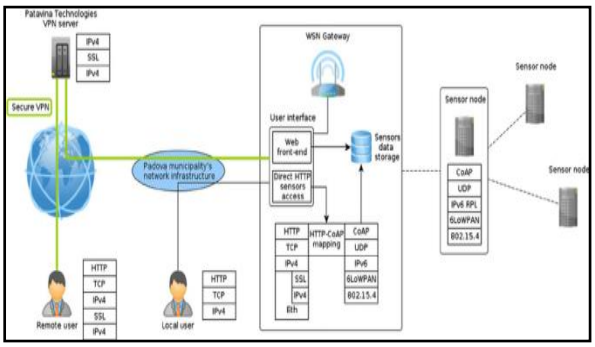


Fig. b) Collecting Temperature data from various areas using sensors.

The municipality as a financial sponsor provides the required infrastructure and budget and the university as a theoretical party implements the smart city concept. According to this project, various kinds of sensors are placed on street light poles and connected to the Internet through gateways for collecting environmental and public street lighting data by means of wireless nodes. Environmental parameters such as CO level, air temperature and humidity, vibrations, noise, and so on are collected, while providing a simple but accurate mechanism to check the correct operation of the public lighting system by measuring the light intensity. Although this pilot project is simple,

It includes a number of devices and layer technologies that are representative of most of the critical issues which should be taken care of it for design an urban IoT.

DATA:-

Month	Area	Temp in Degree Celsius
JAN	A1	29
	A2	28
	A3	26
	A4	24
Feb	A1	29
	A2	28
	A3	26
	A4	24
Mar	A1	34
	A2	31
	A3	30
	A4	29
Apr	A1	43
	A2	34
	A3	32
	A4	33
May	A1	45
	A2	41
	A3	33
	A4	35
June	A1	44
	A2	40
	A3	32
	A4	33

Table 1) Temperature data collected from areas (A1,A2...A4) for month Jan to June

RESULTS:-

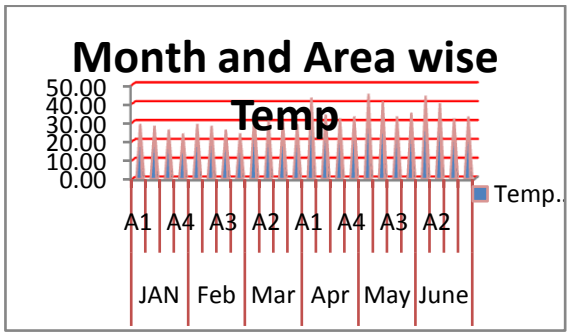


Fig. C) Month and Area wise Temp

ig D) Area and Month wise Temp

ig D) Area and Month wise Temp

ig D) Area and Month wise Temp

ig D) Area and Month wise Temp

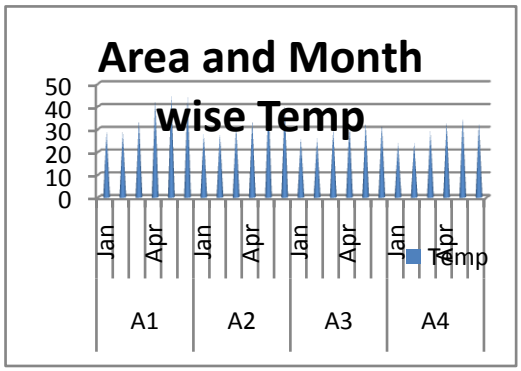


Fig D) Area and Month wise Temp

With the help of above two graphs we can conclude that area A1 where more heat is generated it may be due to less plantation or due to uncontrolled use of home appliances like air condition.

Respective agency like municipal corporationvillage council orcorporationshall contrite on area A1.

CONCLUSION:-

- Day by day heating problem major issue for survival specially for county like India which belongs to hot region.
- Data about heat will be collected from varies areas.
- Analyze the data and find the area or region where more constriction is needed.
- Planed action can take to reduce or minimize the heat problem.
- Action like to do more plantation or restricting appliances generating more heat either by announcement or by making rule or may be law.

BIBLIOGRAPHY:-

1) Cenedese, A. (31 January 2016.). Padova Smart City: an Urban Internet of Things Experimentation. *2014 IEEE 15th International Symposium on A World of Wireless, Mobile and Multimedia Networks (WoWMoM), une 16, 2014, Sydney, Australia*, 15-21.

2) Maclche, T. (8 Aug. 2015). Harnessing the Internet of Things (IoT): A Review. *International Journal of Advanced Research in Computer Science and Software Engineering*, 320-323.

3) Oleksii Duda, N. K. (May 14-17, 2018). Information-Communication Technologies of IoT in the "Smart Cities" Projects. *Proceedings of the 14th International Conference on ICT in Education, Research and Industrial Applications. Integration, Harmonization and Knowledge Transfer. Volume I: Main Conference* (pp. 317-330). Kyiv, Ukraine: http://ceur-ws.org/Vol-2105/.

4) Saber Talari, M. S.-K. (2017). A Review of Smart Cities Based on the Internet of. *www.mdpi.com/journal/energies*, 1-17 of 23.

International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019
ISSN 2454-7719

Paper ID: CS- 06

A COMPARATIVE RESEARCH STUDY OF WOMEN JOBS OPPORTUNITIES IN PRIVATE AND PUBLIC BANKING SECTOR OF INDIA

Deshmukh Kailas Chandrakant.[1]

[1]Research Scholar, Department of Computer Science, Nanasaheb Y.N ChavanArts,Science and Commerce College Chalisgaon Dist Jalgaon Maharashtra

Dr. A. D. Yeole[2]

[2]Dr. A. D. Yeole ,Principal Arts,Science and Commerce College Ravalgaon Nasik

ABSTRACT:

Withdrawing units of money from circulation is demonetization; units of money are denied the status of legal tender. Demonetization is defined as a process by which currency units will not remain legal tender. The currency notes will not be taken as valid currency. Demonetization is a step taken by the government where currency units are ceased of its status as legal tender. Demonetization is a basic condition to change national currency. In other words, demonetization can be said a change of currency where new units of currency replace the old one. It may involve the introduction of new notes or coins of the same denomination or completely new denomination. The currency has been demonetized thrice in India. The first demonetization was on 12th January 1946 (Saturday), second on 16th January 1978 (Monday) and the third was on 8th November 2016 (Tuesday). The study attempts to understand meaning and reasons of demonetization, the complaints received from nationalized banks on the after demonetization 2016 in the area of E-CRM tool ATM /Debit Cards. This study also gives which bank received highest complaints from nationalized bank and which bank has lowest complaints with special reference ATM/DEBITcard .

1. INTRODUCTION

Demonetization is a tool to battle Inflation, Black Money, Corruption and Crime, discourage a cash dependent economy and help trade. Its policy of the government by banning Rs. 500 and Rs.1000 currency notes has influenced all almost all the corner of the economy.

Hereby analyzing the impact of demonetization on Banking Sector.

A study by Bhupal Singh and Indrajit Roy, RBI directors from the monetary policy department and department of statistics and information management, published in August this year showed that the excess deposits accrued to the banking system due to demonetization range between Rs 2.8-4.3 trillion. "Excess deposit growth in the banking system during the demonetization period (i.e., November 11, 2016 to December 30, 2016) works out to 4-4.7 percentage points. If the period up to mid-February 2017 is taken into account to allow for some surge to taper off, excess deposit growth is in the range of 3.3-4.2 percentage points.

The liquidity boost resulting from the demonetization announcement on November 8, 2016 has stayed with the banking sector a year after the event, helping banks reduce their high-cost deposits and boosting their current account and savings account (CASA) ratio.

CASA is abbreviation of current Account Savings Account. It is the ratio which indicates how much of the total deposits with bank in the current account and savings account. In a simple language, the deposits with the bank are in the current account and savings account. Banks do not pay interest on the current account deposits and pays a very low% of interest on savings on account deposits. Hence, it is a good measures to get deposits at no or very low cost.

2. Objectives of thestudy

1) To identify role of e-banking after demonetization

2) To know which bank received highest complaint after demonetization .

3. Methodology

The present study is based on secondary data and the data were collected from journals, books, news papers, RBI annual reports and other websites.

4. Impact on banking sector after demonetization 8 Nov 2016:

Increase in Deposits: Demonetization has increased the deposits in Banks. Unaccounted money in the form of Rs.500 and Rs.1000 were flowing to the Banks and the sizes of deposits have been increased. It helped the banks to grab the deposits and increase their deposits. Bulk of the deposits so mobilized by SCBs have been deployed in: (i) reverse repos of various tenors with the RBI; and (ii) cash management bills (CMBs) issued under the Market Stabilization Scheme (which is a part of investment

in government securities in the balance sheet of banks). Loans and advances extended by banks increased by Rs.1,008 billion. The incremental credit deposit ratio for the period was only 18.2 per cent. Additional deposits mobilized by commercial banks have been largely deployed in liquid assets.
• Fall in cost of Funds: Over the past few months, the deposits are increased. It led the banks to keep a major part of deposits in the form of cash deposits. PSU Banks have a lion share (over 70%) of the deposits and biggest gainers of the rise in deposits, leading to lower cost of funds. Surplus liquidity conditions have helped facilitate the transmission of monetary policy to market interest rates. Post demonetisation, several banks lowered their domestic term deposit rates and lending rates. The median term deposit rates of SCBs declined by 38 bps during November 2016-February 2017, while the weighted average term deposit rate of banks declined by 24 bps (up to January 2017). Combined with the sharp increase in low cost CASA deposits, the overall cost of borrowings declined, allowing banks to reduce their lending rates.
• Demand for Government Bonds: After sharp rise in deposits on post demonetization, banks started lending such surplus deposits to the RBI under the reverse repo options. PSU Banks, particularly, deployed excess funds in government bonds. The return on bond investment is likely to add 15 to 20 per cent increase in the earnings of banks.
• Sagginess in Lending: Lending growth of the banks is considerably less even after demonetization and its impact of growth in the amount of public deposit. Banks have tried to lend the money to the needy group by reducing their interest rates, but it shrunk over the last few months.

Opening of Jan Dhan Account
Post-demonetisation, 23.3 million new accounts were opened under the PradhanMantri Jan DhanYojana (PMJDY), bulk of which (80 per cent) were with public sector banks. Of the new Jan Dhan accounts opened, 53.6 per cent were in urban areas and 46.4 per cent in rural areas. Deposits under PMJDY accounts increased significantly post demonetisation. The total balance in PMJDY deposit accounts peaked at Rs. 746 billion as on December 7, 2016 from Rs. 456 billion as on November 9, 2016 - an increase of 63.6 per cent. As there were reports regarding the use of these accounts to convert black money into white, the Government issued a warning against the misuse of such accounts.

Push to Digital Banking a cashless economy is one in the flow of cash within an economy is non-existent and all transactions have to be through electronic channels such as direct debit, credit and debit cards, electronic clearing, payment systems such as Immediate Payment Service (IMPS), National Electronic Funds Transfer and Real Time Gross Settlement in India.

Benefits of Cashless economy
• Reduced instances of tax avoidance because it is financial institutions based economy where transaction trails are left.
• Curb generation of black money.
• It will reduce real estate prices because of curbs on black money.
• It will place universal availability of banking services to all as no physical infrastructure is needed other than digital.
• There will be greater efficiency in welfare programmes as money is wired directly into the accounts of recipients.
• Reduced cost of printing notes, instances of their soiled or becoming unusable, counterfeit currency.
• Reduced costs of operating ATMs.
• Speed and satisfaction of operations for customers as no delays and queues, no interactions with bank staff required.

Digital transaction platforms
• **UPI:** Unified Payment Interface (UPI) allows you to make payments using your mobile phone as the primary device for transactions, through the creation of a 'virtual payment address', which is an alias for your bank account. UPI was launched by the National Payment Corporation of India (NPCI).
• **BHIM App:** The Bharat Interface for Money (BHIM) in an initiative by the Govt to enable fast,secure and reliable cashless payments through mobile phones. BHIM is Aadhaar-enabled, inter-operable with other Unified Payment Interface (UPI) applications and bank accounts, and has been developed by the National Payments Corporation of India (NPCI). This seals the government's push towards digital payments after the demonetization that resulted in the scrapping of high-value Rs 1,000 and Rs 500 currency notes.
• **Aadhar Pay:** There are lots of payment apps in the market. These are the UPI apps, SBI Pay, Paytm, Phonepe, Free charge, mobile wallets etc. But, the Adhaar Payment App is special as you can pay through the Adhaar Payment App without phone. It is possible because you the customer does not require the app. The merchant or a person, who want money, have to arrange a smartphone, app, etc. The payer don't require anything. This app is made for the merchants and shopkeepers. Customer would only enjoy its benefits. The Adhaar Payment Appuses your fingerprints for the authentication. On the basis of this authentication, the money ispaid from your Aadhaar linked account.
• **IMPS:** Immediate Payment Service (IMPS) is an instant interbank electronic fund transfer service through mobile phones. It is also being extended through other channels such as ATM, Internet Banking, etc.
• **POS terminals:** A point-of- sale (POS) terminal is a computerized replacement for a cash register. Much more complex than the cash registers of even just a few years ago, the POS system can include the ability to record and track customer orders, process credit and debit cards, connect to other systems in a network, and manage inventory. Generally, a POS

terminal has as its core a personal computer, which is provided with application-specific programs and I/O devices for the particular environment in which it will serve.

• **USSD:** USSD (Unstructured Supplementary Service Data) is a Global System for Mobile(GSM) Communication technology that is used to send text between a mobile phone and an application program in the network. Applications may include prepaid roaming or mobile chatting.

Challenges of a cashless rural economy

• **Currency dominated economy:** High level of cash circulation in India. Cash in circulation amounts to around 13 per cent of India's GDP.

• **Transactions are mainly in cash:** Nearly 95 per cent of transactions take place in cash. Large size of informal/unorganized sector entities and workers prefer cash based transactions. They don't have required digital literacy.

• **ATM use is mainly for cash withdrawals and not for settling online transactions:** There are large number of ATM cards including around 21 croreRupaya cards. But nearly 92 per cent of ATM cards are used for cash withdrawals. Multiple holding of cards in urban and semi-urban areas show low rural penetration.

• **Limited availability of Point of Sale terminals:** According to RBI, there are 1.44 million PoS terminals installed by various banks across locations at the end of July 2016. But most of them remain in urban/ semi-urban areas.

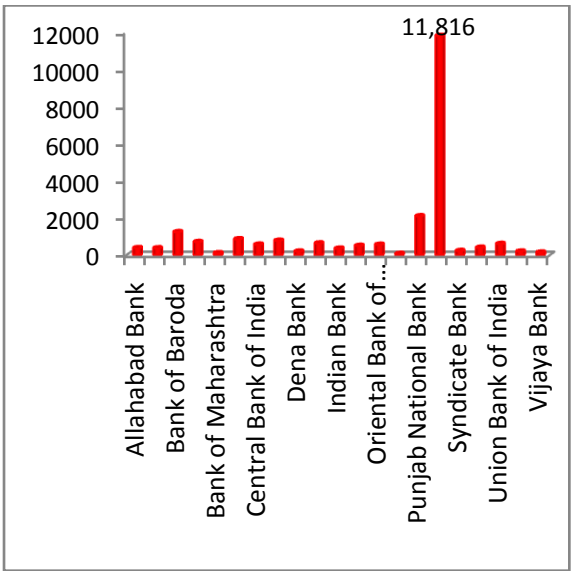
• **Mobile internet penetration remains weak in rural India:** For settling transactions digitally, internet connection is needed. But in India, there is poor connectivity in rural areas. In addition to this, a lower literacy level in poor and rural parts of the country, make it problematic to push the use of plastic money on a wider scale. This is being overcome by application BHIM (Bharat Interface for Money) launched by the Prime Minister which will work on USSD i.e without mobile internet.

Demonetization crippled rural bank lending

The note ban hurt rural India, loan growth was far below its pre-demonetization levels. Indeed, in the second half of FY2017, bank lending to rural Haryana, Punjab, Goa, Maharashtra and Kerala contracted. Lending to rural Maharashtra fell by as much as 9.2%. Putting that in perspective, bank loans in the second half of FY16 to rural Haryana increased by 18% and to rural Punjab by 12.2%, while rural Maharashtra saw an increase in lending of 5.8%. Not a single state had showed a contraction in rural lending in the second half of FY16. In other words, the slowdown in rural lending in the second half of FY17 was very abnormal and may be attributed largely to demonetization**.**

The following is table showing complaint received after demonization of using ATM/DEBIT CARD

		Year2017-8	Year 12-13
Sr. No.	**Name of the Bank**	**ATM/ Debit/ Credit Cards**	**ATM/ Debit/ Credit Cards**
1	Allahabad Bank	388	105
2	Andhra Bank	381	113
3	Bank of Baroda	1,251	291
4	Bank of India	719	298
5	Bank of Maharashtra	117	49
6	Canara Bank	865	351
7	Central Bank of India	576	185
8	Corporation Bank	788	148
9	Dena Bank	208	29
10	IDBI Bank Ltd.	644	112
11	Indian Bank	364	233
12	Indian Overseas Bank	512	157
13	Oriental Bank of Commerce	573	25
14	Punjab and Sind Bank	81	901
15	Punjab National Bank	2,107	171
16	State Bank of India	11,816	124
17	Syndicate Bank	239	341
18	UCO Bank	412	104
19	Union Bank of India	614	68
20	United Bank of India	207	171
21	Vijaya Bank	155	124
	Public Sector Banks	**23,017**	**10,067**



5. Finding of research study : The role of e-banking largely increased after demonetization from above study it is clear that there is increased in use of digital banking plat form such PAYTM,POS TERMINAL ,ADHAR BASED BANKING TRANSACTION,IMPS etc applications in banking .There are 92 % ATM cards used in cash withdrawal.

The second finding is that after near about 1 year demonetization period there is increased in complaints regarding ATM CARD USE that compare to 5 years before demonetization **.**
From table it is clear that complaints received with use of ATM/DEBIT AND CREDIT CARD DOUBLED IN before and after demonetization. From Graph it is clear that ,State bank of india received highest complaint received after demonetization while Punjab Sind Bank received lowest complaint.

6. Conclusion :

1) The role of e-banking hugely increased with use of ATM card, BHIM app,Paytmetc applications for cashless transaction after demonetization

2) The large application of ATM cards in cash withdrawal there was increased in application of ATM cards ,Ultimately there was complaint regarding ATM transaction. The highest complaint received was State bank of india and lowest complaint received was Punjab Sind bank .

3) Increased in complaint received doubled before and after demonetization .

REFERENCE

[1]Source: Reserve Bank of india
Partap Singh. 2013. Depreciation of Rupee in Indian Economy: An Analysis, "International Journal of Innovations in Engineering and Technology (IJIET)", Vol. 2 Issue 4 August 2013 332, (ISSN: 2319 – 1058)
[2] Partap Singh. 2013. Gold Prices in India: Study of Trends and Patterns, "International Journal of Innovations in Engineering and Technology (IJIET)", Vol. 2 Issue 4 August 2013 332, (ISSN: 2319 – 1058)
[3] Partap Singh. 2010. Impact of Financial crisis on Indian Economy "Southern Economist" Vol. 49, no. 2. May. 15, 2010; (ISSN: 0038-4046
[4] http://www.business-standard.com/article/economy-policy/five-likely-effects-of-demonetisation-on-economy116110901411_1.html
[5] http://www.business-standard.com/article/economy-policy/five-likely-effects-of-demonetisation-on-economy116110901411_1.html

International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019
ISSN 2454-7719

Paper ID: CS- 07

CLOUD COMPUTING COLLABORATE WITH E-LEARNING TO ENHANCE EDUCATIONAL STRATEGY

Prof.B.S. Panchbhai[1]

Head, Department of Computer Science, R.C.Patel Arts, Commerce and Science College, Shirpur

Dr. Jagdish R. Kute[2]

Principal, Dr.S.R. Ajmera M.C.A. College for women, Dhule,

Prof.A.J.Maheshwari[3]

Department of Computer Science, R.C.Patel Arts, Commerce and Science College, Shirpur,

ABSTRACT:

Cloud computing has become prevalent IT tools for the administration provided by it. The cloud computing gives the different services like SaaS, PaaS, IaaS. Cloud based E-learning model has emerged another form in teaching-learning. E-Learning needs equipment and programming assets. There are numerous schools, universities and organizations can't buy costly devices because of poor financial condition. Hence cloud computing is the best answer for the equivalent. In cloud computing understudies can get to instructive soft material, records and information from anyplace, whenever utilizing web. This paper present how cloud based E-learning Improve Educational methodology of understudy and furthermore instructive foundation for the present training framework downsides and theirs conceivable arrangement utilizing cloud based E-learning model.

KEYWORD

Cloud Computing, SaaS, PaaS, IaaS, VCL, E-learning.

CLOUD COMPUTING FOR E-LEARNING

In the modern learning approach cloud computing perform vital role to transform quality education. All types of educational institutions in Jiangxi area tend to task around the cloud computing environment [4]. Many aspects are containing such as planning, implementation, operation and management. Cloud computing format transform capital expenditure into action and manipulationexpenditure. Many different educational institutions in Jiangxi region can purchase educational tools and serviceseffectively according to accurate service situation.

The architectural format of Cloud Computing-based E-learning systems follows the layered structure of services (SaaS, PaaS, and IaaS) and abstract or conceptual resources provide by Cloud Computing [1]. *BlueSky cloud framework* skilful physical machines to be essential and covered on-request for e-Learning systems. The BlueSky cloud computing framework is described bring IaaS and has some architectural layers dealing with physical resources. Monitoring and user interface but no authentication layer for user access policies.

Virtual Computing Laboratory (VCL) founded by North Carolina State University (USA), accomplished students to consume and access virtual machines (VMs) with a specific applications environments, such as MatLaband Autodesk. VCL does not facilitate collaboration features, but offers

Now days deployment model of private cloud computing can be execute to design complex and virtual e-universities initializing from an existing infrastructure. The proposed private cloud architecture is deploy on upper layer of the heterogeneous hardware already involve within university campus.

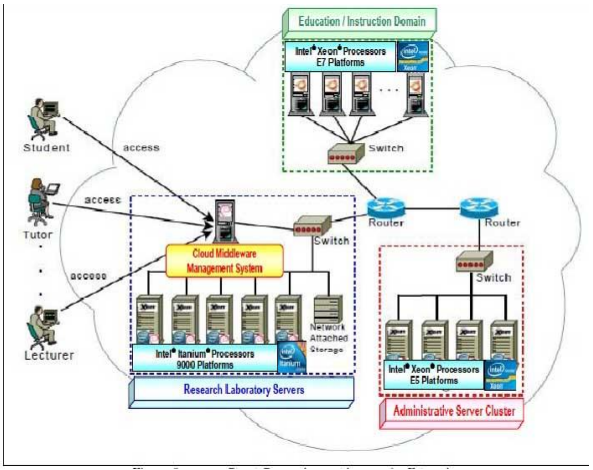


Fig.1: Cloud Computing-based E-learning systems

Comparison between E-learning and cloud based virtual classroom:

Following comparison shows how cloud based learning is fleasible than non cloud based learning there are many features that can be different in E-learning and cloud based E-learning

Criteria	Advance E-learning	Cloud based virtual class
Cost	High	Low
Need for infrastructure	Yes	No
Need for maintainance	Yes	No
Accessibility	Yes	Yes
Compatability	Yes	Yes
Resource utilization	Not utilized well	High utilized
Scalability	Limited	Unlimited

Table 1: comparison between E-learning and cloud based E-learning

COST*:*

Cost criteria indicates total expense for system like hardware, software etc. these all tools are needed to be E-learning environment for classroom.

NEED *FOR INFRASTRUCTURE:*

This criteria indicate the required tools for creating learning infrastructure like server, physical storage.

MAINTAINANCE*:*

In E-learning environment we need to daily update. Some new hardware and software for enhancing technology but maintainance are increase then automatically cost is increase. maintainance include reinstallation of software and hardware.

ACCESSIBILITY:

Accessibility include time or location of system access. It is not fixed, it is dynamic, accessibility indicates system accessibility.

COMPATIBILITY:

It indicates operating environment of system. The system is operated on any operating system. If E-learning does not need to special hardware.

RESOURCE UTILIZATION:

E-learning require many resources including storage, network and compute resources. It also indicate how E-learning environment utilized available resources.

SCALABILITY:

Scalability indicates the enrollment of students or attendance. in school environment daily student quantity is update scalable system can easily handle it.

Virtual classroom enhance technology to improve education system. Virtual classroom are use to solve infrastructure based disabilities. Virtual classroom is interactive methode of learning VC provide the interactive environment for student and instructor and both are interact via computer. Student and trainer can access resource via mobile device that has internet access. We create virtual classroom using multimedia, this classroom is really different than regular classroom but in rural area student can learn in open space or slum type classroom. In today it is important to enhance education in rural area to solve disabilites[6]. In virtual classroom student learn via internet including learning content that is hosted on the internet E-learning is mixture of multimedia, computer machine and network technology in learning process.

CONCLUSION

In this paper we focuses on cloud computing aspect that helps to improve E-learning methodology, We also compare E-learning and Cloud computing Implementations. Virtual class can provide effective outcome to student for accessing Resources anywhere, anytime as per there requirenment.Cloud computing also reduce cost of E-learning implementations with enhansive approch.

REFERENCES:

1. Aashitajain et al (2013) “E-learning in The Cloud” international journal of latest research in science and technology, vol-2, issues-1, page no.478-481, January-February (2013), ISSN-2278-5299.
2. Baomin Qi and Lu Li and Chengho Wang, E-learning tools to improve students’ learning experience: A case study, IJMEC, 1, 1-9, 2009.
3. Bhanudas Suresh Panchabhai et al (2018) “The Road Map of Cloud Computing to Internet of Things “International Journal of Scientific Research in Computer Science and Engineering Vol.6, Special Issue.1, PP.37-42, January (2018) E-ISSN: 2320-7639.
4. C.John Paul et al (2014) “A study of E-learning in cloud Computing” ” international journal of advanced research in computer science and software engineering, vol 4, issue 4, April 2014, ISSN: 2277 128X.
5. D.KasiVishwanath et al (2012) “Cloud Computing Issues and Benefits Modern Education” Global journal of computer science and technology cloud and distributed, vol-12, issue-10, version 1.0 july 2012, online ISSN: 0975-4172 , print ISSN: 0975-4350.
6. Mahesh Darak et al (2014) “cloud computing based E-learning model”(CCBEM) for distance education through open university” international journal of advance research in computer science and software engineering, vol 4, Issue 5, May 2014, ISSN-2277 128X: www.ijarcsse.com.
7. Mohmedsirelkhtem et al (2015) “cloud computing architecture for higher education in the third world countries(republic of the sudan as model)” international journal of database management system(IJDMS), vol 7, no 3, june 2015, DOI: 10.512/ijdms-2015.7302.
8. Rupali I. Mutha et al (2013) “promising pathway for effective education system via cloud computing” vol 2, issue 5, ISSN- 2319 9725.
9. *SWAYAM* MOOCs platform is World's Largest Online Free E-Learning Platform Portal https://www.aicte-india.org/bureaus/swayam

IJCRT
ISSN 2454-7719
International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019

Paper ID: CS- 08

A STUDY OFTWO-LEVEL COMMUNICATION PROTOCOL FOR A WOS

Bhagyashri S. Patil
DOCS & IT, BAS & PONC College,Bhusawal
Email- patilbhagyashree279@gmail.com

ABSTRACT:

The World-Wide-Web consists of not only of informational, but also computational resources. However, these resources, especially computational are easy. One characteristic of the Web it is ever changing structure; for instance, nodes are dynamically added and removed. This makes it difficult, but not impossible, to draw complete and accurate picture are available resources. We consider the Web as a version system: resources, services and protocols are version. This paper includes a two-level protocol within this framework. The first protocol, the WOS Request Protocol (WOSRP), they are allows to select an appropriate version of a server. The second protocol are, the WOS Protocol (WOSP), allows for locating and using these distributed (informational and computational) resources. Now we show the latter protocol provides an efficient fault-tolerant resource search mechanism

I. INTRODUCTION

By the fast development of new forms and concepts of networked and mobile computing, it is gradually clear that operating systems must change so that all machines in a given network can appear to be exact by the same operating system. As a result, the world-wide connected networks, commonly called the Internet or the Web, could possibly be support and manage by a vast virtual operating system [6]. The transparent use of various networks of computers has been partially addressed in work on meta computing [2,3,7], whose objectives are to transform a network into one single computer system. But, meta computing concepts do not apply to the Web as a complete because there is no complete catalogue of all available resources and above all, such a catalogue is unworkable, given the highly dynamic and distributed nature of the Web.

Now this paper, a two-level protocol is discussed in fulfill these requirements: A protocol allowing the selection of an suitable version of WOS resources, the WOS Request Protocol (WOSRP).Another protocol, the WOS Protocol (WOSP). This protocol agrees to locate and use distributed resources over the Web. In the WOS, there is no distinction between 'client' and 'server'. In anything follows, to simplify the definitions, we will but use:

- The term 'WOS client' when referring to a WOS node inviting resources,
- The term 'WOS server' to denote a WOS node serving a invitation for resource

We also demonstrate how the WOSP may be used to locate resources, such as services, machines, etc., in a fault tolerant manner .We start with a briefly introduction to the concepts of a WOS in the next section followed by a discussion on the need for a two-level protocol .

Web Service Requirements we outline some of the requirements for the software framework supporting high performance scalable Web services. Cheap incremental scalability to make it easy to create a new services, it is crucial to minimize the initial hardware and software investment required to go on-line. It is equally crucial for the service to be able add hardware resources as the service becomes more popular. Graceful burst behavior in the aggregate behavior of millions of clients is highly bursts; for example, the USGS web site was effectively unusable for hours after a small Northern California earthquake. Burst client behavior requires server software to be able dynamically recruit resources over the Internet. In addition, commercial puts a premium on adapting in advance using idle time to reconfigure the system to better handle any impending spikes in demand .Geographically dispersed resources are internet is slow, costly, and prone to congestion.

KEYWORD
Overview, Two level Protocol

II. OVERVIEW OF WEBOS

In this part, we provide a brief overview of the major Web OS components; together, they are provide the wide area analogue to local area operating system services, to make using geographically remote resources easy to use. Each of these components are operational in our current prototype.

The Web Operating System (WOSTM) [5] is a virtual operating system that support and manage parallel processing on the Internet. The WOS is a version

system, in which different versions not accomplished of dealing with a particular request for service, then pass it on to the another version, as currently done for packet routing. General software configuration techniques, based on a request for focused technique called education are being developed, that can be used to define versions of a WOS to be built in an incremental method. Software and hardware description, or warehouses, will be provide the necessary components for fulfilling a service request. The kernel of a WOS is a general educative machine responding to requests from users or other educative machines and fulfilling these requests using its warehouses

The WOS then works in the following way. A request may be placed by a user to run a particular program or to start some service. The programs or services might be located at different sites of the network. The educative machine may then decide whether it is accomplished of dealing with the request or whether it will pass it over to some other educative machine until finally one machine accepts responsibility for the request. Once all the resources (programs, services, hardware) become available, then the program is run and the request service satisfied

The solutions proposed are highly together to the nodes' operating system. For instance, Web FS spreads the Solaris OS. We can also point out that a global collection of available resources is necessary. In the case of Smart Client, an applet must be download from a known location to find the best available resource. In the case of Smart Proxies, the client needs to clearly know the location of the Smart Proxy

III. BASIS FOR A TWO-LEVEL COMMUNICATION PROTOCOL

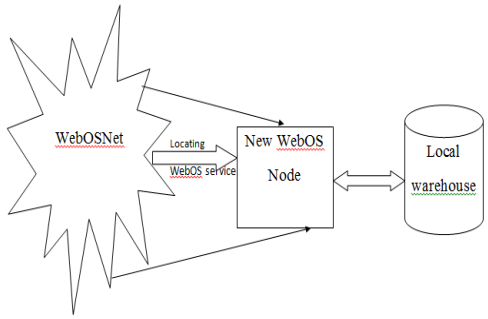
As mentioned before, the WOS is a version system. In addition, no global list of resources is available in the Web. Thus all methods used by the WOS necessity be based on the existence of distributed warehouses as introduced in [5]. Furthermore, as described .we suppose that there is a non-fixed number of such warehouses containing situations to machines which possibly can execute a service in a exact area of the Web. Therefore, searching for any information indicates contacting near warehouses. If the necessary information cannot be found there, other warehouses additional away must be contacted. At least one warehouse give a positive answer to terminate the search and initiate the service requested. This search process is applied at two levels:

- the resource level are other resources may also be version. Again, a search process will identify resources achieving the client's requirements.
- the server level WOS servers are version. A search process should follow to identify servers supporting the same WOS versions as the client.

In a single protocol is not sufficient to handle both cases. A proper version of the WOS server must be identified before any resource may be accessed. Recall that each client also manages a warehouse. In this warehouse also contains information on available WOS servers and their versions. When a suitable version and server is identified, a comfortable language is needed to request services. Hence, we have defined two protocols : WOSRP to identify suitable WOS servers, and WOSP to submit service requests.

1.WOS Request Protocol (WOSRP):-

WOSRP is an application-level protocol which is supposed to be used over IP networks. The basis behind WOSRP is to provide mechanisms for WOS nodes to exchange information about WOSP version they support. It is also used to obtain information about other WOS nodes that understand exact WOSP versions



WOSRP has been simple and flexible. Any version of WOSRP should be fully downwards friendly. This way, as different to the other approaches mentioned earlier, a machine requiring to join the network of WOS servers may do so without disturbing about in which version of WOSRP it understands; having to gain earlier knowledge of other WOS servers; any administrative overhead.

At the first, a WOS node will program a request to all machines in its immediate locality. Any WOS server capable to provide a positive answer will respond. In this case, more detail requests may be submitted to those WOS servers. Then, the WOS node broadcasts a request to all the machines at the next network level, and so on. All the responses receive are used to populate the WOS node warehouse, which is at first blank when the WOS node enters WOS Net. Registration to WOS Net is implicit. They only requirement necessary is that the WOS subsystem has been previously connected

WOSRP uses a "pull" thinking, where a WOS node requests information from other nodes in its locality. These messages may be absent without any disturbance of service. Furthermore, WOS nodes may decide to spread these messages to other sites. Finally, replies may be returned to the node which made the original request.

They indicate the knowledge level, the IP address and port number of a WOS node which has the identified knowledge level, and a WOS Protocol version number. Each message is only contains one version number. This allows for very long version numbers,

which are fixed using a distributed version name archive, similar to the DNS architecture.

2.The WOS Protocol (WOSP)

In this Section we discussed for a two-level Protocol approach.. We will now require the secondlevel protocol, the WOS Protocol, which is used for all interactions between WOS servers. We also describe a prototype parser for WOSP.

a. Specification of WOSP allows three types commands

The Setup commands are used to change the execution parameters of a WOS node. For example, a requesting node may need that the execution be completed at a certain time.Execution commands agree a WOS client to use resources from another node. A WOS client, for example, may send a command to convert some text to HTML. Query commands are used by a WOS client to interview another WOS node's warehouse. For example, a node might ask another node if it supports the text To Html command.

Communications are connectionless. The node are sends a request to another node. That the node processes the commands and sends the results back to the requesting node. In the current state of WOSP, responses remain to be specified. For each type of command, possible parameters and metadata may be transmitted. The parameter and metadata values are summarized in special character sequences in this manner, /* and */, for parameters, and #* and *#, for metadata. In the parameter or metadata field, line end with the sequence carriage-line-feed. A new line cannot begin by */ nor *#. If such is the case, an extra * is placed at the start of the line Furthermore, a at the end of a line is a line continuation character.

b. A WOSP Parser Prototype

A simple parser was developed. It implement the syntax specified above the set of sample services to test the capabilities of the language specified. In service of fast prototyping, we have trusted on existing communication means to transmit messages between WOS servers; messages are encapsulated in X.400 messages, then transmitted over the Internet. One of the services implemented inserts ASCII text into an HTML frame. The textToHtml service takes the content of parameter text and inserts it in between and HTML commands. As a result, the service creates a file on the server disk and sends the URL of the newly created document to the WOS client.

IV. Conclusion

In future, we have set up an experimental environment to test the WOS concepts and solutions. In order to bring the WOS to an operational level, work on following tasks has been initiated the implementation of a larger number of services; Specification of the WOSP version space transformation of communication links from X.400 messages to TCP/IP system calls Separation of the WOSP parser from the WOS services Creation of the educative machine . Development of version management approaches and techniques.

The goal of our work is to demonstrate that providing operating system services across the wide area will both simplify application improvement and more efficiently manage total resources. However, the WebOSpattern is only a single point in a large space of possible design replacements. Preliminary results from the applications we have built demonstrate that WebOS is capable of simplifying application development and of efficient resource application.

References:

1. M. Mitzenmacher. Power of Two Choices in Randomized Load Balancing. PhD dissertation, University of California, Berkeley, 1996.
2. Excite Corporation. Excite for Web Servers, 1997
3. http://www.excite.com/navigate/AThelpdoc.html.
4. E. Belani, A. Vahdat, T. Anderson, and M. Dahlin. The CRISIS wide area security architecture.
5. H. Unger, P. Kropf, G. Babin, and T. Bohme. ¨ Simulation of search and distribution methods for jobs in a Web operating system ASTC 1998, Boston, Massachusetts, USA, Apr. 1998
6. F. Reynolds. Evolving an operating system for the Web. IEEE Computer.
7. J. Talbot. Towards world-wide supercomputing. In 1996Seventh ACM SIGOPS European Workshop on System Support for Worldwide Applications,.
8. T. Mowbray and R. Zahavi. The Essential CORBA: Systems Integration Using Distributed Objects. Sons John Wiley &John Wiley,New York, NY, USA, 1995.

IJCRT
ISSN 2454-7719
International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019

Paper ID: CS- 09

PREDICTION OF DIABETES USING VARIOUS DECISION TREE CLASSIFICATION METHODS

Asst. Prof. Shubhangi K. Patil
Department of Computer Science
Dhanaji Nana Mahavidyalaya,
Faizpur.

Asst. Prof. Vasundhara R. Fegade
Department of Computer Science
Dhanaji Nana Mahavidyalaya,
Faizpur.

ABSTRACT:

Now a days analyzing large amount of data is a necessity. People have no time to look at the extremely large data like medical data, marketing data, and financial data. So we must have the technique to automatically analyze the data. Data mining is the process of extracting useful information from large amount of data and analyze, classify and summaries it into useful information. Data mining classification technique is used for prediction to diagnose Diabetes. In this paper we have used J48, LAD, REP and LMT decision tree classifiers on diabetes dataset and compare the performance of different classifiers on the basis of accuracy, recall, precision, F-measure, computing time, correctly classified instances, also we observe kappa statistics, MAE, RMSE, RAE, RRSE to find the error rate measurement for different classifiers in WEKA .We include confusion matrices of different classifier to quickly analyze the classifiers. We explored some data mining classification methods to select the suitable methods for efficient classification of Diabetes dataset.

KEYWORDS- Data Mining, WEKA tool, Diabetes Patients dataset, Decision Tree Classification algorithm

1. INTRODUCTION

Data mining turn a large amount of data in Knowledge. It is also called as exploratory data analysis, data driven discovery and deductive learning. Classification is the most popular data mining technique. Classification assigns categories to a collection of data in order to aide in more accurate prediction and analysis. Diabetes affects a large number of the world population and it's a hard disease to diagnose. The main goal of this paper is the classification of Diabetes datasets by using different decision tree classifiers to determine if a person is diabetic or not. We compare different classifiers to select best classifier in order to correctly classify the Diabetes datasets to diagnose the disease more cost effectively.

To diagnose the disease we use the attributes of patient like number of times pregnant, plasma glucose concentration a 2 hours in an oral glucose tolerance test, diastolic blood pressure (mm Hg) , triceps skin fold thickness (mm),2-hour serum insulin (mu U/ml), body mass index (weight in kg/(height in m)^2), diabetes pedigree function and Age (years).Applying various decision tree classifier we classify this dataset and try to find out which is most efficient classifier that can correctly classify maximum amount of instances within small amount of time.

2. WEKA (Waikato Environment for Knowledge Analysis)

Waikato Environment for Knowledge Analysis (WEKA) is a popular suite of machine learning software written in Java, developed at the University of Waikato, New Zealand. It is free software licensed under the GNU General Public License.

Weka is a workbench [1] that contains a collection of visualization tools and algorithms for data analysis and predictive modeling, together with graphical user interfaces for easy access to these functions. It is mostly used to load datasets, run algorithms and design and run experiments with results statistically robust enough to publish.

WEKA tool consist of classification methods based on decision trees like the J48 decision tree, some are rule-based like ZeroR and decision tables, and some of them are based on probability and regression, like the Naïve Bye's algorithm. WEKA requires dataset file in ARFF(Attribute Relation file format) format and the file name should have extension dot ARFF (.arff). WEKA is available on the web at www.cs.waikato.ac.nz/ml/weka.

3. CLASSIFICATION

Data classification is the process of organizing data into categories for its most effective and efficient use. In data mining there are various classification algorithms such as decision trees, logistic regression, neural networks, etc. In this paper we are using decision tree algorithm for classification. The Classification process involves following steps:

1. Create training data set.
2. Identify class attribute and classes.
3. Identify useful attributes for classification (Relevance analysis).
4. Learn a model using training examples in Training set.
5. Use the model to classify the unknown data samples

3.1 DECISION TREE CLASSIFICATION METHODS

A decision tree is a structure that includes a root node, branches, and leaf nodes. Each internal node denotes a test on an attribute, each branch denotes the outcome of a test, and each leaf node holds a class label. The topmost node in the tree is the root node.

The following decision tree is for the concept buy computer that indicates whether a customer at a company is likely to buy a computer or not. Each internal node represents a test on an attribute. Each leaf node represents a class.

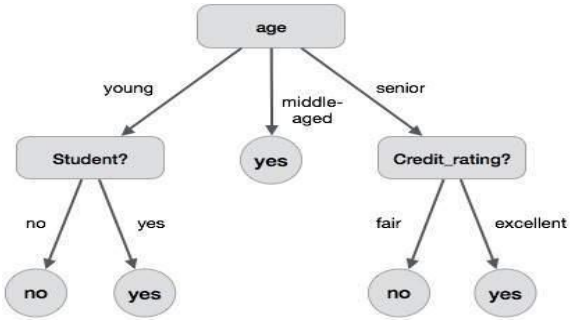


Figure I: Decision Tree

The benefits of having a decision tree are as follows –

1. It does not require any domain knowledge.
2. It is easy to comprehend.
3. The learning and classification steps of a decision tree are simple and fast.

Decision tree classifiers

3.1.1. **J48:**

Weka algorithm J48 is the improved version of C4.5. The algorithm uses a greedy technique for decision making. Structure of the output decision tree having different nodes, such as root node, intermediate nodes and leaf node. Each internal node in the tree denotes different attributes, while the terminal nodes tell us the final value of the dependent variable.

3.1.2. **LAD:** Logical Analysis of Data(LAD) tree is the classifier suggest a way of analyzing data through combinational logic ,Boolean function, and optimization techniques.LAD detect logical combinatory information.

3.1.3 **. REP Tree[1] :**

Fast decision tree learner. Builds a decision/regression tree using information gain/variance and prunes it using reduced-error pruning (with back fitting). Only sorts values for numeric attributes once. Missing values are dealt with by splitting the corresponding instances into pieces (i.e. as in C4.5).

3.1.4 . LMT[1] **:**

A classification model with an associated supervised training algorithm that combines logistic prediction and decision tree learning is logistic model tree (LMT) [1] . Logistic model trees use a decision tree that has linear regression models at its leaves to provide a section wise linear regression model.

4 DATASET

Dataset is a collection of data. Most commonly a data set corresponds to the contents of a single database table, or a single statistical data matrix, where every column of the table represents a particular variable, and each row corresponds to a given member of the data set in question.

In this paper we are using Pima Indians Diabetes Database available on weka. The Original owners of this dataset are National Institute of Diabetes and Digestive Kidney Diseases.

The dataset contains 768 Number of Instances having 8 plus attributes as follows:

1. Number of times pregnant
2. Plasma glucose concentration a 2 hours in an oral glucose tolerance test
3. Diastolic blood pressure (mm Hg)
4. Triceps skin fold thickness (mm)
5. 2-Hour serum insulin (mu U/ml)
6. Body mass index (weight in kg/(height in m)^2)
7. Diabetes pedigree function
8. Age (years)
9. Class variable (0 or 1)

For Each Attribute: (all numeric-valued) The dataset contains no missing attribute values.

5 RESULTS AND DISCUSSION

5.1 EVALUTION MATRICS

The result of classification is based on following performance metrics [1]

1. Time:

This is referred to as the time required to complete training or modeling of a dataset. It is represented in seconds.

2. Kappa Statistic:

A measure of the degree of nonrandom agreement between observers or measurements of the same categorical variable.

3. Mean Absolute Error:

Mean absolute error is the average of the difference between predicted and the actual value in all test cases; it is the average prediction error.

4. Mean Squared Error:

Mean-squared error is one of the most commonly used measures of success for numeric rediction. This value is computed by taking the average of the squared differences between each computed value and its corresponding correct value. The mean-squared error is simply the square root of the mean-squared-error. The mean-squared error gives the error value the same dimensionality as the actual and predicted values.

5. Root relative squared error:

Relative squared error is the total squared error made relative to what the error would have been if the prediction had been the average of the absolute value. As with the root mean squared error, the square root of the relative squared error is taken to give it the same dimensions as the predicted value.

6. Relative Absolute Error:

Relative Absolute Error is the total absolute error made relative to what the error would have been if the prediction simply had been the average of the actual values. Using this metrics the result in **Table I** is obtained.

A confusion matrix is a useful tool for analyzing classifier accuracy. Structure of confusion matrix is given below.

	a	b
a	True Negative	False Positive
b	False Negative	True Positive

Figure II: confusion matrix

Using this metrics the result in **Table II** is obtained.

True Positive (TP) refers to positive tuples that were correctly labeled by the classifier. True Negative (TN) refers to negatives tuples that were correctly labeled by the classifier. False Positive (FP) refers to negatives tuples that were incorrectly labeled by the classifier. False Negative (FN) refers to positive tuples that were incorrectly labeled by the classifier.

Accuracy:

Accuracy is the percentage of tuples that are correctly classified by the classifier.

Accuracy = (TP+TN) / (TP+TN+FP+FN)

Recall:

Recall is the proportion of examples which were classified as class x, among all examples which truly have class x, i.e. how much part of the class was captured.

Recall=TP / (TP+FN)

Precision:

Precision is the proportion of the examples which truly have class x among all those which were classified as class x.

Precision=TP / (TP+FP)

F-Measure:

The harmonic mean of precision and recall. It is an important measure as it gives equal importance to precision and recall.

F-measure=2*recall*precision/precision + recall

Receiver Operating Characteristic (ROC) Curve:

It is a graphical approach for displaying the tradeoff between true positive rate (TPR) and false positive rate (FPR) of a classifier. TPR is plotted along the y axis and FPR is plotted along the x axis. Performance of each classifier represented as a point on the ROC curve.

Using this metrics the result in **Table III** is obtained.

5.1 RESULT:

The cross validation method used to analysis for the datasets. Various performance measures for all the datasets mentioned in Table I, II, III. Comparative analysis of various decision tree classification results as follows –

	J48	LAD	REP	LMT
Time (Seconds)	0.02	0.13	0.02	2.14
Correctly Classified Instances	567 (73.82%)	569 (74.08%)	578 (75.26%)	595 (77.47%)
KAPPA Statistic	0.4164	0.415	0.438	0.4756
MAE	0.3158	0.322	0.3272	0.3175
RMSE	0.4463	0.4237	0.4289	0.3963
RAE %	69.48	70.85	71.98	69.84
RRSE%	93.62	88.88	89.97	83.15

Table: I ERRORS MEASUREMENT FOR DIFFERENT DECISION TREE CLASSIFIERS IN WEKA

Decision Tree	True Negative	True Positive	Correctly Classified Instances
J48	407	160	567
LAD	415	154	569
REP	423	155	578
LMT	445	150	595

Table: II CONFUSION METRICS FOR DIFFERENT DECISION TREE CLASSIFIERS IN WEKA

Decision Tree	TP RATE	FP RATE	PRECISION	RECALL	F-MEASURE	ROC CURVE AREA
J48	0.738	0.327	0.735	0.738	0.736	0.751
LAD	0.741	0.336	0.736	0.741	0.737	0.788
REP	0.753	0.328	0.747	0.753	0.748	0.766
LMT	0.775	0.325	0.77	0.775	0.766	0.831

Table: III PERFORMANCE METRICS FOR DIFFERENT DECISION TREE CLASSIFIERS IN WEKA

6 CONCLUSIONS

In this paper we have studied four different decisions tree classification methods. We analyze J48, LAD, REP, LMT decision tree classification method by applying on diabetes dataset. We conclude that out of these classifiers LMT classified maximum instances but it requires 2.14 seconds where as REP and J48 classifier require same time 0.2 seconds but REP correctly classifies more instances than J48. The performance of J48, LAD, REP, LMT classifier for correctly classified instances is constantly increases.

REFERENCES

[1] P.Yasodha, N.R. Ananthanarayanan "**Comparative Study of Diabetic Patient Data's Using Classification Algorithm in WEKA Tool"** International Journal of Computer Applications Technology and Research Volume 3– Issue 9, 554 - 558, 2014, ISSN: 2319–8656

[2] Purva **Sewaiwar, Kamal Kant Verma "**Comparative Study of Various Decision Tree Classification Algorithm Using WEKA" *International Journal of Emerging Research in Management &Technology ISSN: 2278-9359 (Volume-4, Issue-10)*

[3] K. Rajesh, V. Sangeetha "Application of Data Mining Methods and Techniques for Diabetes Diagnosis" **International Journal of Engineering and Innovative Technology (IJEIT) Volume 2, Issue 3, September 2012**

[4] http://storm.cis.fordham.edu/~gweiss/data-mining/weka-data/diabetes.arff

[5] Jiawei Han and Micheline Kamber, "*Data Mining Concept and techniques"*, 2nd ed., Morgan Kaufmann Publishers

[6] www.cs.waikato

[7] https://en.**wikipedia**.org/**wiki**

IJCRT
ISSN 2454-7719
International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019

Paper ID: CS-10

A REVIEW OF KNOWLEDGE DISCOVERY IN DATABASES: DATA MINING TECHNIQUES

Lubdha M. Bendale
Department Of Computer Science & IT,
BAS &P.O.Nahata Commerce College, Bhusawal.
Email-llubdha.bendale24@gmail.com

ABSTRACT:

Information technology has revolutionized the whole world with cheaper and fast communication through different modes. All these devices generate lots of data which need to be processed to remove useful patterns of data or information. The database technologist are looking for means to store, manipulate and retrieve data while data mining area is determined hard to find new and efficient techniques for information extraction form the vast amount of data. Data Mining is as well referred by the names like Knowledge Discovery in Database (KDD) or Predictive Analytics or Data Science. The various techniques used for removal are genetic algorithms, decision trees, artificial neural networks, induction and visualization. Data mining is usually an iterative and interactive discovery process. The goal of this process is to extract patterns, associations, changes, anomalies, and statistically significant structures from large amount of data.

Keywords: Data Mining, Patterns, Knowledge Discovery, Database, Techniques

I. INTRODUCTION

Data mining is the process of determining patterns in the large data sets. The purpose of the data mining is to find information from the large data sets and convert it into usable structures so that this information can used for more processing without any difficulty. It is held by databases and managed by database management aspects. This is a usually used word for any kind of large scale data processing. The term data mining was exposed around 1990 in computer science. It is also mentioned by several other terms like Knowledge Discovery in Databases (KDD) or Predictive Analytics or Data Science [1]. Data mining is usually an iterative and interactive discovery process. The aim of this process is to mine patterns, associations, changes, anomalies, and statistically significant structures from large amount of data [3]. The extracted results should be valid, novel, useful, and understandable.

II. PROCESS OF DATA MINING

The process of data mining is consecutive which require many steps to be followed which are as shown below in the form of a diagram [3].

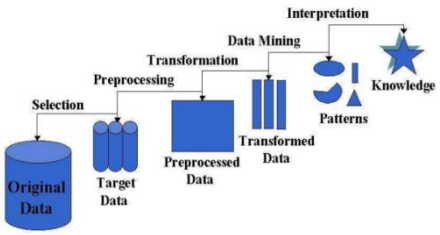


Figure 1: Data mining process [3]

1. Extract, transform, and load transaction data on the data warehouse system.
2. Store and achieve the data in a multidimensional database system.
3. Provide data contact to business analysts and information technology professionals.
4. Evaluate the data by application software. Existing the data in a useful format, such as a graph or table.

III. TECHNIQUES OF DATA MINING

Data mining is complex process and it needs not only fast processing devices but good and efficient techniques of data processing. The important methods of data mining are as listed below:-

3.1 Artificial neural networks

AI techniques are commonly used in Data Mining. Techniques such as pattern recognition, machine learning, and neural networks are very beneficial. Many added techniques in AI such as knowledge acquisition, knowledge representation, and search, are relevant to the various process steps in data mining [4]. It is a non-linear analytical model. It acquires through training and resembles biological neural networks in structure.

3.2 Genetic algorithms

Optimization techniques that use process such as genetic combination, modification, and natural selection in a design created on the concepts of natural evolution. It is a comparatively new software paradigm inspired by Darwin's theory of evolution. A populace of rules, each representing a possible solution to a problem, is initially created at random. Then pairs of rules are shared to produce off spring for the next generation. A variation process is used to randomly modify the genetic structures of some members of each new generation. The organization runs for dozens or hundreds of generations. The process is completed when an acceptable or optimum solution is found, or after some fixed time limit. Genetic algorithms are suitable problems that require optimization with respect to some computable criterion. This model can be applied to Data Mining problems. Large and complex problems need a fast computer in order to obtain appropriate solutions in a reasonable amount of time. Mining large data sets by genetic algorithms has become practical only again due to the convenience of affordable high-speed [4].

3.3 Decision trees

Tree-shaped structures that denote sets of decisions. These decisions produce rules for the classification of a dataset. Specific decision tree methods contain Classification and Regression Trees (CART) and Chi Square Automatic Interaction Detection (CHAID). These are decision tree methods used for classification of a dataset. They provide a set of rules that can be useful to a new dataset to predict which records will have a given outcome [4].

3.4 Nearest neighbor method

A technique that categorizes each record in a dataset based on a combination of the classes of the k record(s) most similar to it in a historical dataset (where k 1). Sometimes termed the k-nearest neighbor technique.

3.5 Rule induction

This technique is used for the abstraction of useful if-then rules from data based on statistical significance.

3.6 Data visualization

It is concerned with visual explanation of complex relationships in multidimensional data. Graphics tools are used to demonstrate data relationships. A picture is cost thousands of numbers. Visual data mining techniques have verified the value in exploratory data analysis, and they also have a good potential for mining large database. This approach needs the integration of human in the data mining process.

IV. KNOWLEDGE DISCOVERY IN DATABASES

Data Mining, also commonly known as Knowledge Discovery in Databases (KDD), refers to the nontrivial extraction of implicit, previously unknown and potentially useful information from data in databases. While data mining and knowledge discovery in databases (or KDD) are commonly treated as synonyms, data mining is actually part of the knowledge discovery process.The Knowledge Discovery in Databases process comprises of a few stages leading from raw data collections to some form of new knowledge. The iterative process consists of the resulting steps [5]

4.1 Data cleaning:also well-known as data cleaning, it is a phase in which noise data and irrelevant data are removed from the collection.

4.2 Dataintegration:at this phase, multiple data sources, often heterogeneous, may be combined in a common source

4.3 Data selection:at this step, the data applicable to the analysis is categorical on and retrieved from the data collection

4.4 Data transformation: also known as data merging, it is a phase in which the selected data is changed into forms appropriate for the mining procedure

4.5 Data mining: it is the critical step in which clever techniques are applied to remove patterns potentially useful.

4.6 Pattern evaluation: in this step, strictly interesting patterns representing knowledge are identified created on given measures.

4.7 Knowledge representation: is the last phase in which the exposed knowledge is visually represented to the user. This essential step uses conception techniques to help users understand and interpret the data mining results..

V. ISSUES IN DATA MINING

Data mining algorithms represent techniques that have sometimes existed for many years, but have only lately been applied as dependable and scalable tools that time and again outperform older classical statistical methods. While data mining is still in its start, it is becoming a trend and ubiquitous. Before data mining changes into a conventional, mature and trusted discipline, many still pending issues have to be addressed. Some of these issues are talked below. Note that these issues are not limited and are not ordered in any way [2]

5.1 Security and Social Issue:Security is an important issue with any data collection that is planned to be shared. It is the issue of specific privacy. Data mining makes it potential to analyze routine business transactions and glean a significant amount of information about individuals buying habits and preferences.

5.2 Data integrity: Data analysis can only be as decent as the data that is being analyzed. A key application challenge is integrating conflicting or redundant data from different sources. For example, a bank may keep credit cards accounts on several different databases. The addresses (or even the names) of a single cardholder may be dissimilar in each. Software must translate data from one system to another and select the address most newly entered.

5.3 Mining Methodology: An important technical matter is whether it is better to set up a relational database structure or a multidimensional one. In a relational structure, data is stored in tables, allowing ad hoc queries. In a multidimensional construction, on the other hand, sets of cubes are arranged in arrays, with subsets created according to category. While multidimensional structures help multidimensional data mining, relational structures thus far have completed better in client/server environments. And, with the explosion of the Internet, the world is attractive one big client/server environment.

5.4 Cost: Finally, there is the matter of cost. While system hardware costs have released dramatically within the past five years, data mining and data warehousing tend to be self-reinforcing. The more controlling the data mining queries, the greater the utility of the information being gleaned from the data, and the greater the pressure to increase the amount of data being together and maintained, which increases the pressure for faster, more powerful data mining queries. This growths pressure for larger, faster systems, which are more expensive [5].

VI. CONCLUSION

Data mining is troubled with extracting useful rules or interesting patterns from the bulk amount of data collected through various sources. There are many data mining techniques which can be used to perform the job powerfully. It is to be famous that a single technique cannot be used for all types of data because depending on the type of data, appropriate technique is available for removal of information. Sometimes hybrid techniques are more useful in its place of a single technique.

REFERENCES

[1] http:/www.wikipadeia.com
[2] http://www.anderson.ucla.edu
[3] Mohammed J. Zaki, "DATA MINING TECHNIQUES", August 2003
[4] KengSiau ,Sang Jun Lee, "A Review of Data Mining Techniques" Industrial Management & Data Systems 101/1 (2001) 41-46
[5] Dr. Rajni Jain, "Introduction to Data Mining Techniques

IJCRT
ISSN 2454-7719
International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019

Paper ID: CS-11

ARTIFICIAL INTELLIGENCE REAL LIFE &MAP FUTURE

Vina M. Bhole
Department Of Computer Science & IT,
BAS &P.O.Nahata Commerce College, Bhusawal.
Email-vinambhole@gmail.com

ABSTRACT:

The history of AI technology has fast & constant changing and advance larger of the system. Artificial intelligence is today. World is progressing instantly with new advanced innovations day in day out. Artificial intelligence involves game playing, expert systems, neural networks, natural language processing, and robotics. Currently, no computers exhibit full artificial intelligence. This AI techy includes the performance of more complicated tasks like playing chess and solving of the problems of game. The One Hundred Year Study on Intelligence, launched the fall of 2014, is a long-investigation of the field of Artificial Intelligence (AI) and its effects on people, their communities, and society. With the use of intelligent designed programs, computers have improved the quality and speed of productivity. Computers have become very useful machines, executing smart ideas instantly. It is conduct a paradigm shift to healthcare, powered by increasing availability of healthcare data and rapid progress of analytics techniques.

KEYWORD:-Human computer interaction ,data mining, artificial intelligence.

I. INTRODUCTION

The first use of the phrase "Artificial Intelligence" in 1956 is attributed to John McCarthy of the University of Massa charsets. This theory and development of computer systems able to performance tasks that normally require human intelligence such as visual exception speech recognition decision- making and translation between languages to the artificial intelligence. AI technology has a great connectedness in improving the people's events in their everyday life. Artificial intelligence is defined as developing computer programs to solve complex problems by applications of processes that are comparable to human think logically processes. Artificial intelligence (AI) is an area of computer science that intensity the creation of intelligent machines that work and react like humans.

Certain of the activities computers with AI are designed for include:

Speech recognition. We can say today artificial intelligence is clever than human beings:- Human beings has built to a super intelligence machine provide ability to machines towards reconditioned their own programming in order to growth their intelligence level.

II. ARTIFICIAL INTELLIGENCE REAL LIFE

1. Involvement in Dangerous Jobs:-

Robots have taken over positions that are dangerous to human beings. Some of the dangerous jobs include resolving bombs, which pose a lot of risk to human. Therefore, with the advance of robots, diffusing bombs have become easy since the robots can do it with ease with nothing to fear. As a result, robots have significantly assisted in saving thousands of lives in taking over the most dangerous job in the complete.

Figure 1:Artificial intelligence issimilar to human brain

World today Artificial intelligence is the study and design of intelligent agent, These intelligent agents have the ability to analyse the environments and produce actions which maximize success. AI research also crossing with tasks such as robotics, control systems, scheduling, data mining, logistics, speech recognition, facial recognition and many others.

2. Comparison of Brain with a supercomputer

	Weight	Space	Processor Speed	Energy Efficiency
	3 pounds (1.4 kg)	1/6 basketball (80 cubic inches or 1,300 cm³)	Up to 1,000,000 trillion operations per second	20 watts
	150 tons	Basketball court (cabinets over 4,350 square feet, or 400 m²)	93,000 trillion operations per second	10 million watts

Figure 2. Brain & supercomputer

III. ARTIFICIAL INTELLIGENCE OPPORTUNITY AND RISKS

1.1Current:- In surrounding such as self-ruling cars and certain areas of medical diagnostics humans has already established increasing use of technology great potential, including fewer road traffic accidents, fewer mistakes in the medical treatment and diagnosing of patients, there is a heightened risk that new AI technologies will be misused, or will experience unexpected systematic failures collision with several walker can only be avoided by risk the passenger(s), not to mention how it can be ensured that the algorithms of self-ruling cars are not at risk of hacking systematic failure.

1.2 Mid-term:-

Progress in Artificial intelligence research makes it possible to replace increasing amounts of human jobs with machines intelligence

1.3 long term:-

Financial markets are also dependent on algorithms which are too biggest and complex for any single human being to fully understanding.

IV. APPLICATION OF AI:-

1 Gaming:-

It plays an important role in planned games like chess, tic tac toe etc. Here the machine should be able to think of many possible steps based on heuristic knowledge. Most people enjoy playing against other people rather than a machine because other people can deliver variable, random and sometimes unpredictable responses and behaviours, whereas simply programmed machines will always response the same way, player only has to remember the few basic responses possible, and respond to them in order to complete the level.

2 Natural Language Processing:

Able to communicate with the computers that know human used natural language. Natural Language Understanding is an important subset of Artificial Intelligence and comes after Natural Language Processing to commenlyunderstand what the text proposes and extracts the meaning hidden in it.

3 Expert Systems:

There are a few applications which absorb machine, programming, and some special data to confer thinking and a vice. They give explanation and pressureto the users.

4 Vision Systems:

These types of systems are able to understand, explaining one system to another and delete visual input on the computer.

5 Speech Recognition:

Is this case which system are easy to understand system understand languages use to human and speech them. They can even realize the slang, background noise, accent etc.

6 Handwriting Recognition:

This special software will be able to read the text written either by a pen or stylus on paper or screen respectively. It also understands the letter shapes and will convert it into editable text.

7 Intelligent Robots:

Robots are one of the greatest creations by humans. It's create to human They can do multiple tasks within no time. Though they cannot be alternate to humans but are very efficient when doing any tasks.

V. ARTIFICIAL INTELLIGENCE ADVANTAGES:

Error Reduction:-
Difficult exploration
Daily application
Digital assistant
Repetitive jobs
Medical application
No breaks

VI. TACKLING IMBALANCED DATA

1.1Data alleviate -level methods that adapt the collection of examples to balance divided and/or remove hard samples.

1.2algorithm-level methods that directly change existing learning algorithms to

Thebias towards common objects and adjusts them to mining data with skewed distributions.

1.3Hybrid method that combine theAdvantages of two past groups. Obesity is a serious Health problem in the United States today, and surgical treatment is recognized as long-term effective therapy. Minimally invasive techniques are becoming the “gold standard” approach to the treatment of disease, and robotic surgery has the potential to advance the use and development of minimally invasive procedures.

VII. REAL-LIFE IMBALANCED PROBLEMS

Developments in learning from imbalanced data have been mainly motivated by numerous real-life applications in which we face the problem of uneven data representation. In such cases the minority class is usually the more important one and hence we require methods to improve its recognition rates. This is closely related with important issues like preventing malicious attacks, detecting life-threatening diseases, managing atypical behaviour in social networks or handling rare cases in monitoring systems.

VIII. ASPECTS OF ARTIFICIAL INTELLIGENCE

• "AI differs from most of thinking because of its greater emphasis on computation, and it differs from most of computer science because of its greater accent on perception, reasoning, and action". As a field of theoretical study, many AI researchers reach to know intelligence by becoming able to produce effects of intelligence:

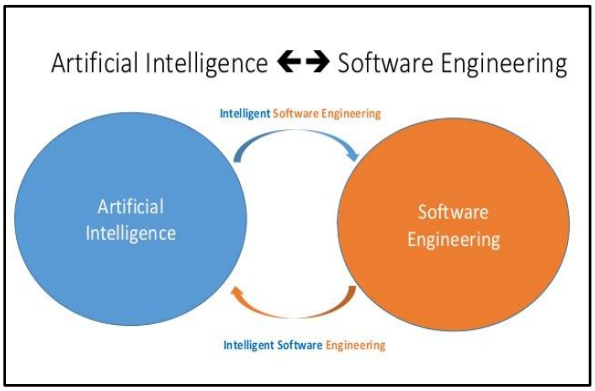


Figure 3:- Artificial Intelligence & software engineering

Intersections between AI and SE While the connections between AI and SE are currently rare they are multiplying and increasing. First points of contact emerged from the application of techniques from one correction to the other.

CONCLUSION:-

Artificial intelligence can use different people of different things to improve to their own his human intelligence technique. This technique &application will have likely far- reaching effect to human life in the years to come. This field of artificial intelligence gives the ability to the machine to think analytically use these concepts tremendous contribute to the various areas has been made by the artificial.

REFERENCE

1)JRech, K Dieter Althoff "Artificial Intelligence and Software Engineering: Status and Future Trends".

2)Mannino, A., Althaus, D., Erhardt, J., Gloor, L., Hutter, A. and Metzinger, T. (2015). "Artificial Intelligence: Opportunities and Risks. Policy paper by theEective Altruism Foundation".

3)Dr.HibaTabbarah, Abdullah Abdulgha, "Artificial Intelligence Advanced Analysis and Design: CNIT 380 Instructors" , Fall 2017 Section: U1 Mariam KhaledAlSedrah 24985 .

4)Jos, Nigeria ,NahumHomti." Artificial Intelligence – Now and the Future "NwuluEvarista Department of Computer Science, University of Jos Department of Computer Science.

5)IndrasenPoola, "How Artificial Intelligence in Impacting Real Life Every day "Industry Consultant indrasen.research@gmail.com .

6) Avneetpannu ,"artificial intelligence & application in different area "&m.tech student Department of computer science & engineering DAV institute of engineering and technology.jalandharindia.

IJCRT
ISSN 2454-7719
International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019

Paper ID: CS-12

REVIEW ON VISUALIZATION OF SENTEN TREE

Yogita P. Patil
Department of Computer Science &IT
Bhusawal Arts, Science and P.O. Nahata Commerece Collegee, Bhusawal.
Email:yogitap774@gmail.com

ABSTRACT:

Senten Tree, a technique for visualizing the content of free social media text. Social media text like tweet, Facebook posted squeal reviews. Senten Tree displaysfrequent sentence patterns abstracted from a corpus of social media posts. The technique services design ideas from word clouds and the Word Tree, but overcome a number of limitations of both those visualizations. Senten Tree displays a node-link diagram where nodes are words and links indicate word co-occurrence within the same sentence. The spatial arrangementofnodesgivesnodstothesyntacticorderingofwordswhilethesizeofnodes givescuestotheirfrequencyofoccurrence.SentenTreecanhelp people understandthe key concepts and opinions in a large social media text collection. It is implemented as a lightweight application that runs arebrowser.

KEYWORDS
Text visualization, social media, natural language processing, word cloud, Twitter

I. INTRODUCTION

The popularity of social media and online community like twitter, Facebook etc., a new type of text document is growing explosively. Examples are Tweets, Facebook posts, YouTube comments, and Yelp reviews that we will collectively call social media text. Social media text includes rich information on the public's interests and opinions and this information is valuable to both professional analysts and casual users. While we can gain

Valuable information from examining the social network structure, making sense of the textual content itself remains very challenging. By the natural complexities of human languages to understand unstructured text does not lend itself well to computational analysis. Social media text complicates the problem with its unique qualities as compared to traditional text documents such as book chapters, news articles. A social media text collection contains a large number of very short useful documents authored by different users.Foragiventopic,wecanstudyahugedocumentcollectioninaveryshortperiodof time that contains highly repetitive and redundantinformation.

There are two ways to provide a high-level summary of a text document set. One solution tends to extract a few meaningful sentences from the collection. For social media tweets, this can be achieved by showing the documents with the most shares or "favorite" designations. Research shows that the most popular messages on social media are usually produced by a small population of elite users or opinion leaders. So selecting the most popular messages usually means overlooking the voices of "ordinary" users of social media.

A second solution that takes coverage into consideration is to extract some common information from the entire document collection. Numerous research efforts in the text mining community employ advanced rule-based and statistical methods (e.g., entity identification, topic modeling) to produce representative word lists or distributions and documentclusters.Thepresentationoftheseoutputsisalmostunavoidablysomevariation of a word cloud. While it makes sense to present topics using words having different size and Different font, we argue that word clouds only give a sense of concepts, not more developed thoughts or opinions. Related phrases and sentences deliver people with more complete ideas, thoughts, and sentiments of the document authors.SentenTree Techniqueforvisualizingthecontentofunstructuredsocialmediatext.Senten Tree search for a balance between showing the most frequent words and preserving sentence structure. Senten Tree gives people a high-level overview of the most common news in a document collection, and allows drilling down to details through interactions.

II. RELATED WORK

Visualizationhasbeenappliedtotextdocumentsofvaryingsizesfor much different activity [7]. Some projects accessibility the understand of at the very outside

large document sets byfocusingonextractingthekeythemesandconceptsan dclusteringdocumentsaccording to these themes and concepts. Visualizations often map concepts and documents to a 2D/2.5D space and utilize spatial proximity to imply relationships between concepts and documents. Examples of this type of visualizations incorporate 1077-2626 (c) 2016 IEEE. Personal use is permitted, but republication/redistribution should be IEEE permission.See more information. This article has been approved for publication in a future issue of this journal, but has not been fully edited. Content may change prior to final publication. Citation information: DOI10.1109/TVCG.2016.2598590, IEEE dealing on Visualization andComputergraphicsSPIRE/IN-SPIRE[12],theStanfordDissertationBrowser[2],and many knowledge mapping visualizations [3]. Mixing clustering and language modeling techniquesarefrequentlyusedtoexpressconceptsandre lationships,andtheintendofthese types of visualizations is understand by the landscape of documents beyond just learning about the clobber of the documents. Another type of text visualization facilitates understand of documents and insight generation by connected named entities. Jigsaw [5] is a system for investigative scrutiny that is a focuses on entity co-occurrence the same document, while Facet Atlas [3] looks for complex multifaceted entity relationships. Numberoftextvisualizationsessaytoportraytemporalc hangesoftopics.TheSTREAMIT system[1]indicatetha devolvingdocumentstoreassmallcirclesthatare clusteredtogether to combine up similarity. All of these visualizations to look for the high light concept relationships, topical changes, or worldly locations in the visualization, and the textual contentiseitherhiddenordisplayedprimarilybyawordc loudvariation.Visualizationsof the actual textual content are below common. In the next two part we review two large classes of is visualizations of textual content: word cloud-related visualizations and text structurevisualizations.

2.1WORD CLOUD RELATED VISUALIZATION

Tag clouds or words clouds are arguably the most widely used visualization method to show the clobber of text documents. Popular by number of websites, the pristine tag clouds visualization sindicatefrequentlyusetagsandsofontsizeaccordingtot agusagefrequency [9]. As a people starting to apply the visualization technique to other text documents, the name "word cloud" and sometimes "text cloud" grew in popularity. We will use "word cloud" to mention to this visualization method hereafter. A major variation on word clouds, theWordtechnique[10],automaticallyproducecompac tandaestheticallypleasingiswith words at verify orientations.Hearst and Rosier [6] pointed out three major problems with wordclouds:

1) The size encoding is not exact due to different word length, which makes it difficult to compare of number ofwords,

2)Thephysicallayoutisnotsignificant,thereforewor dsshowindiscreteformandthere's no reference next to them,and

3)There is no natural "flow" for reading, the view just observe at random words in the visualization.

Supportingthefinaltwopoints,Yutanetal.Establisht hathumanstendtoverbalize opinion nsinshortwordingratherthan

Severalwords[13].Onestoreofprojects,semantic-preserving word clouds, primarily address the second problem above by positioning words/terms closely to other related ones. Our Senten Tree technique same seeks to position and connect words use link structures, but they are derived from word positions insentences.

2.2 VISUALIZATION OF TEXT STRUCTURE

Researchers have suggested other visualization techniques for textual clobber that preserve some of the pristine text and sentence structures. A notable example is the Word Tree [11], which allows a person to select a word of liking and displays the sentence segments next to that word by building and visualize a prefix tree with the selected word at the root. It spot words from a sentence horizontally with potential replace words draw above another. Weal sohave been inspired by many info graphics found online.One"genre"of these using flowchart-style graphs to indicate the sequential order and repetitions of words in items such as song lyrics and stories, as exemplified by a comic from xkcd [8].

I.SENTEN TREEDESIGN

Figure1 Senten Tree Visualization of opening game of the 2014 Soccer World Cup.

Fig.1isanexampleoftheSentenTreevisualizationforaTwitterdatasetof189,450tweets remarkingonthe openinggameofthe2014SoccerWorldCup,postedthrough a15miniature time window about the first goal. After observing at this visualization will directly notice some noticeable words like first, goal, world cup, observing, etc. Similar to a text cloud,thelargefontsizeofthesewordsshowstheirhighfrequencyofexistenceinthe dataset. These words are good indications that people were converting the game between Brazil and Croatia. An edge between two words indicates their existence in the same tweet.

*3.*1DESIGNGOAL

There are four Design goals forSenten Tree

1.To leverage the positive qualities of word clouds, namely their ability to facilitate fast impressions by utilizingsize.

2.To bring in more sentence structure from the items in the textcollection.

3.Thevisualizationshouldbeconcisebutyetcoverasmuch ofthedatasetaspossible.

4.The pattern should be decided according to theirdataset.

3.2 SPATIAL LAYOUT AND VISUAL ENCODING

In this two alignments are used that are vertical and horizontal.

Vertical

If two words always appear as a bigram, then we shorten the link between the two words and make sure they always appear on the same vertical level.Figure2 Senten Tree layout with horizontal and vertical constraints

Figure 2 shows Vertical and Horizontal constraints. The alignment yields useful information:we can see thatwhenpeoplediscusstheacquisition,theyusemanysentences that are similar in form and meaning but vary slightly in wording. For example, they use picks and gobble in place of buys, and describe Swiggy as food ordering service or deliverynetwork.

IV.CONCLUSION

We have presented Senten Tree, a novel visualization technique for social media text. By visualizing common sequential patterns, we have sought to find a sweet position between display discrete words and view full sentences. Through a number of examples, we also illustrated how Senten Tree can help people obtain a fast understanding of key concepts and opinions in a big text collection.

For future work, we plan to adopt some of the helpful feedback collect from our initial user trials such as encoding sentiment, showing temporality, or provide dynamic controls. We also plan to evaluate the technique with more people, in particular, have people try the technique on data of liking to them. Eventually we plan to host Senten Tree online and provide an interface for anybody to upload their own datasets. We want to learn how people explore their own data with Senten Tree and test the application with very big datasets.

REFERENCES

[1] N. Cao, J. Sun, Y.-R. Lin, D. Gotz, S. Liu, and H. Qu. Facetatlas:Multifaceted visualization for rich text corpora. IEEE Transactions onVisualization And Computer Graphics, 16(6):1172–1181, 2010.

[2] J. Chuang, D. Ramage, C. Manning, and J. Heer. Interpretation and Trust: Designing Model-driven Visualizations for Text Analysis. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, CHI ’12, pages 443–452, May 2012.

[3] C. Georg, Z. Liu, J. Kihm, J. Choo, H. Park, and J. Stasko. Combining computational analyses and interactive visualization for document exploration and sensemaking in Jigsaw. IEEE Transactions on Visualization and Computer Graphics, 19(10):1646–1663, 2013.

[4] M. A. Hearst. What’s Up with Tag Clouds? Visual Business Intelligence newsletter,2008

[5] K. Kucher and A. Kerren. Text visualization techniques: Taxonomy, visual survey, and community insights. In Proceedings of 2015 IEEE Pacific VisualizationSymposium, pages 117–121, April2015.

[6] R. Munroe. xkcd. http://xkcd.com/851. Accessed: June 19,2016.

[7] F. B. Vi´egas and M. Wattenberg. Timelines tag clouds and the case forvernacular visualization. Interactions, 15(4):49–52,2008.

IJCRT
ISSN 2454-7719
International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019

Paper ID: CS-13

A STUDY OF NETWORK SECURITY AND CRYPTOGRAPHY TECHNIQUES

Prof. Sanjeevani V. Wagh
Department of Computer Science & IT,
BAS & P. O. Commerce Nahata College, Bhusawal
Email-sandeepzarkhande@gmail.com

ABSTRACT:

Security is a concept similar to being cautious or alert against any danger. Network security is the condition of being protected against any danger or loss. Thus safety plays a important role in bank transactions where disclosure of any data results in big loss. We can define networking as the combination of two or more computers for the purpose of resource sharing.

It is the protection of these resources from unauthorized users that brought the development of network security. It is a measure incorporated to protect data during their transmission and also to ensure the transmitted is protected and authentic. Security of online bank transactions here has been improved by increasing the number of bits while establishing the RSA asymmetric key encryption along with SHA1 as well as SSL connection used for digital signature to authenticate the user.

KEYWORDS—*Network Security, Encryption, Cryptography, Digital signature, RSA,Security Attacks.*

I.INTRODUCTION

Any set of interlinking lines resembling a network of roads parallel and interconnected System defines the network, also computer network can be simply defined as a system of interconnected computers. Security can be defined as the need to protect one or more aspects of network's operation and its permitted use for e.g. accessing, checking behavior, performance, having privacy and confidentiality.Accordingly to their scope, depending upon the networks or purpose of design and deployment Network Security requirements can be Local or Global. The important aspect in judging security solutions include ability to meet the specified things, computing resources needed, quality, sustainability and economic considerations. Security Attacks compromises the data security. Active attacks can be defined as active attempts made to alter the data on security leading to modification, redirection, or destruction of data, systems or links. Another type of attack is Passive attacks which involve simply getting access to link of device and obtain data. Security threats can be defined as the threats that have the potential for violating security rules. Security Mechanism is a mechanism that detects/ locates/ identifies/ prevents/ recovers from various security attacks. We should have a Security Service that improves security and makes use of the security mechanisms.

The Internet is an part of our daily life, and the proportion of people who expect to be able to manage their banking accounts anywhere, anytime is constantly increasing. So due to this enormous growth of online transactions Internet banking has become a very crucial and important component of any financial institution's strategy. Information about financial institutions, their users, and their fund transactions is, by necessity, extremely sensitive. So the Internet banking system should have provision to solve the issues related to authentication and non-repudiation, so that only authorized people can access an Internet banking account, and the information viewed must remain private and it should not be modified by others. For confidentiality and integrity, we have the defactoInternet banking standard, and for authentication and non-repudiation, no good scheme has become predominant yet defined the Secure SOCKET Layer.

II.NETWORKING

Networking can be defined as the group of acquaintances and associates and keeping it active through daily communication for mutual benefit. We can say that networking not relies on the question with "What can I gain from it?" and relies "How can I help you?" and.It provides the protection of the resources from unknown users, which brought the development of network security. procedure putting on place for protecting the data during their transmission and also to ensure the transition is protected and authentic. A threat defined in many ways such as gaining access to the network by an unauthorized party, to better understand the

various types of threats to security; the definition of security requirement is inevitable.

III.SECURITY ATTACKS

Passive Attacks: This attacks includes observation or monitoring of communication. This attack attempts to learn or make use of information from the system but does not affect system resources. The aim of the opponent is to obtain information that is being transmitted. Types of passive attacks:

Traffic Analysis: The message traffic is sent and established in an apparently normal fashion, and neither the sender nor receiver is aware that a third party has read the messages or observed the traffic pattern

Release of Message Contents: Read information of message from sender to receiver.

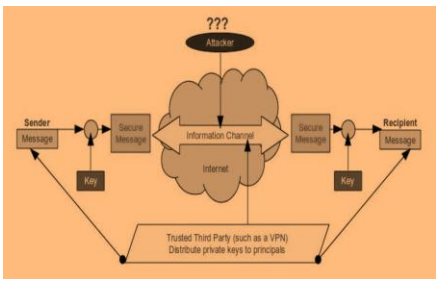
Active Attacks:-this attack attempts to alter system resources or affect their operation. This involves some modification of the data stream or the creation of a false stream. Types of active attacks:

- **Modification of Messages**: some part of a legitimate message is altered, or that messages are delayed or reordered.
- **Denial of Service**: It may suppress all messages directed to a particular destination.
- **Replay**:Replay passive capture of a data unit and its subsequent retransmission to produce an unauthorized effect.

IV.NETWORK SECURITY MODEL

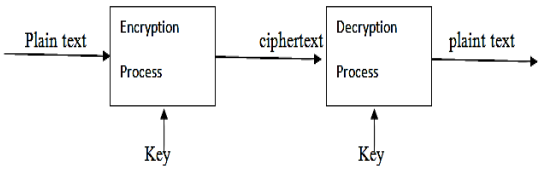
Figure shows the model of network security. A message is to be sent from one person to another across some sort of Internet service. A third person may be responsible for distributing the secret information to the sender and receiver while keeping it from any opponent. Security aspect come into play when it is necessary or desirable to protect the information transmission from an opponent who may present a threat to confidentiality, authenticity, and so on. All the technique for providing security have two components:-International Transaction of Electrical and Computer Engineers System

- A security-related informations to be sent. Messages should be encrypted by key so that it is unreadable by the opponent.
- the encryption key used in conjunction with the transformation to scramble the message before transmission and unscramble it on reception. (Kaur, Kaur, & Raina, 2017)



V.CRYPTOGRAPHY

"Cryptography is the art of secret coding. The basic provided by cryptography is the ability to send the information between participants in a way that prevents others reading it. The main purpose of the cryptography is used not only to provide confidentiality, but also to provide solutions for other problems like: data integrity, authentication, non-repudiation Authentication: cryptography is the process ofsearching the identity of the user who is genuine and has access to resources". (sharma & gupta, 2017)



Confidentiality: Ensuring that (Tayal, Gupta, Gupta, Goyal, & Goya, 2017)unathorized is able to access the data except the authorized user

Integrity: Assuring the reception that the message obtained has same as original or not tampered in any circumstances from the original.

Non-repudiation: A process to prove that the sender/receiver has really sent/received this information.

There are several different ways of classifying cryptographic techniques. The algorithms can be majorly classified in 3 ways:

Secret Key Cryptography

a single keys is used for both encryption and decryption. sender A use the key K (or some set of rules) to encrypt the plaintext message M and sends the ciphertext C to the receiver. The receiver applies the **same key** K to decrypt the cipher text C and recover the plaintext message M. single keys is used for both functions, secret key cryptography is also called **symmetric encryption**. this form of cryptography, it is apparent that the key must be known to both the sender and the receiver; that, in fact, is the secret. The biggest difficulties with this approach, of course, is the distribution of the key.

Public-Key Cryptography

It is a form of cryptography in which encryption and decryption are performed using the different keys—one a **public key** and one a **private key**. These both keys are mathematically related although knowledge of one key does not allow someone to easily determine the other key. As shown in Figure ,the sender A uses the public key of receiver B (or some set of rules) to encrypt the plaintext message M and sends the ciphertext C to the receiver. The receivers applies own private key (or ruleset) to decrypt the cipher text C and recover the plaintext message M. pair of keys is required, so this approach is also called **asymmetric cryptography**

REFERENCES

1.hashif, kashif, r., & phaneendra, d. (2015). IMPLEMENTATION OF METHODS FOR TRANSACTION IN SECURE ONLINE BANKING. *International Journal of Technical Research and Applications, 3* (4), 41-43.

2.Kaur, S., Kaur, R., & Raina, C. K. (2017). Review on Network Security and Cryptography. *International Journal of Scientific Research in Computer Science, Engineering and Information Technology, II* (3), 594-599.

3.sharma, s., & gupta, y. (2017). Study on Cryptography and Techniques. *International Journal of Scientific Research in Computer Science, Engineering and Information Technology, II* (1), 249-252.

4.Shazmeen, S. F., & Prasad, S. (2012). A Practical Approach for Secure Internet Banking Based On Cryptography. *International Journal of Scient ific and Research Publications, 2* (12), 1-6.

5.Tayal, D. S., Gupta, D. N., Gupta, D. P., Goyal, D., & Goya, M. (2017). A Review paper on Network Security and Cryptography. *Advances in Computational Sciences and Technology, 10* (5), 763-770.

IJCRT
ISSN 2454-7719
International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019

Paper ID: CS-14

OVERVIEW OF NATURAL LANGUAGE PROCESSING

Khushabu P. Bhole
Assistant Professor
Dept. of CS & IT , BAS & PONC College , Bhusawal
bholekhushabu@gmail.com

ABSTRACT:

Natural language processing (NLP) has recently added much attention for representing and analyzing human language computationally. It has spread its applications in many fields such as machine translation, email junk detection, information extraction, summarization, medical, and question answering etc. [1]. The paper distinguishes four phases by discussing different levels of NLP and components of Natural Language Generation (NLG) followed by presenting the history and development of NLP, state of the art presenting the various applications of Natural language processing and current trends and challenges.

I. Introduction

Natural Language Processing (NLP) is a tract of Artificial Intelligence and Linguistics, dedicated to make computers understand the statements or words written in human languages. Natural language processing came into being to ease the user's work and to satisfy the wish to communicate with the computer in natural language. Since all the users may not be well-versed in machine specific language, NLP provides those users who do not have sufficient time to learn new languages or get perfection in it.NLP researchers goal to gather knowledge on how human beings understand and use language so that appropriate tools and methods can be develop to make computer systems understand and manipulate natural languages to make the desired tasks. Several researchers have pointed out the want for appropriate research in helping multi- or cross-lingual information retrieval, including multilingual text processing and multilingual user interface systems. NLP is a way for computers. NLP basically can be classified into two parts i.e. Natural Language Understanding (NLU) and Natural Language Generation (NLG) which evolves the task to understand and generate the text.

Liddy defines NLP as a theoretically inspired range of computational techniques for analyzing and representing naturally occurring texts, at one or more levels of linguistic analysis for the purpose of achieving human-like language processing for a kind of tasks or applications. The term NLP is normally used to define the function of software or hardware components in a computer system which analyze or synthesize spoken or written language [7]. The 'natural' description is meant to distinguish human speech and writing from more formal languages, such as mathematical notations or programming languages, where vocabulary and syntax are comparatively restricted [7].

II. Levels of Natural Language Processing

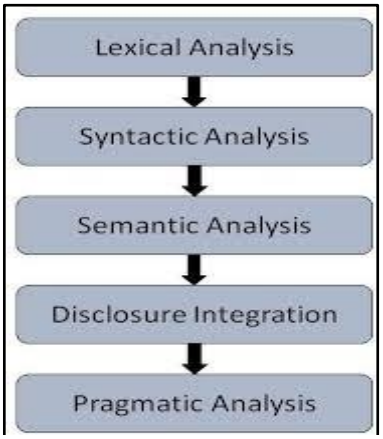


Figure-1: Levels of Natural Language Processing

Natural language processing functions at the following levels are shown in Figure-1 and described below.

- **phonological level :** phonological level that deals with pronunciation
- **Morphological level:** that deals with the smallest portions of words, those carry a meaning, and suffixes and prefixes.
- **Lexical level:** that deals with lexical importance of words and parts of speech analyses.
- **Syntactic level:** that deals with grammar then structure of sentences.

- **Semantic level:** that compacts with the meaning of words and sentences
- **Discourse level:** that deals with the structure of dissimilar kinds of text using document structures.

Pragmatic level: that deals with the knowledge that comes after the outside world, i.e. from outside the contents of the document

III. Natural Language Generation (NLG)

Natural Language Generation (NLG) is the method of producing phrases, sentences and paragraphs that are meaningful from an internal representation. It is a part of Natural Language Processing and occurs in four phases: identifying the goals, planning on how goals maybe achieved by evaluating the situation and available communicative sources and realizing the plans as a text.

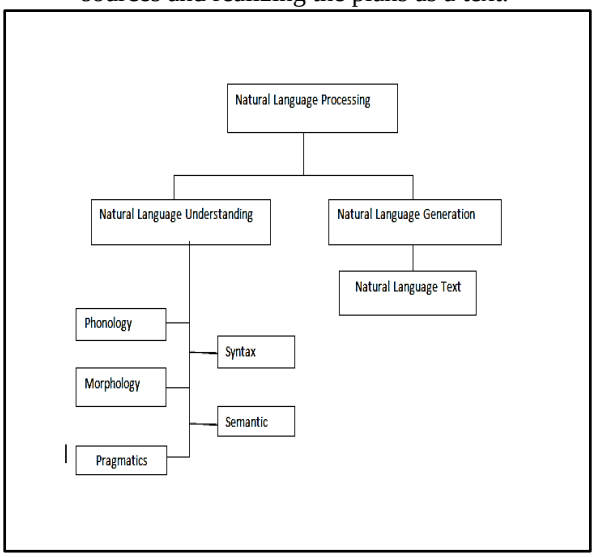


Figure 2:- Classification of NLP

Linguistics is the science of language which includes Phonology that refers to sound, Morphology word creation, Syntax sentence structure, Semantics syntax and Pragmatics which refers to understanding.

IV. NLP Tools and Techniques

A number of researchers have attempted to originate up with improved technology for performing various actions that form important parts of NLP works. These works may be categorized as follows:

- Lexical and morphological study, noun phrase generation, word segmentation
- Semantic and speech analysis, word meaning and knowledge representation Representation.
- Knowledge-based approaches and tools for NLP.

V. Related Work

Many researchers worked on NLP, building tools and systems which makes NLP what it is nowadays. Tools similar Sentiment Analyzer, Parts of Speech (POS)Taggers, Chunking, Named Entity Recognitions (NER), Emotion detection, Semantic Role Labeling made NLP a good topic for research. Named-entity recognition (NER) also known as entity identification, entity chunking and entity extraction is a subtask of information extraction that seeks to position and classify named entity mentions in unstructured text into pre-defined categories such as the person names, organizations, locations, medical codes, time expressions, quantity, monetary values, percentages, etc.
Example:

Jon bought 200 shares of Sai Corp. in 2010
[Jon]Person bought 200 shares of [Sai Corp.] Organization in [2010] Time.

In this ex. a person name consisting of one token, a two-token company name and a temporal expression have been detect and classified.

Emotion Detection is similar to sentiment analysis, but it works on social media platforms on mixing of two languages (English + Any other Indian Language). It classifies statements into six groups based on emotions. During this process, they were able to classify the language of ambiguous words which were common in Hindi and English and tag lexical category or parts of speech in mix script by identifying the base language of the speaker.

VI. Natural Language Processing Applications

Natural Language Processing can be applied into various areas like Machine Translation, Email Spam detection, Information Extraction, Information Extraction (IE) Question Answering Automatic Summarization, Morphological Segmentation, Named Entity Recognition, Part Of Speech Tagging (POS) etc.

Certain of these tasks have direct real world application such as Machine translation, Named entity recognition, Optical character recognition etc.

- **Machine Translation**

Machine translation sometimes denoted to by the abbreviation MT is a sub-field of computational linguistics that examines the use of software to transform text or speech from one language to another. The challenge with machine translation technologies is not directly translating words but keeping the meaning of sentences complete along with grammar and tenses.

- **Information Retrieval**

The Information Retrieval (IR) domain can be observed as an applied domain of NLP. Search engines area an application of Information retrieval that process natural language to answer users query

.

Information Retrieval systems has to deal with unclear and partial descriptions of both user needs and documents queried, Various application areas that require natural language processing on information retrieval systems are : machine aided translation , document clustering and classification, information extraction, question answering, natural language interfaces to databases. Information retrieval has been a major area of application of NLP, and subsequently a number of research projects, dealing with the many applications on NLP in IR, have taken place throughout the world resultant in a large volume of publications.

- **Information Extraction (IE)** – a more recent application area, IE focuses on the recognition, tagging, and extraction into a structured representation, certain important elements of information, e.g. persons, companies, locations, organizations, from huge collections of text. These extractions can then be used for a range of applications including question-answering, visualization, and data mining.

- **Automatic summarization**.

Automatic summarization produces an understandable summary of a set of text and offers summaries or detailed information of text of a known type. Co-reference resolution it refers to a sentence or bigger set of text. The kind of text summarization depends on the basis of the number of documents and the two important categories are single document summarization and multi document summarization.

There are two types to automatic summarization extraction and abstraction. **Extractive methods** work by selecting a subset of present words, phrases, or sentences in the original text to form the summary.

Abstractive methods build an internal semantic representation and then use natural language generation methods to create a summary that is closer to what a human might express. Such a summary might include verbal innovations.

- **Part of speech tagging**

The process of assigning one of the parts of speech to the given word is called part of speech tagging. It is commonly referred to as POS tagging. The parts of speech include nouns, adverbs, adjectives, pronouns, conjunction and their sub-categories.

Example:

Word: Paper, Tag: Noun
Word: Famous, Tag: Adjectives
Word: go, Tag: Verb

- **Question-Answering**

In difference to Information Retrieval, which provides a list of potentially related documents in reply to a user's query, question-answering provide the user with either just the text of the answer itself or answer-providing passages.

- **Medicine**

NLP is applied in medicine field as well. The Language String Project-Medical Language Processor is one the large scale projects of NLP in the field of medicine

It is expected to function as Information Extraction device for Biomedical Knowledge Bases, particularly Medline abstracts.

- **Dialogue System**

Perhaps the most desired application of the future, in the systems envisioned by large providers of end user applications, Dialogue systems, which focuses on narrowly defined applications currently, uses the phonetic and lexical levels of language. It is understood that these dialogue systems when utilizing all levels of language processing offer potential for fully automated dialog systems.

VII. Conclusion:

The paper explains and implements natural language processing task in Information retrieval. Essential and preliminary tasks tasks required in almost all information retrieval system is explained with example in the paper. The tasks are performed in Python and with the inclusion of NLTK module. In conclusion, Natural Language Processing and its Educational Application provide a perfect solution to the various problems and barriers in the educational system, which result in affecting the academic development and learning of the students.

REFERENCE:

1. Chowdhury, G. (2003) Natural language processing. Annual Review of Information Science and Technology, 37. pp. 51-89. ISSN 0066-4200
2. Diab, M., Hacioglu , K. ,& Jurafsky, D. (2004, May). Automatic tagging of Arabic text: From raw text to base phrase chunks. In Proceedings of HLT-NAACL 2004: Short papers (pp. 149-152). Association for Computational Linguistics.
3. "Natural Language Processing. "Natural Language Processing RSS .N. p n.d. Web. 25 Mar. 2017
4. Elaine Marsh, Dennis Perzanowski, "MUC-7 Evaluation of IE Technology: Overview of Results", 29 April 1998 MUC-07 Proceedings (Named Entity Tasks)
5. E.D. Liddy, Natural Language Processing, 2001.
6. Natural_Language_Processing_State_of_The_Art_Curre.pdfhttps://www.researchgate.net/publication/319164243_Natural_Language_Processing_State_of_The_Art_Current_Trends_and_Challenges
7. https://arxiv.org/ftp/arxiv/papers/1708/1708.05148.pdf

IJCRT
ISSN 2454-7719
International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019

Paper ID: CS- 15

THE INTERNET OF THINGS (IOT): APPLICATIONS, ESSENTIAL TECHNOLOGIES AND CHALLENGES FOR ENTERPRISES

Leena Balkrishna Patil
Assistant Professor, DOCS & IT, BAS & PONC College,Bhusawal
Email- patilleena628@gmail.com

ABSTRACT:
The Internet of Things (IoT), also known as the Internet of Everything or the Industrial Internet, is a new technology paradigm envisioned as a worldwide network of machines and devices capable of interacting with each other. The IoT is recognized as one of the most significant areas of future technology and is purchasing vast attention from a broad range of industries. This article presents some IoT technologies that are essential in the deployment of successful IoT-based products and services . Finally, this article discusses some technical and managerial challenges and applications of IOT and also discuss five applications of Internet of Things(IOT).

KEYWORD
Cloud computing; Internet of Things; Radio frequency, Wireless sensor networks

I. INTRODUCTION: INTERNET OF THINGS

Internet of Things (IoT), also called the Internet of Everything or the Industrial Internet, is a new technology paradigm envisioned as a global network of machines and devices able to interacting with each other. The IoT is identified as one of the most important areas of future technology and is gaining vast attention from a wide range of industries. The true value of the IoT for enterprises can be absulately realized when connected devices are able to communicate with each other and integrate with vendor-managed inventory systems, customer support systems, business intelligence applications, and business analytics. Firm will invest in the IoT to redecorate factory workflows, amend tracking of materials, and optimize distribution cost.

In addition to manufacturers' acceptance of the IoT, various service industries are in the process of adopting the IoT to increase revenue through improved services and become leaders in their markets. Disney's MagicBand is a new wristband with RFID chips that serves as a ticket and connects to Disney's data repository regarding park visitors. Kroger's new IoT-based system, Retail Site Intelligence, is one complete retail platform of video analytics, wireless devices, POS devices, handheld sensors, IP cameras, and video management software that was design to help clients have a better shopping experience by more simply finding the products they want and saving time at checkout.

The adoption of this technology is speedily gaining momentum as technological, societal, and competitive pressures push firms to innovate and transform themselves. As IoT technology advance and risingthe numbers of firms adopt the technology, IoT cost-benefit analysis will become a subject of great interest. Because of the potential but uncertain profit and high investment costs of the IoT, firms need to carefully assess every IoT-induced chance and challenge to assure that their resources are spent judiciously.

This article begins with a discussion of the some essential IoT technologies used for the deployment of successful IoT-based products and services .Then this article discusses some techni- cal and managerial challenges: data management, data mining, privacy, security, and chaos.and lastly discuss applications of IOT:HealthCare application, Aggriculture application, transportation application, Education application

II. ESSENTIAL IOT TECHNOLOGIES

Let's discuss IoT technologies which are widely used for the deploy-ment of successful IoT-based products and services:

1.Radio frequency identification (RFID)
2. Wireless sensor networks (WSN)
3. Middleware
4. Cloud computing

Radio Frequency Identification (RFID):
Radio Frequency Identification is a technology that uses radio waves to identify a tagged object.
Radio Frequency Identification is used in combining with a microchip, an antenna and a scanner. Although commercial uses for it were developed in the 1970's,

it has become more everywhere accessible in recent years. With improvements to the technologyit is used to read and store information, it is now more reasonable to purchase and adapt.

Radio Frequency Identification works through a small electronic device, normally a microchip, that has information stored on it. These devices are generally rather small, sometimes the size of a grain of rice, and can hold huge amounts of data. While they don't always emit electricity, some can contain a store power source or batteries. The scanner used to read these devices can also supply sufficient electricity to allow them to read the microchip. There are many different uses for the technology, but it is usually used in tracking products, animals and currency.

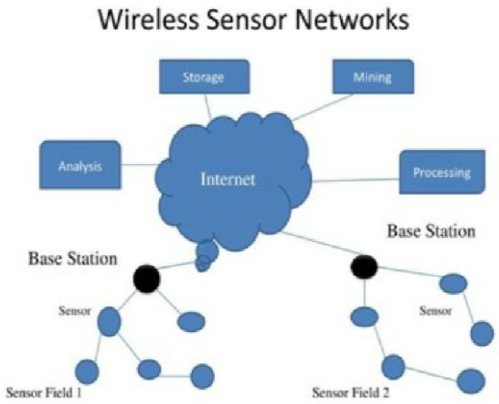
The technology is not without argument Due to the nature of how these devices work it is not inconceivable that someone who is not suppose to access the information on the microchips would be able to. There is also concern that own information may become accessible without consent, since these frequencies can be transmitted over larger distance than their more common counterparts ,barcode. Unlike barcodes and barcode readers, one does not need to be capable to see the microchip to access the information on it.

Radio frequency identification (RFID) allows automatic recognition and data capture using radio waves, a tag, and a reader. The tag can store d extra data than traditional barcodes. The tag contains data in the form of the Electronic Product Code , a global RFID-based item identification system developed by the Auto-ID Center. Three types of tags are used. Passive RFID tags swear on radio frequency energy transferred from the reader to the tag to power the tag; they are not battery-powered. Application of these can be found in supply chains, passports, electronic tolls. Active RFID tags have their personal battery supply and can instigate communication with a reader Active RFID tags are used in manufacturing, hospital laboratories. Semi-passive RFID tags use batteries' to power the microchip while communicating by drawing power from the reader.. Active tags can contain external sensors to monitor temperature, pressure, chemicals, and other atmospheric conditions. Active and semi-passive RFID tags price more than passive tags.

Wireless sensor networks

Wireless sensor networks(WSN) consist of spatially distributed autonomous sensor-equipped devices to monitor physical or environmental conditions and can collaborate with RFID systems to better track the status of things for example their location, temperature, and movements . WSN allow dissimilar network topologies and multihop communication. Recent technological advances in low-power integrated circuits and wireless commu- nications have made available efficient, low-cost, low-power miniature devices for use in WSN applica- tions [1]. WSN have been mainlyused in cold chain logistics that employ thermal and refrigerated packaging methods to transport temperature-sensitive products [2].WSN aretoo used for maintenance and tracking systems. Eg., General Electric deploys sensors in its jet engines, turbines, and wind farms. By analyzing data in actual time, GE saves time and money associated with preventive maintenance. also, American Airlines uses sensors capable of capturing near about 30 terabytes of data per flight for services such as preventive maintenance.

Wireless Sensor Networks (WSNs) have been commonly considered as one of the most important technologies for the 21-st century Enabled by recent advances in microelectronic mechanical systems (MEMS) and wireless communication technology, tiny, cheap, and smart sensors deploy in a physical area and networked through wireless links and the Internet provide unprecedented opportunities for a variety of civilian and military applications, for example, environmental monitoring, battle fi eld surveillance, and industry process control Distinguished from traditional wireless communication networks, for example, cellular systems and mobile ad hoc networks (MANET), WSNs have unique characteristics, eg denser level of node deployment, higher unreliability of sensor nodes, and severe energy, computation, and storage constraints , which present many new challenges in the development and application of WSNs. In the past decade, WSNs have received tremendous attention from both academia and industry all over the world. A huge amount of research activities have been carried out to explore and solve several design and application issues, and significant advances have been made in the development and deployment of WSNs. It is envisioned that in the near future WSNs will be widely use indifferent civilian and military fi elds, and revolutionize the way we live, work, and interact with the physical world.



Middleware:

Middleware is the software which connects network-based requests generated by a client to the back-end data the client is requesting. It is a overall term for software that serves to "glue together" separate, often complex and already existing programs.

Middleware is a software layer intervened between software applications to make it easier for software developers to perform communication and input/ output. Its feature of hiding the particulars of different technologies is fundamental to free IoT developers from software services that are not directly relevant to the specific IoT application. Middleware gain popularity in the 1980s due to its major role in simplifying the integration of legacy technologies into new ones. It also facilitated the progress of new services in the distributed computing environment. A composite distributed infrastructure of the IoT with numerous heterogeneous devices requires simplifying the improvement of new applications and services, so the use of middleware is an ideal fit with IoT application development. For example, Global Sensor Networks (GSN) is an open source sensor middleware platform enabling the develop- ment and deployment of sensor services with almost zero programming effort. Most middleware architectures for the IoT follow a service-oriented approach in order to support an unknown and dynamic network topology.

Types of middleware

There are various examples of middleware, each created to fulfill specific functions in connecting applications and web and cloud services together. Here are some of the most commonly used types of middleware.

- Messaging middleware facilitates communications amid distributed applications and services.
- Object or ORB middleware allows software components or objects to communicate and interact with a programs, such as containers, across distributed systems.
- Remote Procedure Call (RPC) middleware supply a protocol that allows a program to request a service from another program located on a different computer or network.
- Data or database middleware allows direct access to, and interaction with, databases; it typically includes SQL database software.
- Transaction middleware ensures transactions move from one phase to the next phase via transaction process monitoring.
- Content-centric middleware permits client-side requests for specific content and abstracts and delivers it.
- Embedded middleware facilitates communication and integration in between embedded apps and real-time operating systems.

III. CHALLENGES IN IOT DEVELOPMENT

Based on the study of IoTpractices, in this section we discusses challenges in IoT development by enter- prises. As with any disruptive invention, the IoT will present various challenges to adopting enter- prises. For example, due to the explosion of data generated by IoT machines, Gartner (2014) suggested that data centers will face challenges in security, the enterprise, consumer privacy, data itself, storage management, server technologies, and data center networking. In This section we discusses three technical and managerial challenges: data management, data mining, privacy.

Data Management

IoT sensors and devices are generating huge amounts of data that need to be processed and stored. The current architecture of the data center is not prepared to deal with the heterogeneous nature and sheer volume of personal and enterprise data [3].Few enterprises would be able to invest in data storage enough to house all the IoT data collected from their networks. So, they will order data for operations or backup based on needs and value. Data centers will become more distributed to develop processing efficiency and response time as IoT devices become more widely used and consume more bandwidth.

Data Mining

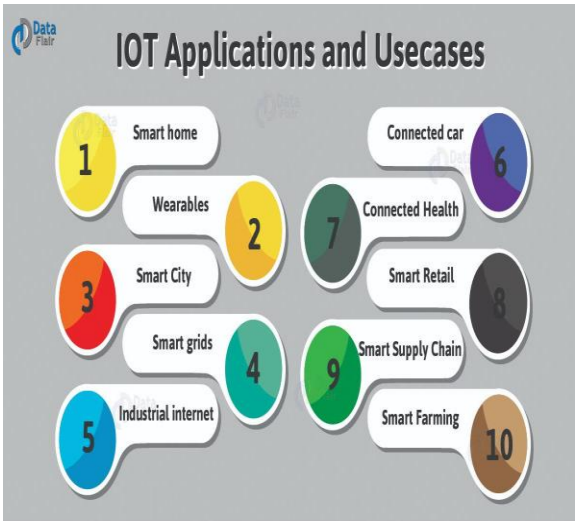
As more data are available for processing and analysis, the use of data mining tools becomes a essential. Data consist not only of traditional discrete data, but also of streaming data produced from digital sensors in industrial equipment, automobiles, electrical meters, and shipping crates. These streaming data arenearly about location, movement, vibration, temperature, humidity, and even chemical changes in the air. Data mining tools can invoke corrective processes to address contiguous operational issues or inform man- agers of discoveries regarding competitors' strategic moves and customers' preference changes that will impact their short-term and long-term business activities. Data need to be tame and understood using computer and mathematical models. Traditional data mining technique are indirectly applicable to unstructured images and video data. Coupled with the need for the advanced data mining tools to mine streaming data from sensor networks and image and video data, there is a deficit of competent data analysts. McKinsey Global Insti- tute estimated that the United States needs 145,000 to 190,000 more workers with analytical skills and 1.5 million managers and analysts with analytical skills to make business decisions based on the analysis of big data [5].

Privacy

As is the case with smart health tools and smart car emergency services, IoT devices can provide a massive amount of data on IoT users' location and movements, health conditions, and purchasing preferencesall of which can spark significant privacy concerns.protection of privacy is often counter-productive to service providers in this scenario, as data generated by the IoT is key to improve the quality of people's lives and decreasing service providers' costs by streamlining operations. The IoTis likely to improve the quality of people's lives. According to the 2014 TRUSTe Internet of Things Privacy Index, only 22% of Internet users agreed that the benefits of smart devices outweighed any privacy concerns [4]. While the IoT continues to gain momentum through smart home systems and wearable

devices, confidence in and acceptance of the IoT will depend on the protection of users' privacy.

IV. APLLICATIONS OF IOT'S:



Smart Homes:

Smart homes clearly stand out to be the top-most priority on the list of things that are achieve using the IoT technology. unnecessary to say, there are more organizations trying to put in more efforts to make this dream come true. Based on one of the most research studies conducted on this specific scenario, the total amount of funding that goes into this line of business has already crossed $3 billion. Most of the larger names have already put in a lot of resources to get this initiative started and working.

Wearables:

Wearables is the latest trend in the techies and tech loving junkies, where most of the smartphone-related activities can be performed using your watch that you wear. Apple was the one first one who was successfully able to accomplish this and created sensation in this industry. Following the footsteps of Apple, Samsung and Motorola have too launched similar products with additional features

Industrial Internet:

Industrial Internet is one more area where the IoT solutions need to make more impact, but this area doesn't get the emphasis and focus that it needs. This is more on to a service that is provided to the common public than something like a Wearable or Smart Home mean to an average individual.

Connected Cars:

Connected cars is the most recent development that we have been seeing as an average consumer or an individual. OLA and UBER have started their research into adding fleets of cars into this idea to make data that help them to manage their actions even better than the traditional way of managing the assets. Most of the big automotive makers and the startups in this realm have already started their work.

Smart Agriculture and Farming:

Farming Agriculture or is the mainly overlooked case as the individuals involved do not understand the advancement and are also resistant to change. Orthodox method have been implemented from a long time and individuals involved, do not admit changes in their medieval ways of performing these activities. There is not a practical model that has been implemented by farmers.

Connected Health:

Connected Health is one more way the IoT solutions can be found helpful but there are so many scams that are happening over the years of change from the orthodox ways of conducting this. Unmanned drones, medicine over internet and generic medicines are the existing problems for the current establishment.

V. CONCLUSION :

Because the IoT is such a recent growth, there is still a paucity of studies on the behavioral, economic, social, and managerial aspects of the IoT. This makes it very challenging for companies to make informed decisions as regard IoT implementation. Our article is studies on a conceptual model of IoT applications for enter- prises. In this article we discussed challenges in implementing IoT applications for enterprises and also dicussed applications of Internet of thing.

References:

1. (Marusic, Palaniswami, Gubbi&Buyya, , 2013). Internet of Things (IoT): A vision, architectural elements, and future directions. Future Generation Computer Systems, 29(7), 1645—1660.

2.Hsueh, C.-F., & Chang, M.-S.(2010). A model for intelligent transportation of perishable products.International Journal of Intelligent Transportation Systems Research,

3.GartnerGartner says the Internet of Things will transform the data center. . (2014, March 19). Retrieved from http://www. gartner.com /newsroom/id/2684616

4. TRUSTe Internet of Things privacy index——US edition. TRUSTe.(2014). Retrieved from http://www.truste.com/resources/ privacy-research/us-internet-of-things-index-2014/

5. Manyika, J., Chui, M., Brown, B., Bughin, J., Dobbs, R., Roxburgh, C., et al. (2011, May). Big data: The next frontier for innovation, competition, and productivity. McKinsey & Company. Retrieved from http://www.mckinsey.com/ insights/business_technology/big_data_the_next_frontier_ for_innovation

https://www.investopedia.com/terms/r/radio-frequency-identification-rfid.asp

https://www.researchgate.net/publication/41936100_Introduction_to_Wireless_Sensor_Networks

https://searchmicroservices.techtarget.com/definition/middleware

International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019
ISSN 2454-7719

Paper ID: CS-16

INTERNET OF THINGS (IOT):SMART_HELTHCARE

Chetana D . Nehete
Dept. of CS & IT,BAS&PONC College, Bhusawal.
Chetnanehete1996@gmail.com.

ABSTRACT:

World is moving forward very fast, Because of trending fast technologies. One such concept is IOT (Internet of things) with which automation is no longer a virtual certainty. The Internet-of-Things (IOT) has taken over the business variety and its applications vary widely from agriculture, and healthcare, to transportation etc. A hospital environment can be very difficult to handle mainly Therefore senior citizens and children. The ever-increasing world population, the conventional patient-doctor appointment has lost its effectiveness. Therefore smart healthcare becomes very important need in our life. Smart healthcare can be implemented at all levels. This survey discusses the importance, requirements and applications of smart healthcare along with the today industry trends and products. It gives a more knowledge about the different platforms used in smart healthcare system, their strengths, weaknesses, and All the wear ability of IOT in healthcare system, and also about the challenges facing IOT. Privacy, security, wearability.

KEYWORDS:
Healthcare, smart hospital, IOT, RFID.

I. INTRODUCTION

In Population is very rapidly increasing. And also increase in habitual illness. it placing significant pressure on modern health- care systems ,therefore the demand for hospital resources like beds to doctors and nurses is extremely high. Because of that above problem we need a solution to reduce the pressure on healthcare systems at the same time continuing to provide high-quality care to at- risk patients.

Healthcare domain IOT has made huge inroads. Advanced medical analysis and remote patient medical monitoring is possible using IOT. Tracking of objects and people i.e. staff and patients, identification and authentication of people, across diverse geographic locations.

Through a modern network of sensors and analytics patient's data stored on cloud-based platforms, combined automatic data collection and sensing is carried out for remote monitoring of patients located and consider. unnecessary or unacceptable care from doctors gets reduced by the regular updates to physicians and increase the patient safety. It helps in continuous monitoring diseases like hypertension, diabetes and asthma treatments.

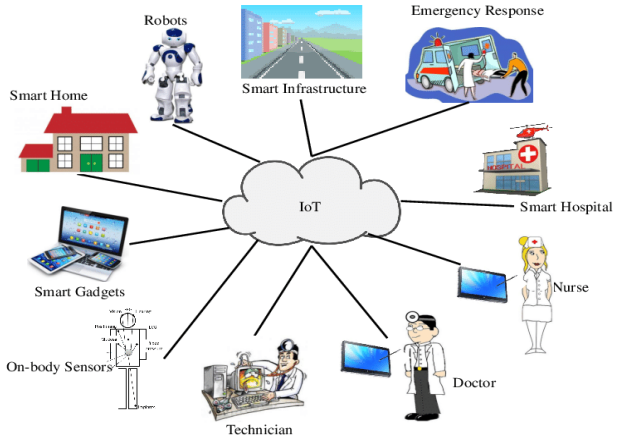


Figure 1.shows the smart healthcare system.

II. RELATED WORK

Healthcare domain is an one of the most important application in scientific and industrial environments, modern technologies create new opportunities for indoor and outdoor activity, and robust monitoring of patients and things. It is excellent that devices operates wirelessly for monitoring.

WSNs are widely used in healthcare applications due to their advantages and multiplicity. In , C. Rotariu and V. Manta recommend WSN for monitoring patients heart rate and oxygen saturation. W. Y. Chung implant Electrocardiography (ECG) and blood pressure sensors into a cellular phone.

In healthcare system diagram wireless area network play main role. S. L. Tan, create technology for checking the blood pressure, heart rate, body temperature and oxygen saturation and transfer that data to base station.

J. Wannen burg is used Bluetooth technology and smart phones for patient monitoring data about patient's health. 3G/4G/5G technology is applied in these systems. The drawback of this solution is a limited number of monitored vital constraints.

George Suciu in Aug, 2015 presents a number of popular ICT paradigms, including Cloud computing, IOT and Big Data. And he proposed a M2M system based on a decentralized cloud architecture, general systems and Remote Telemetry Units (RTUs) for E-Health applications. The system was built for Big Data processing of sensors information in the way that data can be aggregated to generate virtual sensors, and some measurement results

were presented. With the beginning of smart mobile devices, the Internet access has become ubiquitous, and has opened the way for new applications that use M2M communications. Indeed, we visualize our work on the Internet of Things paradigm, as an evolution of the traditional Internet for seamlessly integrating most things around us and collecting big data from sensors that track everything happening in our surroundings.

III. IOT-HELTHCARE:

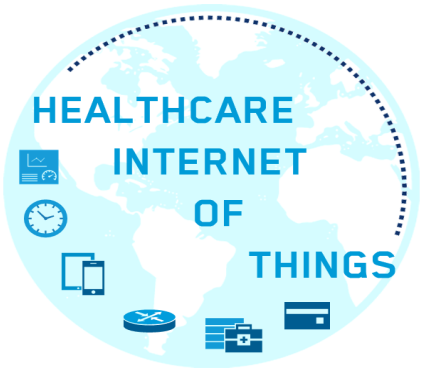


Figure 2:shows healthcare system component of IOT.

IOT in Healthcare is an assorted computing, which is wireless connection of apps and other devices use for diagnosis of patient , they are connected to patient and doctors monitor, stored medical information.

Smart servers fix time and passing data to the smart backbone. In current existing health care system due to lack of awareness , poor facility with undeveloped technologies .it the need of the smart health care system . On network hospital help patients and doctors for remote handling of services. Using smart phone applications related to health care system patients may get guidance to take decisions suggested by the application. IOT allows to tag any patient and able to get health care information by the address or database corresponding to particular RFID (Radio frequency identification).RFID automatically identifies and tracks the tag attaché to objects by using electromagnetic fields. Health care mostly issues on diagnosis treatment, health professionals and policies added to that the medicinal concerns and public health. The particular health system refers to organization of people institutions and resources to deliver health care service to meet the need of smart health care .the smart health care system based upon IOT includes e-health and smart devices as tool of up-gradation and future smart healthcare technologies too. Examples of IOT based healthcare are as follows:

Headsets that measure brainwaves
Cloths with sensing devices
BP monitors
Glucose monitors
Pulse ox meters
Sensors implanted in medical equipment, dispensing systems, medical robots and device implants any wearable technology device.

IV. SMART–HOSPITAL:

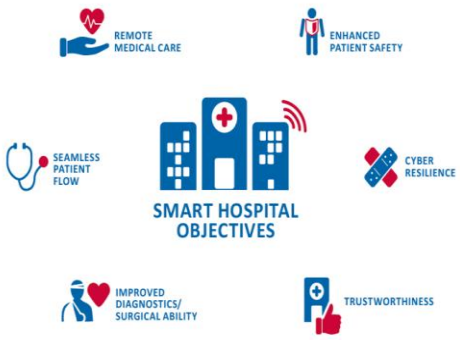


Figure 3: shows the objectives in smart hospitals.

Smart hospital software development suggests the use of smart technology systems, smart mobility systems and smart systems for patients, staff and tools. This systems provide smart functionality to everyday objects such as tablets and smart phones and medical devices.

The most mutual smart technologies used in smart hospital software are Wi-Fi, active RFID, sensors, integration platforms, mobile apps, wearable and various dashboards. And of course, smart hospital software frequently leverages the power of big data and cloud technologies.

V. ADVANTAGES AND DISADVANTAGES:

Decreased cost:-

Unnecessary visits of doctors have less amount by using application of connectivity of healthcare solution, IOT connectivity is used for patient monitoring, on a real time basis .therefore no need of admission and readmissions in hospitals. This facility provides efficient data collection. Thus decreased the cost of patient monitoring.

Patient monitoring:-

Various types of devices or sensors are connected to patient body they are connected to healthcare providers monitors by IOT network and reduced the information of patient treatment.ie. patient monitoring. It provide better experience to patient as well as health providers. This system provides security to patients, patients get more engaged in their treatment, and doctors improve diagnosis accuracy since they have all the necessary patient data to handle. Device manufacture invented solutions for monitoring systems. producers of wearable and IT companies developing Smartphone applications. These applications monitors the patient's vital and helping to reduce it. mainly used in strokes or diabetic comas. For example, in 2016, Roche obtained distribution rights for their Ever sense CGM System, which is an implantable long-term continuous glucose monitoring system using a 90 day sensor implanted below the patient skin and a mobile phone app to send blood glucose levels.

Communication:

M2M means machine to machine communication is increased and inspire by IOT system. Because of this brilliant development, physical devices stay in connected by one another leading to greater efficiency and higher quality. This provides full transparency.

Improved Outcomes of Treatment :

Connectivity of health care solutions concluded cloud computing or other virtual infrastructure gives caregivers the ability to access real time information that enables them to make informed decisions as well as offer

treatment that is evidence based. This guarantees health care facility is timely and treatment outcomes are improved.

Improved Disease Management:

When patients are examined on a continuous basis and health care providers are able to access real time data, diseases are treated before they get out of hand.

Reduced Errors:

Accurate collection of data, computerized workflows combined with data driven decisions are an excellent way of cutting down on waste, dropping system costs and most importantly minimizing on errors.

Enhanced Patient Experience:

The connectedness of the health care system through the internet of things, places emphasis on the needs of the patient. That is, positive treatments, improved accuracy when it comes to diagnosis, timely intervention by physicians and enhanced treatment outcomes result in accountable care that is highly trusted among patients.

Enhanced Management of Drugs :

Creation as well as management of drugs is a main expense in the healthcare industry. Even then, IOT processes and devices, it is possible to manage these costs better.

VI. FUTURE VIEW AND CHALLENGES:

Nanotechnology provides wonderful opportunities to developed better materials and medical devices, also for creating new "smart" devices and technologies. IOT with Nano machines draw attention new research areas. It invent new technology using Nanotechnology and the Internet, i.e. Internet of Nano Things (IONT). Nowhere does the IONT offer superior promise than in the field of healthcare. The application of IONT in Nano medicine presents a very significant improvement in Nano medicine enhancing human health in novel ways, particularly in preventive health, proactive monitoring, follow up care and chronic care disease management. Nano and micro-networks of sensors enable continuous monitoring and logging vital parameters of patients. These networked systems endlessly monitor patients' physiological and physical conditions, and transmit sensed data in real time via either wired or wireless technology to a centralized location where the data can be observed and processed by trained medical personnel. Having in mind that e-health systems store and process very subtle data, such systems should have a proper security and privacy frame-work and mechanisms. The main goal of Future Healthcare idea early disease detection and diagnosis, as well as precise and effective therapy tailored to the patient, accompanied with reduced cost is enabled. Future healthcare created on IONT powered e-health systems will make health monitoring, diagnostics and treatment more personalized, timely and convenient. These improvements increase the accessibility and quality of medical care followed with radically reduced costs. Thus, study of this approach is highly important for future development of healthcare.

VII. CONCLUSION:

This paper provides an Information about survey on the smart healthcare .How we can create smart hospitals using IOT systems. This health providers provide better health to people. Smart healthcare has multidimensional applications, it offers a lot of scope for researchers to constantly innovate new products and improve the already existing architectures. The conversion towards smart healthcare services is a slow and steady process. This is mainly because healthcare professionals need to be continuously educated and convinced to adapt to the digital era. That concept is provide better view to healthcare system

REFERENCES:

1.GeorgeSuciu&Victor Suciu, & Alexandru Martian & Razvan, "Big Data, Internet of Things , An Architecture for Secure E-health Applications", Springer Science+Business Media New York 2015

2.Ms. ShindeSayali P., Ms. Phalle Vaibhavi N.Assistant Professor, Computer Science and Engg Department, AGTI"s DACOE, Karad, IndiaStudent, Computer Science and Engg Department, AGTI"s DACOE, Karad, India"Survey Paper on Internet of Things based Healthcare System"

3. E. Omanović-Mikličanin, M. Maksimović And V. Vujović ."The Future of Healthcare.Internet of Nano Things".

4. Mustafa Abdullah Azzawi, Rosilah Hassan and KhairulAzmi Abu Bakar Research Center for Software Technology ,Faculty of Information Science and Technology, University Kebangsaan Malaysia, Bangi-43600, Selangor, Malaysia.."AReview on Internet of Things (IOT) in Healthcare".

5.Ravi Kishore Kodali, GovindaSwamy and Boppana Lakshmi
Department of Electronics and Communication Engineering
National Institute of Technology, Warangal
WARANGAL, 506004."An Implementation of IOT for Healthcare".

6.Stephanie Baker, Wei Xiang, Senior Member, IEEE, and Ian Atkinson,
"Internet of Things for Smart Healthcare :Challenges, Technologies and Opportunities".

IJCRT
ISSN 2454-7719
International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019

Paper ID: CS- 17

ROLE OF INTERNET OF THING IN AGRICULTURE SECTOR

Miss. Apurva B. Barhate[1]
Msc-I
apubarhate@gmail.com

Miss. Vaishali A. Patil[2]
Assistant Professor
vaishalip457@gmail.com

Mr. Harshal V. Patil[3]
Assistant Professor
Harshal4patil@gmail.com

Bhusawal Arts, Science and P.O.Nahata Commerce College, Bhusawal, MS

ABSTRACT:
Now a day there is vast enhancement in technologies, different tools and techniques are available in agriculture sector. To improve efficiency, productivity, global market and to reduce human intervention, time and cost there is a need to divert towards new technology named Internet of Things. IoT is the network of devices to transfer the information without human involvement. Hence, to gain high productivity, IoT works in synergy with agriculture to obtain smart farming. This paper focuses on role of IoT in agriculture that leads to smart framing.

KEYWORDS
Internet of Things (IoT), Smart Agriculture, Agriculture IoT, Information and Communication Technology (ICT) etc.

INTRODUCTION:

Due to enormous growth in technologies, farming has become more popular and significant. Different tools and techniques are available for development of farming. Agriculture is considered as the basis of life for the human species as it is the main source of food grains and other raw materials. It plays vital role in the growth of country's economy. It also provides large ample employment opportunities to the people. Growth in agricultural sector is necessary for the development of economic condition of the country. Unfortunately, many farmers still use the traditional methods of farming which results in low yielding of crops and fruits. But wherever automation had been implemented and human beings had been replaced by automatic machineries, the yield has been improved. Hence there is need to implement modern science and technology in the agriculture sector for increasing the yield. Most of the papers signifies the use of wireless sensor network which collects the data from different types of sensors and then send it to main server using wireless protocol. The collected data provides the information about different environmental factors which in turns helps to monitor the system. Monitoring environmental factors is not enough and complete solution to improve the yield of the crops. There are number of other factors that affect the productivity to great extent. These factors include attack of insects and pests which can be controlled by spraying the crop with proper insecticide and pesticides. Secondly, attack of wild animals and birds when the crop grows up. There is also possibility of thefts when crop is at the stage of harvesting. Even after harvesting, farmers also face problems in storage of harvested crop. So, in order to provide solutions to all such problems, it is necessary to develop integrated system which will take care of all factors affecting the productivity in every stages like; cultivation, harvesting and post harvesting storage.

WHAT IS INTERNET OF THINGS?

The Internet of Things (IoT) is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction. Internet of Things (IoT) is an ecosystem of connected physical objects that are accessible through the internet. The 'thing' in IoT could be a person with a heart monitor or an automobile with built-in-sensors, i.e. objects that have been assigned an IP address and have the ability to collect and transfer data over a network without manual assistance or intervention. The embedded technology in the objects helps them to interact with internal states or the external environment, which in turn affects the decisions taken.

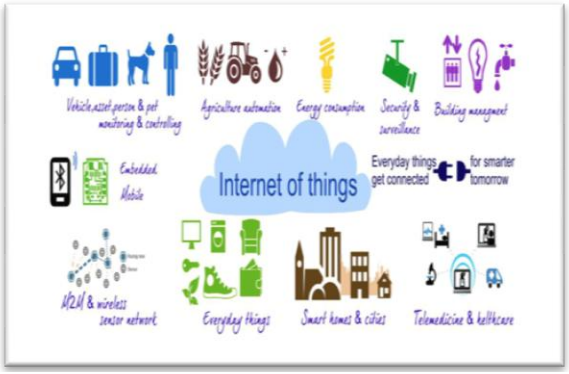


Figure 1: IoT fields

History of IoT: Most other sites trying to explain the history of IoT (Internet of Things) tend to travel a bit too far by listing all the technologies related to it that were invented before the Internet officially became available for the general public to use. You, on the other hand, wouldn't have to go back too far as all you need to do is to take a trip down memory lane in the year 1999. The term Internet of Things is 16 years old. But the actual idea of connected devices had been around longer, at least since the 70s. Back then, the idea was often called "embedded internet" or "pervasive computing". But the actual term "Internet of Things" was coined by Kevin Ashton in 1999 during his work at Procter &Gamble. Ashton who was working in supply chain optimization, wanted to attract senior management's attention to a new exciting technology called RFID. Because the internet was the hottest new trend in 1999 and because it somehow made sense, he called his presentation "Internet of Things".

Technologies used:

The basic set of technologies associated to enable IoT to happen, include RFID (Radio Frequency Identification Device), wireless communication devices (such as Beacons), sensors, energy harvesting technologies, cloud computing and advanced Internet protocol (IPv6). RFID helps to identify and track the data of things, sensors collect and process data to detect the changes in the physical status of objects, energy harvesting technologies help in low energy consumption of associated technologies such as Bluetooth, the collected data is stored on the cloud for further processing and wireless communication enable connection and interaction between objects to take further course of action. These smart technologies helps in enhancing the power of network and enable smallest objects with a capacity to connect and interact. Smart phones would act as the main connecting link between objects and humans in interacting and conveying the messages. These underlying technologies mentioned above enable any of the physical objects connect to Internet and to each other.

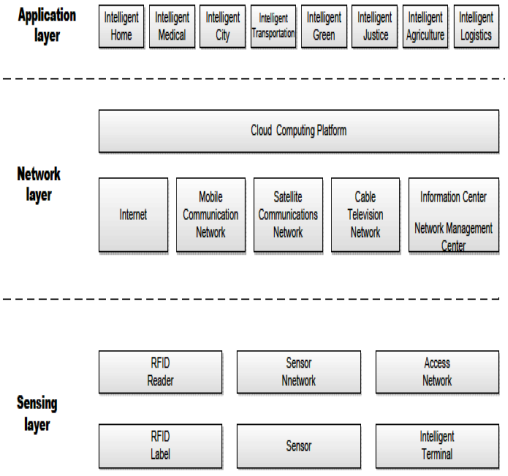


Figure 2: Technologies used in IoT

Smart Agriculture Using IOT:

Agriculture is the main backbone of India's Economical growth. The most important barrier that arises in traditional farming is climatic change. The number of effects of climatic change includes heavy rainfall, most intense storm and heat waves, less rainfall etc. Due to these the productivity decreases to major extent. Climatic change also raises the environmental consequences such as seasonal changes in life cycle of plants. To boost the productivity and minimize the barriers in agriculture field, there is need to use innovative technology and techniques called Internet of Things. Today, the Internet of Things (IoT) is transforming towards agriculture industry and enabling farmers to compete with the enormous challenges they face. Farmers can get huge information and knowledge about recent trends and technology using IoT.

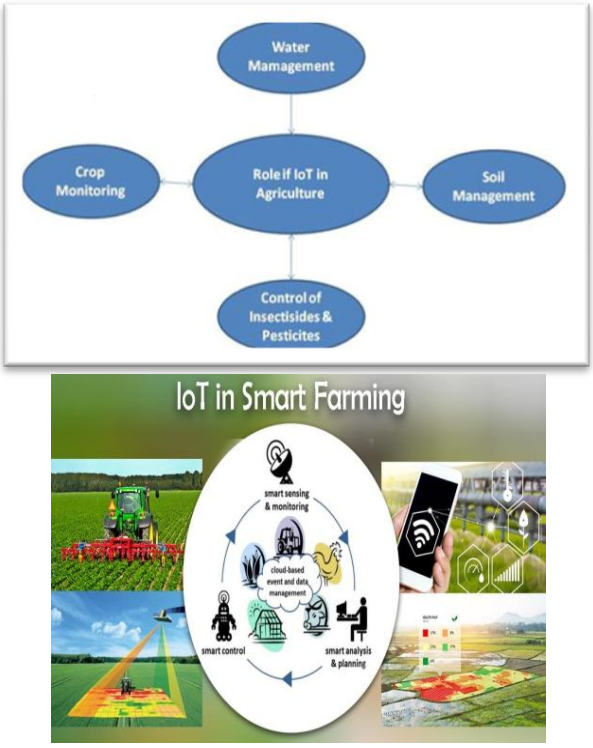


Figure 3: Role of IoT in Agriculture

The key advantages of using IoT in enhancing farming are as follows:

- Water management can be efficiently done using IoT with no wastage of water using sensors.
- IoT helps to continuous monitor the land so that precautions can be taken at early stage.
- It increases productivity, reduce manual work, reduce time and makes farming more efficient.
- Crop monitoring can be easily done to observe the growth of crop.
- Soil management such as PH level, Moisture content etc can be identified easily so that farmer can sown seeds according to soil level.

- Sensors and RFID chips aids to recognize the diseases occurred in plants and crops. RFID tags send the EPC (information) to the reader and are shared across the internet. The farmer or scientist can access this information from a remote place and take necessary actions, Automatically crops can be protected from coming diseases[2].
- Crop sales will be increased in global market. Farmer can easily connected to the global market without restriction of any geographical area.

Drawbacks or disadvantages of Smart Agriculture:-

- The smart agriculture needs availability of internet continuously. Rural part of most of the developing countries does not fulfill this requirement. Moreover internet connection is slower.
- The smart farming based equipments require farmers to understand and learn the use of technology. This is major challenge in adopting smart agriculture farming at large scale across the countries.

APPLICATIONS OF IOT IN AGRICULTURE:-

1. Precision Farming:-

Precision farming is a process or a practice that makes the farming procedure more accurate and controlled for raising livestock and growing of crops. The use of IT and items like sensors, autonomous vehicles, automated hardware, control systems, robotics, etc in this approach are key components. Precision agriculture in the recent years has become one of the most famous applications of IoT in agricultural sector and a vast number of organizations have started using this technique around the world. The products and services offered by IoT systems include soil moisture probes, VRI optimization, and virtual optimizer PRO, and so on. VRI (Variable Rate Irrigation) optimization is a process that maximizes the profitability on irrigated crop fields with soil variability, thereby improving yields and increasing water use efficiency.

2. Agriculture Drones:-

Agricultural drones are a very good example of IoT applications in Agriculture. Agriculture industries today have become one of the major industries where drones can incorporate. Two types of drones, that is, *ground-based* and aerial-based drones are being incorporated in agriculture in many ways such as, for crop health assessment, irrigation, planting, and soil & field analysis.

The benefits that the usage of drones brings to the table include, ease of use, time-saving, crop health imaging, integrated GIS mapping, and the ability to increase yields. The drone technology will give a high-tech makeover to the agriculture industry by making use of strategy and planning based on real-time data collection and processing.

Figure 4: Agriculture Drones

The farmers through drones can enter the details of what field they want to survey. Select an altitude or ground resolution from which they what data of the fields. From the data collected by the drone, useful insights can be drawn on various factors such as plant counting and yield prediction, plant health indices, plant height measurement, canopy cover mapping, nitrogen content in wheat, drainage mapping, and so on. The drone collects data and images that are thermal, multispectral and visual during the flight and then lands at the same location it took off initially.

3. Livestock Monitoring:-

IoT applications help farmers to collect data regarding the location, well-being, and health of their cattle. This information helps them in identifying the condition of their livestock. Such as, finding animals that are sick so, that they can separate from the herd, preventing the spread of the disease to the entire cattle. The feasibility of ranchers to locate their cattle with the help of IoT based sensors helps in bringing down labor costs by a substantial amount.

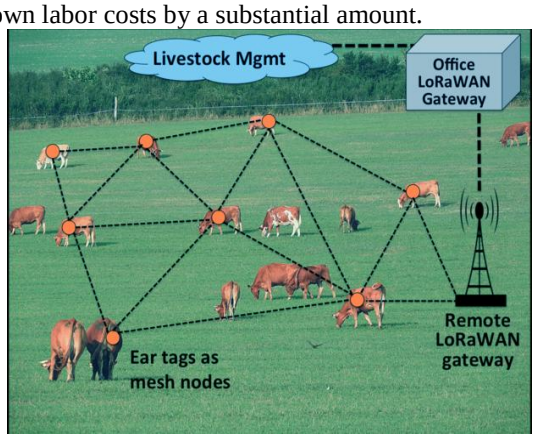


Figure 5: Livestock Monitoring

4. Smart Greenhouses:-

Greenhouse farming is a technique that enhances the yield of crops, vegetables, fruits etc. Greenhouses control environmental parameters in two ways; either through manual intervention or a proportional control mechanism. However, since manual intervention has disadvantages such as production loss, energy loss, and labor cost, these methods are less effective. A smart greenhouse through IoT embedded systems not only monitors intelligently but also controls the climate. Thereby eliminating any need for human intervention.

Different sensors that measure the environmental parameters according to the plant requirement are used for controlling the environment in a smart greenhouse. Then, a cloud server creates for remotely accessing the system when it connects using IoT.

Figure 6: Smart Greenhouses

Inside the greenhouse, the cloud server helps in the processing of data and applies a control action. This design provides optimal and cost-effective solutions to the farmers with minimal and almost no manual intervention. The sensors in the IoT system in the greenhouse provide information on temperature, pressure, humidity, light levels.

Conclusion:-

Farming will play vital role in next few years in country. Thus there is need of smart farming. Internet of Things will help to enhance smart farming. IoT works in different domains of farming to improve time efficiency, water management, crop monitoring, soil management, control of insecticides and pesticides etc. It also minimizes human efforts, simplifies techniques of farming and helps to gain smart farming. Along with these features smart farming can help to grow the market for farmer with single touch and minimum efforts.

REFERENCES

[1] Jim Chase: *The Evolution of the Internet of Things*. White Paper, Texas Instruments, September, 2013.

[2] Deeksha Jain, P. Venkata Krishna and V. Saritha, "A Study on Internet of Things based Applications", 2012.

[3] http://www.businessinsider.com/internet-of-things-smart-agriculture-2016-10?IR=T

[4] Xiaohui Wang and Nannan Liu, "The application of internet of things in agricultural means of production supply chain management", Journal of Chemical and Pharmaceutical Research, 2014, 6(7):2304-2310, ISSN : 0975-7384,2014.

[5] http://www.businessinsider.com/internet-of-things-smart-agriculture-2016-10?IR=T

[6] S. R. Nandurkar, V. R. Thool, R. C. Thool, "Design and Development of Precision Agriculture System Using Wireless Sensor Network", IEEE International Conference on Automation, Control, Energy and Systems (ACES), 2014

[7] JoaquínGutiérrez, Juan Francisco Villa-Medina, Alejandra Nieto-Garibay, and Miguel Ángel Porta-Gándara, "Automated Irrigation System Using a Wireless Sensor Network and GPRS Module",IEEE TRANSACTIONS ON INSTRUMENTATION AND MEASUREMENT, 0018-9456,2013

[8] Dr. V .Vidya Devi,G. Meena Kumari, "Real- Time Automation and Monitoring System for Modernized Agriculture" ,International Journal of Review and Research in Applied Sciences and Engineering (IJRRASE) Vol3 No.1. PP 7-12, 2013

[9] Y. Kim, R. Evans and W. Iversen, "Remote Sensing and Control of an Irrigation System Using a Distributed Wireless Sensor Network", IEEE Transactions on Instrumentation and Measurement, pp. 1379–1387, 2008.

IJCRT
ISSN 2454-7719
International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019

Paper ID: CS-18

INTERNET OF THINGS (IoT) : SECURING DATA USING LIGHTWEIGHT STEGANOGRAPHY ALGORITHM

Prof. Dr. B. H. Barhate
BhusawalArts,Science and P.O.Nahata Comm. College, Bhusawal
E-mail: barhate_1@yahoo.com

ABSTRACT:

Security to communication devices is common need . Increasing techniques of machine learning supports security to computer aided devices or internet based devices. IoT is one of the popular concept which can be easily implemented in these devices. In this research paper one such security algorithm of Steganography is implemented in IoT devices or in IP camera. Using this IoT Security made available strongly in defense, ATM offices, bank server or home.

KEYWORDS : ***IoT , IP Camera***

INTRODUCTION

Machine learning is one of the innovative and powerful application in computer sciences, the programming using this application is suitable for machine-to-machine communication. IoT performs vital role or an agent for modern technology. Smartness of IoT attracts users to implement in systems.

In today's world, basically all the devices are connected to each other via a network.

In this network, the mobile phone will help you coordinate the interactions of the things around you and provide real-time access to all types of information, including the people you meet, the places you go and the content that's available there. Some research estimates that the number of connected objects will reach 50 billion by 2020[1]

The techniques which are basically used to support security for the big databases .

1) Access Control: Access physical devices by authorized users like buildings, IP cameras, Computers etc and access logically as software, files, secure data etc.

2) Crptography- Convert readable text into not readable form

3) Steganography : To hide sensitive data in any type of media.

Above techniques can also create some new technique by combining with each other like Hybrid cryptography, Crypto-stegno combined model to perform better security for devices.

There are the powerful Cryptography algorithms to encrypt data or information stored in devices . Public Key and Private key creates a secure infrastructure for better and secure communication between devices or IoT devices, providing the trust and control needed to distribute and identify public encryption keys, secure data exchanges over networks and verify identity.

The IoT devices must have to work faster and the traditional encryption algorithms like DES, 3DES, and AES are more complex. These algorithms are very time consuming as well as works slow whenever IoT devices shares some information. For secure and fast data transmission we have to use develop lightweight encryption algorithm for information security. Following is the lightweight encryption algorithm which suits for IoT devices. [3]

There are many devices in offices, tweets, iPhones, automated embedded machines and production plants, and they run various functions for daily operations. The number of connected devices is constantly growing because new Internet connected devices are built every day because they help users of these devices to make their daily lives and to create a new digital experience. Existing and new Internet based devices are related t o Smart, Smart Cities, Smart Energy Plants, Automobile, Health Services, Retail Stores, and Transportation. Examples of that area are CCTV surveillance cameras and fridges, smart city applications, to help citizens find empty parking slots and personal trainer equipment in the health services sector.[2]

Steganography is the science and art to hide writing or message. As long as there are secret things, people need to hide their secret. Steganography is usually

confused with cryptography, although in reality they are two separate areas. Cryptography is a science that is not readable without a password or key. However, steganography hides that there is also a secret message. Steganography is a very important area in today's world due to lack of modern age privacy. Steganography allows people to interact without checking others because nobody knows that secret messages are encoded.

PROPOSED SCHEME

1. Record authorised Photos or images of authenticated person, who have to interface with IoT device may be in bank or in any service where this scheme is implemented.

[Record of available image will be available on cloud storage server, where it can be used any where]
2. Create a Cover image where recorded image will hide.
[Use of lightweight ht Image steganography algorithm (LSB) is used to hide image in cover]

2. IP camera records face image

3. IP captured image will match with stored image , if not matched invalid message will be transferred to server and locks the system.

4. If attacker tries to hack the information from server, image is covered and attacker cannot extract original image since is hided using LSB algorithm.

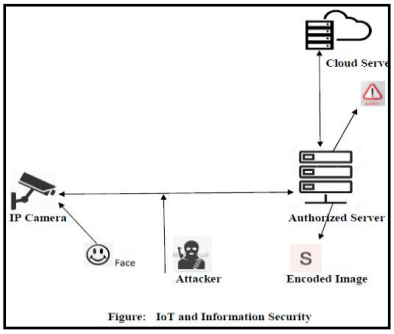


Figure: IoT and Information Security

In this research, we propose LSB (Least Significant Bit) information hiding techniques for securing communication in critical IoT infrastructure with the help of steganography, where RGB images are used as carriers for the information. We hide the information in the deeper layer of the image channels with minimum distortion in the least significant bit (lsb) to be used as indication of data. The proposed techniques helps to protect from steganalysis attack.

The face image and and other computer image files are passed through network independently , by performing the algorithm LSB the image is not at all altered. A small face image can be invisible with high pixel image, so, it is more secure
If the referral picture and the computer information file are passed on through network independently, we can achieve the effect of Steganography. Here the picture is not at all . In this method the LSB components of some or all of the bytes of a picture are substituted for a component of the secret concept **[4]**

CONCLUSION

Machine handling users must have to provide security, in thw world of internet every business or transaction is going to completed by ATM, POS, Mobile, Computer etc .In this research low processing IP camera and memory capabilities used to perform successful transmission. The rate of cyber crime get increased in banks, homes, offices etc . Provision of security by IP camera with software security like steganography benefited.

REFERENCES:

1. Lobna Yehia1, Ayman Khedr2, Ashraf Darwish1, "Hybrid Security Techniques for Internet of Things Healthcare Applications " , Advances in Internet of Things, 2015, 5, 21-25 Published Online July 2015 in SciRes. http://www.scirp.org/journal/ait http://dx.doi.org/10.4236/ait.2015.53004.

2. Steganography-The hidden message, David Pipkorn and Preston ,Weisbrot

3. ManjinderKaur and VarinderKaurAttri, "Implementation of Steganographic Method based on Interpolation and LSB Substitution.

4. Shwetha K R, 1 Narayanaswamy G, "Improvised Steganography Technique using LSB and Rc4 for IOTApplications", *IJSRD - International Journal for Scientific Research & Development| Vol. 4, Issue 03, 2016 | ISSN (online): 2321-0613*

International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019
ISSN 2454-7719

Paper ID: CS- 19

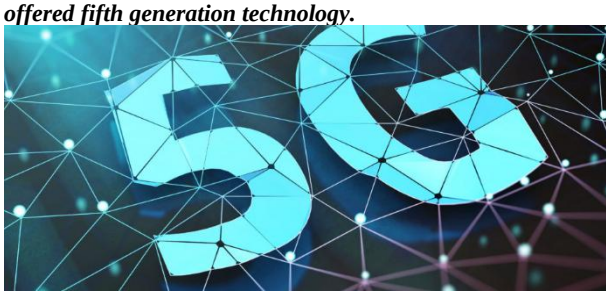
5G WIRELESS SYSTEM: IS IT A FUTURE?

Priyanka D. Rote

Second Year (IV th semester)
MSC (Computer)
P. O. Nahata College, Bhusawal

ABSTRACT:

5G wireless system is a fifth generation of mobile technology.Now a day to day life the technology has improved the performance in the generation form 1G to 2.5G and from 3G to 5G.The world of telecommunicationshas seen a number of development. In our day to day life has been changed from this fast resolutions in the mobile changes that we can work, interact, learn etc. Fifth generation networkprovider very high speed network and we can easily afforded broadband wireless connection. This 5G wireless system officially is not usedcurrently. In this World Wide Wireless Web(WWWW), Dynamic Adhoc Wireless Network (DAWN) and Real Wireless World has being developed researches made by the fifth generation. This Fifth generation focus on (Voice over IP) VOIP-enabled devices that user will experience a high level of call volume and data transmission.In cellular phones thefifth generation technology will fulfil all the requirementsof customers who always want advanced features. The main features in 5G mobile network is that usercan simultaneously connect to the multiple wireless technologies and can switch between t the connection. The IPv6 and flat IP is also supported by forthcoming mobiletechnology. The services like Documentation, supportingelectronic transactions e-Payments, e-transactions are offered fifthgeneration technology. All preceding generations of mobile communication fifth generation technology are also focuses in the paper. The paper can also focuses on network architecture of fifth generation technology offered fifth generation technology.



Keyword:- 5G, 5G Architecture, Comparison of all Generations,
Progress from 1G to 5G.

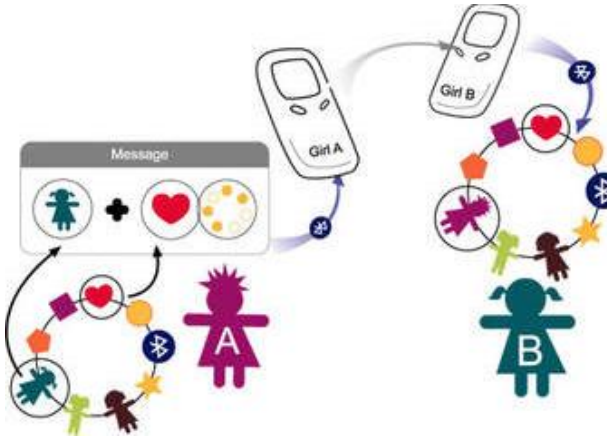
INTRODUCTION: -

In early1970s wireless communication has started. In next four stages, a mobile wireless technology has developed from 1G to 5G generations.Now day different wireless and mobile technologies are present such as third generation mobile networks UMTS-UniversalMobile Telecommunication System, cdma2000, LTE (Long Term Evolution), WiMAX (IEEE 802.16 wireless and mobile networks)Wi-Fi (IEEE 802.11 wireless networks),as well as sensor networks, or personal area networks e.g. Bluetooth. The circuit switch in mobile terminals include multiplicityof interfaces like GSM which is based on it. On network layer all data and signalling will be transferred via IP (Internet Protocol) the wireless and mobile networks implements all- IP principle.

In this least fifth generations technology areprovide facilities like camera, MP3 recording, video player, large phone memory, audio player etc. in the Bluetooth technology that user never imagine for children rocking fun.The wireless communication without limitation,which makes perfect wireless real world – World Wide Wireless Web (WWWW) in fifth generation wireless mobile multimedia internet networks can be completed. It base on 4G technologies. LASCDMA(Large Area

SynchronizedCode-DivisionMultipleAccess),OFDM(Orthogonalfrequency-division multiplexing), MCCDMA(Multi-Carrier Code Division Multiple Access),UWB(Ultra-wideband), Network-LMDS (Local MultipointDistribution Service), and IPv6 is supported by the 5th wireless mobile internet networks are in the real wireless world.In latest mobile operating system thefifth generation technologies offers tremendous data capabilities, unrestricted call volumes and infinite data broadcast.

This generation should make important difference and add more services and benefits to the world over 4G technology.It can be more intelligent technology that interconnects the entire world without limits. In our life style the significant at world of universal, uninterrupted access to information, entertainment and communication will open new dimension to our lives and change.It will be expected to be released on 2020.



5G ARCHITECTURE: -

5G Architecture is highly advanced, its network elements and various terminals are characteristically improved to provide a new situation. This value added service easily provide the implementation of advance technology to adopt.However, upgradeability is based upon reasoning radio technology that includes various significant features such as ability of device to identify their geographical location in addition to weather, temperature, etc. Cognitive radio technology act as a transceiver (beam) that perceptively can catch and respond radio signals in its operating environment.Further, it promptly distinguishes the changes in its environment and hence respond accordingly to provide uninterrupted quality service.As shown fig, the entirely **IP** based model designed for the wireless and mobile networks is system model of 5G.

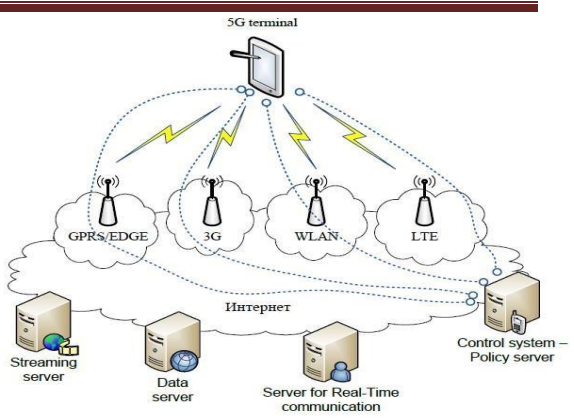


Fig: 5G Network

A main user terminal, then a number of independent and autonomous radio access technologies can compare by the system. The IP link for the outside internet world is considered as each of the radio technologies.The designed exclusively to ensure sufficient control data for appropriate routing of IP packets related to a certain application connections ofIP technology i.e. on the Internet sessions between client applications and servers.According with the given policies of the user moreover, to make accessible routing of packets should be fixed as shown in the fig.

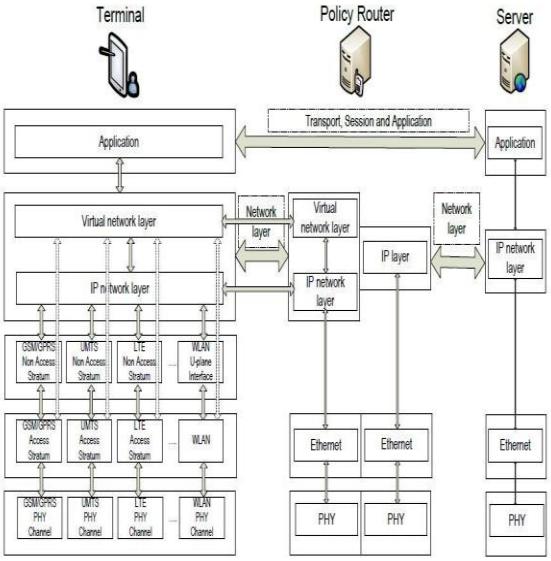


Fig: 5G Architecture

Comparison of all Generations:-

1G – First generation:-

Injapan first generation of mobile network was deployed by Nippon Telephone and Telegraph Company(NTT) in Tokyo during 1979.InUS, Finland, UK and Europe the beginning of 1980,s it is gained popular. It has many disadvantage due to technology limitations and system used analogue signals.

❖ **Most popular 1G system during 1980s**

- Advanced Mobile Phone System (AMPS)
- Nordic Mobile Phone System (NMTS)
- Total Access Communication System (TACS)
- European Total Access Communication System (ETACS)

❖ **Key features (technology) of 1G system**

- Frequency 800 MHz and 900 MHz
- Bandwidth: 10 MHz (666 duplex channels with bandwidth of 30 KHz)
- Technology: Analogue switching
- Modulation: Frequency Modulation (FM)
- Mode of service: voice only
- Access technique: Frequency Division Multiple Access (FDMA)

❖ **Disadvantages of 1G system**

- Poor voice quality due to interference
  Poor battery life
- 55Large sized mobile phones (not convenient to carry)
- Less security (calls could be decoded using an FM demodulator)
- Limited number of users and cell coverage
- Roaming was not possible between similar systems

2G – Second generation:-

A new digital technology for wireless transmission also known as Global System for Mobile communication (GSM) is introduced second generation of mobile communication system. This GSM technology became the standard of wireless and base standard for further development.

This standard was capable of supporting up to 14.4 to 64kbps (maximum) data rate which is necessary for SMS and email services.Code Division Multiple Access (CDMA) system developed by Qualcomm also introduced and applied in the mid-1990s. CDMA has more features than GSM. The number of users and data rate in terms of spectral efficiency.

❖ **Key features of 2G system**

- Digital system (switching)
- SMS services is possible
- Roaming is possible
- Enhanced security
- Encrypted voice transmission
- First internet at lower data rate

❖ **Disadvantages of 2G system**

- Low data rate
- Limited mobility
- Less features on mobile devices
- Limited number of users and hardware capability

2.5G and 2.75G system: -

General Packet Radio Service (GPRS) was introduced and successfully deployed in order to support higher data rate.It was capable of data rate up to 171kbps (maximum). To improve data rate for GSM networks,also developed EDGE – Enhanced Data GSM Evolution. It was capable to support up to 473.6kbps (maximum). Another widely held technology CDMA2000 was also introduced to support higher data rate for CDMA networks. The ability to make available up to 384 kbps data rate (maximum).

3G – Third generation: -

The introduction of third generation mobile communication started with UMTS – Universal Mobile Terrestrial / Telecommunication Systems. It has the data rate of 384kbps and it support video calling for the first time on mobile devices. After the 3G mobile communication system, smart phones became more popular across the world. Specific applications were developed for smartphones which becomes multimedia chat, email, video calling, games, social media and healthcare.

❖ **Key features of 3G system**

- Higher data rate
- Video calling
- Enhanced security, more number of users and coverage
- Mobile app support
- Multimedia message support
- Location tracking and maps
- Better web browsing
- TV streaming
- High quality 3D games

3.5G to 3.75 Systems: -

In order to improve data rate in remaining 3G networks, another two technology developments are introduced to network. HSDPA – High Speed Downlink Packet Access and HSUPA – High Speed Uplink Packet Access, established and arranged to the 3G networks. 3.5G network canalso be support up to 2mbps data rate.3.75 system is an developed version of 3G network with HSPA+ High Speed Packet Access plus. This system will progress into more powerful 3.9G system known as LTE (Long Term Evolution).

❖ **Disadvantages of 3G systems**

- Expensive spectrum licenses
- Costly infrastructure, equipment's and implementation
- Higher bandwidth requirements to support higher data rate
- Costly mobile devices
- Compatibility with older generation 2G system and frequency bands

4G – Fourth generation: -

4G systems are improved version of 3G networks developed by IEEE,its offers higher data rate and capable to handle more advanced multimedia services. LTE progressive wireless technology used

in 4th generation systems. It has compatibility with previous version thus easier arrangement and upgrade of LTE and LTE advanced networks are possible. It is simultaneous transmission of voice and data is possible with LTE system which significantly increase data rate. All services with voice services can be transmitted over IP packets. It complex modulation schemes and carrier combination is used to multiply uplink / downlink capacity. TheWireless transmission technologies like WiMax are bring together in 4G system to improve data rate and network performance.

- **Key features of 4G system**
  - Much higher data rate up to 1Gbps
  - Enhanced security and mobility
  - Reduced latency for mission critical applications
  - High definition video streaming and gaming
  - Voice over LTE network VoLTE (use IP packets for voice)

- **Disadvantages of 4G system**
  - Expensive hardware and infrastructure
  - Costly spectrum (most countries, frequency bands are is too expensive)
  - High end mobile devices compatible with 4G technology required, which is costly
  - Wide deployment and upgrade is time consuming

5G – Fifth generation:-

5G system will be using advanced technologies to deliver ultra-fast internet and multimedia experience for customers. The current LTE advanced networks will convert into supercharged 5G networks in future. In order to reach higher data rate, itwill use millimetre waves and unlicensed spectrum for data transmission. The complex modulation technique has been developed to maintenanceconsiderable data rate for Internet of Things. The cloud based network architecture will spread the functionalities and analytical capabilities for industries, autonomous driving, healthcare and security application.

- **Key features of 5G technology**
  - Ultra - fast mobile internet up to 10Gbps
  - Low latency in milliseconds (significant for mission critical applications)
  - Total cost deduction for data
  - Higher security and reliable network
  - Uses technologies like small cells, beam forming to improve efficiency
  - Forward compatibility network offers further enhancements in future
  - Cloud based infrastructure offers power efficiency, easy maintenance and upgrade of hardware

Progress from 1G to 5G: -

CONTENT	1G	2G	3G	4G	5G
START	1970	1990	2004	NOW	SOON (2020)
DATABW	2kbps	64kbps	2Mbps	1Gbps	>1Gbps
MULTIPLEX	FDMA	TDMA	CDMA	CDMA	CDMA
SWITCHING	CIRCUIT	CIRCUIT	PACKET	ALL PACKET	ALL PACKET
CORE NETWORK	PSTN	PSTN	PACKET N/W	INTERNET	INTERNET

WHY 5G?

1) Its Very High speed, high capacity, and low cost per bit and also supports interactive multimedia, voice, video, Internet, and other broadband services, more effective and more attractive, and have Bi- directional, accurate traffic statistics.

2) 5G technology offers Global access and service portability and it can also offers the high quality services due to high error tolerance.

3) It is providing large broadcasting capacity up to Gigabit which supporting almost 65,000 connections at a time and more applications combined with artificial intelligent (AI) as human life will be surrounded, they communicating with mobile phones by artificial sensors.

4) 5G technology use remote management that user can get better and fast solution.

5) The uploading and downloading speed of 5Gtechnology is very high.

6) 5G technology offer high resolution for crazy cell phone user and bi-directional large bandwidth shaping.

7) 5G technology offer transporter class entrance with unmatcheddependability.

CONCLUSION:-

The mobile and wireless networks is going towards the developing higher data rates and all-IP principle. Each year more processing power, more memory on board, and longer battery life for the same applications are obtain by mobile terminals. Latest technologies such as cognitive radio, SDR, nanotechnology, cloud computing and based on All IP Platforminclude by 5G technology. The initial Internet philosophy of keeping the network simple as possible it is expected, and giving more functionalities to the end nodes.It will become reality in the future generation of mobile networks, at this timementionedas 5G.

REFERENCES:-

- T.Venkat Narayana Rao,‖5g technologies – an anecdote of network service for the future‖, Journal of Global Research in Computer Science Volume 2 No (7), July 2011 164-170.
- Proceedings of the 11th IEEE International Symposium.
- Mudit Ratana Bhalla.Generations of Mobile Wireless Technology - A Survey,*International Journal of Computer Applications (0975 – 8887) Volume 5– No.4, August 2010*
- Vasavi Bande, Mounika Marepalli, Leepika Gudur―Evolution of 4G-Research Directions Towards Fourth Generation Wireless Communication‖, ― International Journal of Computer Science and Information Technologies‖, Vol. 2 (3) , 2011, 1087-1095.
- Toni Janevski , 5G Mobile Phone Concept , Consumer Communicationsand Networking Conference, 2009 6th IEEE.
- J. M. Pereira, "Fourth Generation: Now, It Is Personal".

IJCRT
ISSN 2454-7719
International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019

Paper ID: CS- 20

OVERVIEW OF ARTIFICIAL INTELLIGENCE -APPLICATIONS &CHALLENGES

Minal H.Waykole
Assistant Professor
Department of Computer Science and IT
Bhusawal Arts, Science and P.O. Nahata Commerce College, Bhusawal
Email- mhwaykole@gmail.com

ABSTRACT:

Artificial intelligence has greatly improved performance of the manufacturing and service systems over last two decades. Artificial Intelligence is becoming a popular field in computer day by day as it computes and resolves difficult problems. This paper versioned towards accessing more knowledge about what exactly Artificial Intelligence is. Elaborates different technique of Artificial intelligence and enhance area of artificial intelligence. This paper also explores scope as well as Applications[6] of Artificial Intelligence. The challenging factor in Artificial Intelligent that does not get overcome yet like building trust with AI,Software Malfunction in AI since hardware and software trashes may happen any time.

KEYWORDS:

Artificial intelligence, Expert system, Artificial Neural Networks, Fuzzy logic.

I.INTRODUCTION

Most of the tasks are getting manufactories using computers to save the time and for product efficiency, performing task on input with desired procedure is not a big deal today but where its comes to take decision computer would not capable due to lack of brain as human. Here the term 'Artificial Intelligence' connect us to provide the brain to computer machine and making machine intelligent and proficient as like as human can compute and get optimized solution. Artificial Intelligence(AI) is the study of how to make computers (machines) do things which, at the moment, people do it better. The term artificial intelligence was proposed by John McCarthy an American Scientist in 1956. Artificial intelligence is pedestal on human philosophy that whether a machine can be as intelligent as human. It is the study of the computation which makes it possible to identify reason and act. It makes machines smarter and more useful with the help of artificial neurons (artificial neural network) and scientific theorems (if then statements and logics). AI technologies have full-fledged to the point in offering real practical benefits in many of their applications. Major Artificial Intelligence areas are Scene Recognition, Speech Understanding, Natural Language Processing, Expert Systems , Robotics and Sensory Systems, Computer Vision and Neural Computing. From these Expert System is a rapidly growing technology having a huge impact on various fields of life. The various techniques applied in artificial intelligence are Neural Network, Fuzzy Logic and Evolutionary Computing.

II. GOALS AND TECHNIQUES APPLIED IN ARTIFICIAL INTELLIGENCE

Goals:

- To create a system that is an expert in every form –learning, behavior, explanation, and demonstration can give priceless recommendation to its users.
- To expand and implements human thinking and intelligence in machines.

Techniques:

Following are the techniques in artificial intelligence:

- Expert Systems
- Fuzzy Logic
- Neural Networks
- Robotics

Expert Systems:

An expert system is a dominant system that imitates the human behavior like reasoning, decision making. Expert System solves intricate problems using the concept of if-then rules. It consists of the following elements:

- User Interface – It acts as the mediator between the user of the expert system and the expert system.
- Inference engine – It is a component of an expert system that concerns logical rules and procedures to the knowledge

base to offer a solution to a problem and to conjecture new information.
- Knowledgebase – It is a collection of high quality and clear-cut knowledge related to a specific domain to implement intelligence. In other words, a knowledge base is a collection of facts and regulations to exhibit intelligence.

Fuzzy Logic:
Fuzzy Logic is a conception of reasoning similar to human reasoning. It emulates the way human make decisions relating possibilities of YES/NO or True/False. In this system, a logical block takes an input and generates definite output in the form of True or False. The fuzzy system works on possibilities. The Fuzzy Logic system has four main parts:

- Fuzzification Module
- Knowledge Base
- Inference Engine
- Defuzzification Module

Neural Networks:
Artificial Neural Networks emulates the real neural network of human beings. In simple terms, Artificial Neural Network(ANN) imitate the working of the human brain. A human brain consists of millions of nerve cells known as neurons. These neurons are interconnected with each other by the axon. The dendrites accept stimuli from the outside environment and produce electrical impulse. One neuron can propel information to other neurons.
In ANN, different nodes emulate biological neurons. The nodes are connected with each other by links for interaction. A node concedes input data and performs operations on it to generate an output known as node value. A particular weight is allied with each link.

Robotics:
Robotics is a branch of artificial intelligence that concerns with the creation of intelligent and systematic agents known as robots. A robot is an artificial agent that works in the real-world environment by perceiving its surrounding. A robot can consider as employing the concept of computer vision. Through computer vision, a robot can extort valuable information from a single picture. The main aim of robotics is to diminish the manpower employed in construction and manufacturing. Robots accept input in the form of analog signals like speech and images. Components of a robot are:

- Power Supply
- Actuators
- Electric Motors
- Sensors
- Muscle Wires
- Ultrasonic Motors

These were the types of artificial intelligence systems.

III. AREAS AND APPLICATION ARTIFICIAL INTELLIGENCE

Language understanding: The skill to "understand" and respond to the natural language. To translate from spoken language to a written form and to translate from one natural language to other natural language.

- Speech Understanding
- Semantic Information Processing (Computational Linguistics)
- Question Answering
- Information Retrieval
- Language Translation

Learning and adaptive systems: The ability to adapt behavior based on previous experience, and to enlarge general rules concerning the world based on such experience.

- Cybernetics
- Concept Formation

Problem solving: The Ability to resolves a problem in a suitable representation, to plan for its solution and to know when new information is needed and how to obtain it.

- Inference (Resolution-Based Theorem Proving, Plausible Inference and Inductive Inference)
- Interactive Problem Solving
- Automatic Program Writing
- Heuristic Search

Perception (visual): The ability to examine sensed scene by relating it to an internal model which represents the perceiving organism's "knowledge of the world." The result of this analysis is a structured set of relationships between entities in the scene.

- Pattern Recognition
- Scene Analysis

Robots: A combination of all of the above abilities with the ability to move over environment and deploy objects.

- Exploration
- Transportation/Navigation
- Industrial Automation (e.g., Process Control, Quality Check, Assembly Tasks, Executive Tasks)
- Security
- Other (Agriculture, Medical, Fishing, Fire Safety, Mining, Sanitation, Construction, etc.)
- Military
- Household[1]

AI's technique "Fuzzy Expert Systems" in Medicine:

Fuzzy logic is a data managing methodology that permits ambiguity and hence is particularly suited to medical applications. It snatch

and use the concept of fuzziness in a computationally effective manner. The most likely area of application for this theory lies in medical diagnostics and, to a lesser extent, in the description of biological systems[2].Fuzzy expert systems use the structure of a sequences of "if and then" instructions for modeling.

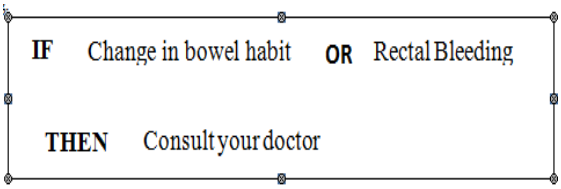


Figure1:A typical fuzzy rule system. [3]

The techniques of fuzzy logic have been discovered in many medical applications. Fuzzy logic is desired over the multiple logistic regression analysis in analyzing lung cancer using tum our marker profiles. Fuzzy logic is also used in the analysis of acute leukaemia, breast and pancreatic cancer and also forecast patients' survival with breast cancer. They can also illustrate MRI images of brain tumours ultrasound images of the breast. Fuzzy logic controllers have been planned for the administration of vasodilators in the peri-operative period to control blood pressure.

Application of Artificial Intelligence in Accounting Databases:

The use of artificial intelligence is investigated as the basis to mitigate the problems of accounting databases. The following are some difficulties with existing accounting database systems. The needs of decision makers are not met by accounting information. Humans do not understand or cannot process the computerized accounting databases. Systems are not easy to use. There is focus on the numeric data. Integrating intelligent systems with accounting databases can assist (either with the decision maker or independent of decision maker) in the investigation of large volumes of data with or without direct participation of the decision maker. Thus, the systems can analyze the data and assist the users understanding or interpreting transactions to determine what accounting events are captured by the system [4].With the artificial intelligence we store and retrieve knowledge in natural language. There are some artificial intelligence tools or techniques that help in the broader understanding of events captured by the accounting system. There is more emphasis on symbolic or text data rather than just numeric data to capture context. The artificial intelligence and expert system builds intelligence into the database to assist users. Without users direct participation such models help the users by sorting through large quantities of data. Such models also assist the decision makers under time constraints; suggest alternatives in the searching and evaluation of data.

Artificial Intelligence Techniques in the Computer Games:

Now a days playing games is one of the most popular uses for computer technology. In the advancement of computer games, they have developed from modest text based to the three dimensional graphical games with complex and large world. The systems as graphics rendering, user input, playing audio and game artificial intelligence (AI) when put together offer the expected entertainment and make a worthwhile computer game. Artificial intelligence is the most imperative part of every computer game and playing the game without artificial intelligence would not be any fun. If we remove artificial intelligence from computer games, the games will be so simple that nobody will be interested in playing the computer games anymore Without the game AI, the winning would not be difficult at all since it doesn't provide satisfaction of Winner!.. Artificial intelligence is used to solve common problems in the computer games and afford the features to the games. Exactly, non-playing character (NPC) path finding, decision making and learning are examined. There are frequent ways that AI subsidizes to modern computer games. Most especially are unit movement, simulated perception, situation analysis, spatial reasoning, learning, group coordination, resource allocation, steering, flocking, target selection, and so many more. Even context dependent animation and audio use AI [5].

Computer Game Problems Solved with AI:

Artificial intelligence solves the three common problems: non-playing character (NPC) movement, NPC decision making, and NPC learning. The four artificial intelligence techniques used are Track Finding, Bayesian Networks, Fuzzy Logic, and Genetic Algorithms which help a computer game provide non-playing character path finding and decision making as well as learning.

IV. CHALLENGES OF ARTIFICIAL INTELLIGENCE

Building Trust:

AI is all about science and algorithms, which work on the technical side. People who are completely unaware of these algorithms and technology find it complicated to understand its functioning.[7]

Software Malfunction:

Since no technology or human is perfect. In case of software or hardware crashes, it is difficult to check what went wrong. In contrast tasks performed by humans can be traced. But, with machines and inbuilt algorithms, it is difficult to blame someone or find the reason for a software/hardware crash. A recent example of this is the self-driving cars that took the life of a pedestrian.[7]

AI Can't Replace Every Task:

Ever since AI made its way into our lives, we have a notion that all tasks can be managed by artificial intelligence. However, this can be right to a certain extent. Then not all the tasks can be undertaken by AI.

AI is a tool that helps increase the efficiency of a task. It has the ability to change all the worldly tasks with machines and lets you do more productive tasks with your time. This tool provide strengthens and boost the performance and efficiency of an average worker.[7]

V. CONCLUSION

The field of artificial intelligence gives the ability to the machines to think logically, using concepts. Tremendous contribution to the many areas has been made by the Artificial Intelligence techniques from the last 2 decades. Artificial Intelligence will continue to play an gradually important role in the various fields. This paper is based on the concept of artificial intelligence, areas of artificial intelligence and the artificial intelligence techniques used in the field of medical sciences for analysis in diagnosing lung cancer using tumour marker profiles. Considering the scope of artificial intelligence it has limitations like lack of trust

REFERENCES

[1] Oscar Firschein, Martin A. Fischler, L.Stephen Coles, Jay M. Tenenbaum, "FORECASTING AND ASSESSING THE IMPACT OF ARTIFICIAL INTELLIGENCE ON SOCIETY", unpublished.

[2] Zadeh L, "Fuzzy sets Inf Control", 1965.

[3] N Ramesh, C Kambhampati, JRT Monson, PJ Drew, "Artificial intelligence in medicine", 2004.

[4] Daniel E.O."Leary Artificial Intelligence and Expert System in Accounting Databases: Survey and Extensions", Expert Systems with Applications, vol-3, 1991.

[5] Charles Weddle, Graduate Student, Florida State University "Artificial Intelligence and Computer Games", unpublished.

[6] Avneet Pannu "Artificial Intelligence and its Application in Different Areas" International Journal of Engineering and Innovative Technology (IJEIT), 2015

[7] https://www.bbntimes.com/en/companies/6-challenges-of-artificial-intelligence

IJCRT
ISSN 2454-7719
International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019

Paper ID: CS- 21

A SURVEY : CHALLENGES AND APPLICATION OF SPEECH RECOGNITION SYSTEM

Snehal V.Chaudhari **Archana P.Bhalerao**

Assistant Professor
Department of Computer Science and IT
Bhusawal Arts, Science & P.O. Nahata
Commerce College, Bhusawal
Email- snehalchaudhari99@gmail.com
bhalerao.archana22@gmail.com

ABSTRACT:

Speech recognition is a huge research field for researchers in modern era. Previous, the human language was processed by the computer system for speech recognition. Thus, the main purpose is to develop recognition system which improves human to human communication by enabling human-machine communication by processing of text or speech. different applications of speech recognition systems are present and these all includes different research challenges. A critical machine learning based review is defined which addresses the various challenging tasks of speech recognition system in Natural language processing. In the existing systems, the recognition rate is extremely less and the noise ration during the recognition process creates a problem. Thus in this literature review we try to address such kind of challenges and provides a solution to work further in future.

KEYWORD: NLP, Speech recognition, ASR, Dynamic Time Warping, B. Hidden Markov Model

INTRODUCTION

NLP is a way for computers to examine, understand, and obtain meaning from human language in a smart and useful way. By utilize NLP, developers can arrange and structure knowledge to perform tasks such as automatic summarization, translation, named entity recognition, relationship extraction, sentiment analysis, speech recognition, and topic segmentation.

Speech recognition is the method by which a computer identifies spoken words. generally, it means talking to our computer,& having it properly recognizes what we are saying. talking is the most basic, common and efficient form of communication method for people to interact with each other. People are easy with speech therefore persons would also like to interact with computers via speech, rather than using primitive interfaces such as keyboards and pointing devices. This can be accomplished by developing an Automatic Speech Recognition system which allows a computer to identify the words that a person speaks into a microphone or telephone and convert it into written text. As a result it has the potential of being an important mode of interaction between human and computers Although any task that involves interfacing with a computer can potentially use ASR. The ASR system would support many important applications like dictation, command and control, embedded applications, telephone directory assistance, oral database querying, medical applications, office dictation devices, and automatic voice translation into foreign languages etc.

TYPES OF SPEECH RECOGNITION

1) Isolated Words

Isolated word recognizers usually require each word to have silence on both sides of the sample window. It doesn't mean that it accepts single words, but does require a single word at a time. This is fine for situations where the user is required to give only one word responses or commands, but is very abnormal for multiple word inputs. It is comparatively simple to implement because word boundaries are obvious and the words tend to be clearly pronounced which is the major advantage of this type. The drawback of this type is choosing different boundaries affect the results.

2) Connected Words

Connected word systems are similar to isolated words, but allow separate words to be 'run-together' with a minimal pause between them.

3) Continuous Speech

Unbroken speech recognizers allow users to talk almost naturally, while the computer determine the content. Basically, it is computer dictation. It include a great deal of "coarticulation", where

contiguous words run together without pauses or any other apparent division between words. Continuous speech recognition systems are most hard to create because they must utilize special method to determine word boundaries. As vocabulary grow bigger, confusability between different word sequences grows.

4) Spontaneous Speech

This type of speech is natural and not rehearse. An Automatic Speech Recognition system with spontaneous speech should be able to handle a range of natural speech feature such as words being run together and even slight stutter. Spontaneous speech may include mispronunciations, false-starts, and non-words.

APPLICATIONS OF SPEECH RECOGNITION

A. Voice biometrics

This technology compares the earlier stored voice print or template with the word and produces score. It works on voice interpretation algorithm. Biometric reduces each spoken word into some frequency segment called formants. This technology is used at various agency like online banking, online security trading, online information services, computer access security and many more.

B. Siri technology

It is an application used by the corporation Apple Macintosh in their iphones. This application captures the voice from the speaker and performs the function narrate by the speaker.For example, we can ask to call a specific person from our contact list, or send him a message and can describe the message as well.

C. Games and toys

Different voice driven toys and games are available in market. The simulation of these types of products is based on the voice command given to them.

D. Fighter aircrafts

The fighter jets are controlled with the voice system and are being given commands from the base. The speech recognition systems are supportive for controlling the hands free weapons system.

E. Home automation

Voice activated alarm and control signals help to provide security at homes.

CURRENT CHALLENGES IN SPEECH RECOGNITION

The performance of the audio input system degrade due to noise from the outer sources. Accuracy and consistency of the system is affected by the unnecessary input and low output result. The fault tolerance capacity lacks in this case. User awareness is also one of the challenges, it happens when the resources are not ready and user starts to speak the command and then it leads to problem of synchronize the data with multiple applications like media, phone, navigation Within Speaker inconsistency: It means that different in the single speaker's way of speaking because of timing differ and speaking style. Between Speaker variability: It means that various when two persons speaking with each other the way be vary with respect to accent variation, Voice Quality variation and individual characteristic variation.atmosphere inconsistency: Speech Recognition is also affected by the environment factors such as Background noise and Microphone /Channel.

Speech-Recognition Engines equivalent a Detected Word to a Known Word Using One of the following Techniques Complete-word matching: The comparison between the incoming digital-audio signal and prerecorded template of the word. The preprocessing required by this method is less than the sub word but it needs the pre record of all words that are to be recognized. It require huge amount of memory to store the whole word. Sub-word matching: The engine look for phonemes after that it does pattern recognition on those. In order to process a phoneme a less amount of storage is required but processing time is less. In addition, the pronunciation of the word can be guessed from English text without requiring the user to speak the word before hand.

VARIOUS TECHNIQUES OF SPEECH RECOGNITION

A. Dynamic Time Warping

Dynamic time warping is a statistical approach, before used to recognize speech but its use is displaced by more powerful and successful technique such as Hidden Markov Model. Any type of data that can be represented linearly can be analyzed with the help of DTW.Dynamic time warping algorithm is powerful for measuring similarity between two time series which may differ in time or speed. The main principle of DTW is to compare two dynamic patterns and measure its similarity by calculating a minimum distance between them.

B. Hidden Markov Model

A Hidden Markov Model is a statistical model of a sequence of characteristic vector observations. In HMM state sequences are unseen and the observations are probabilistic function of the state. A Hidden Markov Model is a collection of states connected by transition. The choice of change and output symbol are both random, governed by probability distributions. The sequence of output symbol generate over time is observable, but the sequence of states visited over time is unseen from view.

C. Artificial Neural Network

Neural Network has emerge as a field of study of Artificial Intelligence and engineering via the joint efforts of engineers, physicist's mathematicians, computer scientists and neuroscientists . An ANN is a model that is composed of inputs, weights and outputs. It has a number of neurons which are connected to each other with labeled edge is called weights. The main motive of ANN is to convert input to meaningful output.

CONCLUSION

A excellent way and process for the recognition of speech is to find a best way which can minimize the error rate during recognition. This paper defined the various recognition techniques and methods used in the current era with their pros and cons. Thus our literature indicated that efforts can be made to propose a novel approach for the recognition process which will produce better results as compare to the existing methodologies. For this better results, database of the speech signals should be last so that texting can be performed on large database. Furthermore in future research can be made when people interact with complex media indicate that speech and language processing tools and techniques will be critical in development.

REFERENCES

1. Rajeev Kumar Bedi: "Current Challenges and Application of Speech Recognition Process using Natural Language Processing: A Survey" International Journal of Computer Applications (0975 – 8887) Volume 131 – No.11, December2015.
2. https://www.globalme.net/blog/the-present-future-of-speech-recognition
3. R. Tadeusiewicz, "Speech In Human Interaction", in proc. of IEEE 3rd Conference on Human System Interactions (HSI), Poland, 2010, pp. 1.
4. Parneet Kaur: "Speech Recognition System; Challenges and Techniques" (IJCSIT) International Journal of Computer Science and Information Technologies, Vol. 3 (3) , 2012,3989-3992.
5. A Review on Speech Recognition Challenges and Approaches World of Computer Science and Information Technology Journal (WCSIT) ISSN: 2221-0741 Vol. 2, No. 1, 1-7, 2012.

IJCRT
ISSN 2454-7719
International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019

Paper ID: M-01

CHANGING TRENDS IN E-COMMERCE

Namrata Sameer Gadgil

Modern College of Arts, Science and Commerce
(Business Administration Campus)
Shivajinagar Pune 05.
namrata.gadgil@gmail.com

ABSTRACT:

Internet and information technologies changed our day to day life. In case of purchasing or shopping E-commerce change our habits. This report mainly focused on the rapid growth in e-Commerce. How technology changed and how it serves people. This paper includes introduction to E-Commerce , definition, history, and change in technologies used in E-commerce and how they are beneficial for the people mainly in India. This paper also includes E-Commerce organizations and types of EC based on parties involved in it. It also focused on problem faced by E-commerce industry now a days and losses in e-commerce industry in India. Finally conclusion and recommendations are discussed.

KEYWORDS:*E-commerce(EC), Trends, India, losses, technology.*

1. INTRODUCTION

Now a days internet change our way to live life. Every moment of our life is occupied by the use of internet, online gaming, social networking , mobile TV , digital marketing, and the main is the online buying and selling in other word online shopping of goods and services. If organizations want to grow rapidly worldwide they should take strategic initiative with the help of internet technologies. Every organization (small or big) should focus on E-commerce. Electronic commerce is rebellion era which is growing and changing continuously. Looking into this phase of EC, business going to face immense success as well as challenges due to digital market. Latest trend in E-commerce is use of laptops, mobile phones, shopping apps, and social commerce.

E-commerce means:

The first thought in mind when we think E-commerce is online shopping on sites like Flipkart, Amazon and many more for clothes, glossary, digital goods etc. but is far more than this. The definition of EC :

" Ecommerce, also known as electronic commerce , refers to the buying and selling of goods or services using the internet, and the transfer of money and data to execute these transactions of the good and services."It uses world wide web.

2. EVOLUTION OF E-COMMERCE

Online shopping was invented by Michael in 1979 at UK. He connected a modified domestic television via a telephone line to real time multiuser transaction processing computer. This system was used in 1980 as aB2B system in UK.

According to experts, The sector started in India during 1999 with companies such as Firstandsecond.com and Fabmart aspiring to become the Amazon of India - the biggest online provider of books.

First online transaction was taken in 1972 to MIT students at their AI lab. The first online shopping transaction on the internet took place 1992.

3.E COMMERCE TIMELINE

Year	Change
1960-1982	EDI replaces mailing and faxing of documents with digital transfer of data from one computer to another.
1982-1990	It is clear that B2B EC is beneficial but B2C would not successful until more use of PC's and WWW / internet
Early 90's	Proposal published to build " Hypertext project" called "WorldWideWeb" in the same year first web server created and wrote the first web browser, it debut on Aug 6, 1991.
Mid 90's	First E-Commerce site was Amazon launched in 1995 as online bookstore and grown to be largest online retailer in the world.
In 1998	Online payment evolve by PayPal
2001-2018	Mobile expands.

4.TECHNOLOGIES USED IN EC

In this journey of EC different types of web servers, server s/w's , web tools, DB system, networking, browsers, ports, domain names are used. These are technical parts of the E-commerce on which the success of each business depends.

5. E-COMMERCE MODELS

Basically there are B2B, B2C, C2C and omni-channels are the current leading E-commerce models in India. And many companies are using these models some examples are mention in table below:

E-commerce models	Companies
B2B E-Commerce	Amazonbusiness.in,power2sme.com, IndustryBuying.com, Bizongo.com,tolexo.com, justBuyLive.com
B2C E-commerce	Snapdeal.com, Amazon.com, FlipKart.com, BigBasket.com, FirstCry.com, Zovi.com, uber.com, olacabs.com
C2C E-commerce	Quicker.com, olx.com, cloudcar.com
Omni-channel	Shopper stop.com, Vaadak music.com, maxonline.com

6. LIST OF SECTORS USING E-COMMERCE

In India till the ending of year 2018 almost all the sectors used internet and WWW for expanding their business to the world market. List of some sectors given below :

Sectors	Leading company names
Online Food	Swiggy.com, foodpanda.com, zomato.com,faasos.com, dialameal.com, ubereats.com
Online Travel	MakeMyTrip.com, travelonline.com, redbus.com, yatra.com, TravellGuru.com, Booking.com
Online Real estate	99Acres.com, MagicBricks.com, Commonfloore.com, IndiaProperty.com, Housing.com, GrabHouse.com, Makaan.com, PropertyWala.com, PropTiger.com, Sulekha.com
Online Fashion	Amazon.com, snapdeal.com, mantra.com ,limeroad.com
Online Furniture	Peppefry.com, urbanladder.com,vilasa.com, furnitureDekho.com
Online Education	Exd.com, academicEarth.com, khan academy.com,courseera.com
Online Banking	SBI,HDFC,AXIS
Online Health	Portea.com, healthkart.com
Online Laundry	Laundrywala.com,doormint.com
Online Truck booking	Trucksuvidha.com, truckmandi.com , fortigo.com
Online Entertainment	Netflix.com, erosnow.com, jiotv.com
Online Grocery	Bigbasket.com,grofers.com
Online jewelry	Bluestone.com, caratelane.com, Malabar.com

7. CHALLENGES IN E-COMMERCE

The E-commerce industry enjoying the growth and acceptance of EC in India, but there are many challenges as well. These challenges are mainly related with infrastructural support, customer acquisition, customer satisfaction, and loyalty, government policies, legal framework, scaling and profitability of organization etc. Attracting the right customer who is loyal. Customers are attracted by discount and have very less loyalty towards brand and the always switch among platform and sites. Customers mainly prefer COD (cash on delivery) as it increase in the chances of return or exchange. This results in using or locking of capital of the sellers. This is the case of customer, but if Merchant is new in the EC business, does not have any experience of electronic business, technology. Mainly small business facing this type of challenge, to trained in the EC business. Next is logistic in EC merchants follow 2 types of supply chain management. Few e-retailers have their own logistics network for intra-city and some rely on third party services for inter-city. Others EC businesses depend totally upon Third Party Service Providers (TPSP). If these networks are weak it creates problem in delivering product at right place on right time for customer. Problem extends because of increase in cost of logistic for seller. Above all problems are related with humans, but main challenge is the technology used like network and bandwidth, digital payment transaction failure, and telecom operators to roll out 3G/4G.

Due to above reasons EC businesses facing losses in their business in India.

8.FUTURE OF E-COMMERCE

Future of EC is bright and alluring globally as well as in Asia and India. India is the 3rd largest country in buying online, this would be reached to 239.7 million by 2019 which is only the 24.3% of the total population of India.Though there are few challenges, still e Commerce is growing day by day and sooner will become the drastic demand of the users. Mostly social media is the decision maker for buying online like facebook, linkedin ,pininterest, twitter etc. more and more customers are attracted by social media, advertising and marketing through these media increase chances of success. Drown delivery is the future of logistic, many companies are working on. Google is working on its own "buy now" button, on

clicking on that button user will redirected to the desired page, and google will provide customers details to the retailer. According to business world approximately sixty thousand jobs will be created.

Total Retail and Retail Ecommerce* Sales in India, 2014-2019

billions, % change and % of total retail sales

	2014	2015	2016	2017	2018	2019
Total retail sales	**$717.83**	**$818.33**	**$941.08**	**$1,082.24**	**$1,244.58**	**$1,418.82**
—% change	13.0%	14.0%	15.0%	15.0%	15.0%	14.0%
Retail ecommerce* sales	**$6.10**	**$11.00**	**$17.65**	**$27.36**	**$38.33**	**$47.49**
—% change	133.8%	80.3%	60.5%	55.0%	40.1%	23.9%
—% of total retail sales	0.8%	1.3%	1.9%	2.5%	3.1%	3.3%

*Note: converted at the exchange rate of US$1=INR60.96; excludes travel and event tickets; *includes products or services ordered using the internet via any device, regardless of the method of payment or fulfillment*
Source: eMarketer, July 2015

192078 www.eMarketer.com

9.CONCLUSION

E-commerce industry in India is in growing stage and having tremendous potential. From 1999 and today in 2019 it becomes fastest growing industry of India. Higher speed of internet and smart phone availability of 4G connectivity , further promotes investment in EC industry. In India till 2018 not only B2B but also B2C, C2C and omni channels retailers are also growing. This blooming growth in E-commerce business in India helping in growing Indian economy. These change include government policy and initiative like skill fund, innovation fund, smart up India, GST, cashless payment solution, logistic support etc. The further efforts by Indian government and EC industry will make changes in payment mode form cash to card and from card to mobile payment. This payment option gain the trust of the customer.

REFERENCES :

E-commerce in India drivers and challangs (Report)

E-commerce world staista market forecasts

eMarketer_worldwide_EC_Report

International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019
ISSN 2454-7719
Paper ID: M-02

A SURVEY ON PUBLIC KEY INFRASTRUCTURE

Mrs. Swati PravinPhalak,
Research Scholar,
Management Department,
KavayitriBahinabaiChaudhari North MaharashtrUniversity,
Jalgaon, Maharashtra, INDIA.
Email: swatiphalak71@gmail.com

ABSTRACT:

As security is a vital part in communications through electronic networks, developmentof structures providing high levels of security is needed. Public Key Infrastructure (PKI) The PKI is the base that enables the use of technologies. In this paper, an overview of the public key infrastructure is elaboratedthe various components and operation, some well known PKIs and their comparisons. Also, discuss roles, risk and challenges of PKIs

I. INTRODUCTION

Public Key Infrastructure (PKI) is a mechanism used for security guaranteeing that on-line communications are authentic and private. It is gaining recognition as a means of implements the security in e-commerce, thereby combating one of the major concerns about doing business online. As per the demands, the techniques have been proposed to achieve the maximum security. The most popular technique is theencryption with two kinds of cryptography. First one is called symmetric cryptography; is also called private key; it is really fast but this key is hard to be managed. Since, there is just one key each user. Even though, itplays an important role in the most encryption systems. To overcome this problem the another type asymmetric cryptography or public key is proposed. Each user can provide a pair of keys public as well as private keys. Since the public key is not a secure enough. Here, key management problem was solved, but another problem such as authentication and name management problem. Public key infrastructure(PKI) was introduced to solve this problem and support the public key cryptography. Authentication isthe process of using all Public key Infrastructures. This paper introduced several PKIs with different architectures and processes andsurvey of these PKIs.

II. PKI OVERVIEW

PKI is shortened form of the Public Key Infrastructure; it was developed to support the public key (asymmetric) cryptography. In this cryptography, the message is going to be encrypted by the sender using the publickey of the receiver and then this receiver can decrypt this message using thecorresponding private key. The term cryptography was introduced since 1976 [1]. This solves the keymanagement problem, using a directory called Public File in which entries are name, number and public key.The sender comes across the recipient Public File by his name to find his public key. By this scenario, thesender do not confident that the key truly belong to desired recipient. Kohnfelder[2]projected a solution by certificate or digitally sign each entry in the "Public File", so the certificates could bedistributed through a network securely.

In the 1980's, International Telecommunication Union (ITU) decided to build a larger directory standard X.500 [3]defining all characteristicsof that directory, to cover allpeople and devices all over the world,. Another one standard called X.509 was proposed for authentication purposes, no one could changeany entry from directory unless he has permission. A X.509 standard defines the certificate format; it unites theidentity of the key holder and the holder's public key. All theses development in public key cryptography have leadto build a public key infrastructure (PKI) in which the digital certificates present in the heart of it. For more trustauthority, Certification Authority (CA) was introduced [4], the trusted party is responsible for verify and sign the certificates. So, PKI help the sender to retrieve the public key of preferred recipientthat this key is really recipient public key. There are various models of PKI have developed withdifferent schemes and models. The paper will present some of these models and discuss the most popular one. Taxonomy ofthe survey is shown in Figure 1.

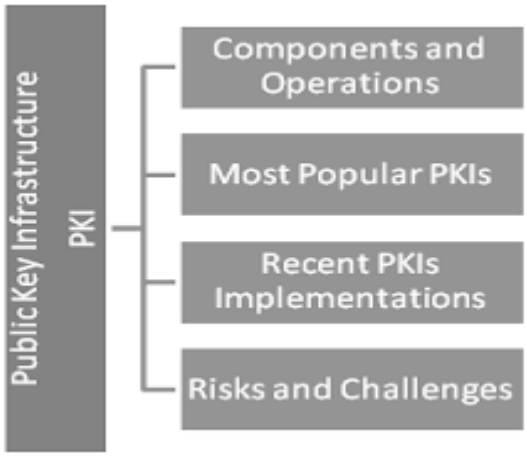


Figure 1: Taxonomy of the survey.

III. PKI'S COMPONENT AND OPERATION

The basic common operations in all PKIs are certification and validation. The fundamental operation in all PKIsis certification where it authentically binds the value of public key to an entity. The other operation is validation, it verifying the validity of the certifications (still valid or not). Aentirepublickey infrastructure is composed of several components which are: Registration Authority (RA), Certificate Authority(CA), Security Policy, PKI-enabled applications, distribution system, and certificate repository [5] [6]. Thecomponents of the PKI are shown in Figure 2 and are described as.

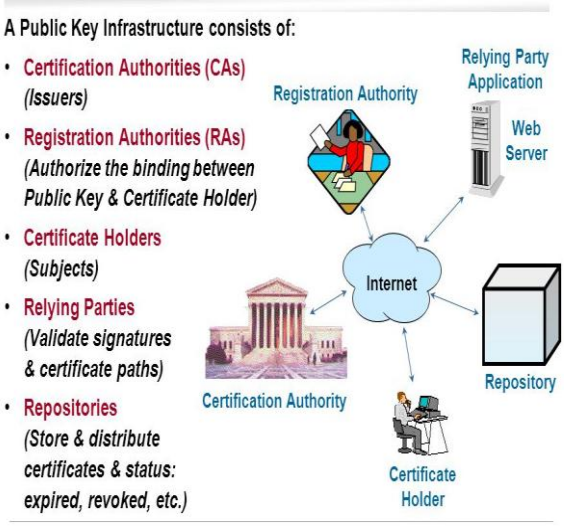


Figure 2: PKI Components.

- **Certification Authorities (CAs)(Issuers):** It's also called Certificate Issuer, which issues the certificates and therevocation lists. A certificate is a data structure composed of both the public key value and the identification of the holder of the corresponding private key [4]. Each public key certificate isissued to an individual and each certificate has a digital signature of the issuing Certificate Authority. The certificates are for alifetime of one or two years. The certificate may be revoke for many more reasons such as loss of private key, temporary key or the lifetime of the certificate is terminated, etc. If any one of these situations happened;the entity who issued the certificate should be requested to invalidate certificate of public key.There are multiple revocation mechanisms to revoke the certificate and to allow the user to be able to checkthe certificate still valid or has been revoked. All revocations mechanismneeds to be timely and efficient. One of the revocation mechanism is Certificate Revocation List (CRL) which is a list contains certificate the have been revoked and signed digitally by the entity who had issuedthose certificates previously [5] [7] [8].
- **Registration Authorities (RAs):**Registration Authority is used to submit all the requests to the Certificate Authority and authenticates all the users' identities and registers the end user's information before certification. The services given by Registration Authority can beaccessible through two ways:
    1. Logging the administrator through the browser.
    2. Calling the web services interface through the application system

Registration Authority has only one super administrator which can access all the functions provided by RA where this superadministrator can add more administrators if needed. Every administrator who wants managing the system mustuse its own smart card to prevent unauthenticated people from making any operations to the Registration Authority [6] [7].

- **Distribution System and Certificate Repository:**Distribution System and certificate repository are used to provide storing mechanism, they store the certificationsand CRL information [6]. One more component is added,Validation Authority, to hide the complexity of PKI from client system.The response to the client requests for certificatesrevocation status and doing the accessibility valuation of certificates. [7] [9].

Protocol operations of the PKI :

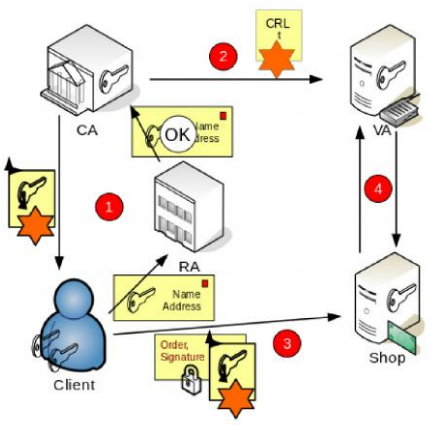


Figure 3 Protocol operations

(Protocol operations indicated by numbers.)

The protocol operations of the PKI as shown in figure above are:

• Certificate generation and Key: Registration Authorityestablishes the key holder identity and passesthe client information with the public key for certification to the Certificate Authority. Then the owner or certificate authority of key cangenerate the key pair and safe transportation. Generally, a typical lifetime is one year for a certificate after which a new certificate is issued.

• Revocation list generation: Making a list of all revoked or non expired certificates where the CA signedthese lists then sent them either to the VA or sent them immediately to the relying parties where there is noneed for online status provider to doing the validation. The revocation lists generation interval is four hours.

• Signature generation: The holder of key making signs for a message including his/her public key certificatewith the signature data. The frequency was chosen of the signed messages is 300 messages per day for everyactive user where this number has been chosen for the purpose of the forthcoming calculations.

• Certificate validation: The status of revocation of the signer's certificate must be checked by the relyingparty where it can be done either by checking the revocation list that most recently available or by queryingthe VA. The frequency of the operations that belongs to the validation is the aggregate frequency of thereceived messages—among all users—by the relying party [7] [10].

IV. TYPES OF SYSTEM IN PKIS

1. **Private and Public Key Systems: Private** system is a symmetric cryptography and a public system is aasymmetric cryptography. Currently, public key systems are the most common.
2. Symmetric Encryption Systems: The same keys are used for both the processes of encryption and decryption.
3. Asymmetric Encryption Systems: The different keys are used for each process. Public key and Private Key. If data is encrypted with the public key, then decryption done with the private key. Alternatively, if data is encrypted with the private key, then decryption done only with the public key.

Risk and Challenges of PKI

All the security of electronic transactions is almost impossible although it is designed to secure PKI transactions. This part of the paper will take a look at someof the risks related to PKI.

V. PRIVATE KEY PROTECTION:

The core foundation of PKI is the key pair of public and private keys. The clientprivate keys are themajor**components** of the PKI. The popular way to protect the private key stored on a device is using passwords. However, thesituation is not safe when simple passwords are used they can be guessed easily, especially if it is as simple aspasswords "abcdefg" or chosen "abc123". Another way to protect your private key using "smart cards" [15], itis**used one time and then cleaned of. Each** card has a private key unique password. This method is more protected,as the private key does not leave the card and the card itself never perform all **the** functions depending on theuser and the key to these functions, such as ,signing, encryption, verificationof the electronic message.

Non-Repudiation in PKI: Although PKI provides a level of trust between individuals, as mentioned in the previous section; the attackercan hack the private key of someone. PKI is introduced tocover such problem.The user can ensure that the end of the infrastructure is safe, but cannot be confident ifthe other users (or even CA) are doing their job. The question here arises - Is CA doing a complete verificationof the identity of all customers. CA aims to assure that all certificates issued by the old keys are not being usedagain. These questions increase doubts about the security and reliability of the PKI [16].

Open PKI Liability Risks:PKI has many applications, which reduces the administrative load and improve the experience for the end user.

Two approaches are used by PKI vendors:

Closed PKI: is a kind of branded software issued a limited number of digital certificates, therefore cancontrol the applications and users who need communicate securely. But the closed PKI systems need a lot oftraining, software, hardware, and maintenance.

Open PKI: Applications interface absolutely with certificates issued under an open PKI, the roots of whichare already embedded. Open PKI systems allow enterprises to become their own CA. In the field of e-commerce, hacking, cheating and theft are inevitable. Although the PKI is established to prevent thesethreats from happening.

Risk management is important in both types of PKI; closed and open PKI. And the responsibility control iseasy because they are limited in scope and which is supposed to be performed by the CA.

VI. CONCLUSION

As security has become anvital need for any system to ensure safe communication among users, theneed for a technique to secure those needs became a demand. PKI offers many ways tosecure communications depending on the type or level of security needed. There are many infrastructures in the area. As in anything related to atechnique, PKI has its own risks when being used and those risks were discussed in the paper. It is concluded that this paper has made a contribution by going through the main aspects of the main security application.

VII REFERENCES:

[1] Diffie, W. and Hellman, M.E. (1976) New Directions in Cryptography. IEEE Transactions on Information Theory, IT-22, 644-654.

[2] Kohnfelder, L.M. (1978) Towards a Practical Public Key Cryptosystem. MIT S.B. Thesis, Massachusetts Institute of Technology, Cambridge.

[3] ITU-T (1993) The Directory—Overview of Concepts, Models and Service. X.500 Series of Recommendations, International Telecommunications Union, Geneva.

[4] Ford, W. (1998) Public Key Infrastructure Interoperation. IEEE Aerospace Conference, 21-28 March 1998, Snowmass at Aspen, Vol. 4, 329-333.

[5] Chokhani, S. (1994) Toward a National Public Key Infrastructure. IEEE Communications Magazine, 32, 70-74.

[6] Wang, K.F. and Zhang, Z.H. (2010) Design and Implementation of a Safe Public Key Infrastructure. International Conference on Future Information Technology and Management Engineering (FITME), Changzhou, 9-10 October 2010, 298-301.

[7] Fongen, A. (2010) Optimization of a Public Key Infrastructure. Military Communications Conference (MILCOM), Baltimore, 7-10 November 2011, 1440-1447.

[8] Wing, P. and O'higgins, B. (1999) Using Public Key Infrastructures for Security and Risk Management. IEEE Communications Magazine, 37, 71-73.

[9] Polk, W., Hastings, N. and Malpani, A. (2003) Public Key Infrastructures That Satisfy Security Goals. IEEE Internet Computing, 7, 60-67.

[10] Dankers, J., Garefalakis, T., Schaffelhofer, R. and Wright, T. (2002) Public Key Infrastructure in Mobile Systems. IEEE Electronics and Communications Engineering Journal, 14, 180-190.

[11] Slagell, A., Bonilla, R. and Yurcik, W. (2006) A Survey of PKI Components and Scalability Issues. 25th IEEE Performance, Computing, and Communications Conference, Phoenix, 10-12 April 2006, 10 p.

[12] Vacca, J. (2013) Public Key Infrastructure. In: Cyber Security and IT Infrastructure Protection, Steven Elliot, Waltham, 75-107.

[13] Balachandra, M., Krishna, P. and Shashank, S. (2012) Wireless Public Key Infrastructure for Mobile Phones. International Journal of Network Security and Its Applications (IJNSA), 4, 111-118.

[14] Toorani, M. and Beheshti, A. (2008) LPKI—A Lightweight Public Key Infrastructure for the Mobile Environments. 11th IEEE International Conference on Communication Systems, Guangzhou, 19-21 November 2008, 162-166.

[15] Kar, J. (2014) A Novel Construction of CertificatelessSigncryption Scheme for Smart Card. In: Case Studies in Secure Computing Achievements and Trends, CRC Press, Taylor and Francis, New York, Chapter-22, 437-456.

[16] Kar, J. (2014) Provably Secure Online/Off-Line Identity-Based Signature Scheme for Wireless Sensor Network. International Journal of Network Security, 16, 26-36.

IJCRT
ISSN 2454-7719
International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019

Paper ID: M-03

MANAGEMENT INFORMATION SYSTEM IN EDUCATIONAL INSTITUTIONS – AN INTRODUCTION

Dr. Anupama P. Chaudhari

Associate Professor
ASM's Institute of Business Management and Research, Chinchwad, Pune
Email: anupamachaudhari@gmail.com

ABSTRACT:

As the growth in the technology is very high nowadays there has been a great impact of technology in education institutions also. The paper tries to study MIS in academic institutions. The researcher has tried to explore the application of MIS in education institutions in Maharashtra, India. Management information system is been extensively used to improve efficiency and competency of the institutions. Though the institutions are equipped with computers and networking facilities there are many problems and obstacles for successful MIS implementation. Education Management Information System plays an important role in developing appropriate plans, strategies and policies for improving the education system.

KEYWORDS: Management Information System, Educational Institutions, Academic institutions, MIS, Evaluation, India.

INTRODUCTION

In this information age, data has got much importance. Managers have to collect large volumes of data to generate information for conclusions and decisions to be achieved in the business. Prior to the development in computer technology, managers faced many problems for collecting, storing, retrieving and dissemination of data and information. They were very tedious and time consuming processes. With the development and advancement in the computer and information technology these processes are smoothened and fastened. Managers are able to select their own formats suited for the reports they require. The information should be timely, accurate and complete. Thus most of the organizations depend upon information technology for information. But the technology has to be handled efficiently to produce effective results. It is just a mechanism for managers to get the information in the required form at the right time. This will help the management to take the right decisions in business.

WHAT IS INFORMATION TECHNOLOGY?

Information technology is the technology involving the development, maintenance, and use of computer systems, software, and networks for the processing and distribution of data. Information Technology (IT) is a business sector that deals with computing, including hardware, software, telecommunications and generally anything involved in the transmittal of information or the systems that facilitate communication

WHAT IS MANAGEMENT INFORMATION SYSTEM?

A management information system (MIS) is a computerized database of financial information organized and programmed in such a way that it produces regular reports on operations for every level of management in a company. It is usually also possible to obtain special reports from the system easily.

The phrase "management information system" (MIS) is identical with computer-based systems. Used broadly, it is seen as the system satisfying all the information needs of managers. MIS is the study of providing information to people who make choices about the disposition of valuable resources in a timely, accurate, and complete manner at a minimum of cognitive and economic cost for acquisition, processing, storage, and retrieval.

Another definition emphasizes the use to which the information is put, rather than the way it is produced:

"A system to convert data from internal and external sources into information and communicate that information in an appropriate form, to managers at all levels in all functions to enable them to make timely and effective decisions for planning, directing and controlling the activities for which they are responsible."(Bee and Bee, 1999).

MIS produce data-driven reports that help businesses make the right decisions at the right time. While MIS overlaps with other business disciplines, there are some differences:

- Enterprise Resource Planning (ERP): This discipline ensures that all departmental systems are integrated. MIS uses those connected systems to access data to create reports.
- IT Management: This department oversees the installation and maintenance of hardware and software that are parts of the MIS. The distinction between the two has always been fuzzy.

MIS consists of three basic components: Management, Information and the System. Integrated use ofthese three components enables clarity in understanding the issues involved, impact of each component on otherseemingly independent inputs but interconnected with each other. The decisions taken in this way is appropriatein the context of the business requirements. MIS enables to adopt multi-disciplinary management approachconsidering all the aspects relating to operational, financial, materials, behavioral, organizational practices andpolicies; and computer related issues. Organization works in holistic manner with the help of MIS rather than indifferent segments. Decisions in different segments without taking a holistic approach have greater chances offailure. There is tremendous avoidable waste in utilization of organizational resources.

Correct decision making is possible with the efficient utilization of information. In view of the largedata and information available to the managers, the decision making process becomes very difficult. Informationrequired for decision making should be easily available. Collection of data, its conversion to the information,and proper storage of information, retrieval of information and effective utilization of information need Management

MIS IN EDUCATIONAL INSTITUTIONS

Importance of education has been recognized all over the world. All the advanced countries havehigher level of education in comparison to the level of education in developing and under-developed countries. Education is the fore front activity everywhere. It is very important to know the status of education in the country and make plans for further improvements. This calls for an information system.

Data is very important in every educational institution. Right from the admission of the student to the alumni registration and financial records, every piece of data that is essential for its development. The volume of data depends on the size of the institution

EDUCATION MANAGEMENT INFORMATION SYSTEM

A management information system or MIS is a central data repository capable of not only gathering and storing data but also analyzing it and generating reports from it. This is how we define MIS in a broader sense.Nowadays many higher education institutions are looking forward to implement education management solution to align academic processes and improve student experience.

EMISis specially designed to monitor the performanceof educationalactivitiesof the institute. It also manages distribution and allocation of educational resources. Of course, in the field of education, EMIS has specific roles to help an educational institution grow.

MIS FOR STUDENTS

Students are at the heart of an educating body. The software used for educational institutes can store their personal data and exam records. It can also keep a track of their day-to-day activitiesthat can be used to analyze the improvement of the individual students.

Many colleges have implemented an online attendance management system MIS, which has helped them in increasing the attendance percentage of students. The MIS system used the colleges are user-friendly, which also helps them in improving their workflow.

MIS FOR TEACHERS

In a developing education institution, the progress of its teachers is equally important and useful for them as well as the institution itself. The teachers need to update their skills and use the same to provide maximum aid to the students. MIS doesn't only help track the teacher’s progress, but it also makes their tasks easier as all the data belonging to any student or groups of students can be drilled-down, filtered, and arranged accordingly with a single click

MIS FOR THE MANAGEMENT

MIS play a significant role of management. They are: Planning, Organizing, Staffing,Directing, Coordinating, Controlling etc.., Necessary conditions for successful MIS application. According to Wikipedia, Management information system (MIS) is a system that provides information needed to manage organizations effectively. Management information systems are regarded to be a subset of the overall internal controls procedures in a business, which cover the application of people, documents, technologies, and procedures used by management accountants to solve business problems such as costing a product, service or a business-wide strategy.

Management many a times needs to take strategic as well as routine decisions. To take faster decisions system should be very effective and efficient. Ease of tracking and analyzing resource distribution and expenditures is one of the biggest motivations for any top-level management of an educating body to look forward to MIS system. Resources includes everything that the management invests in: right from assets and infrastructure to study aids and teachers.

Additionally, the management is in full control of which administrative or educating body has access to what data.

If we dig deeper into a vast educational institution, we will find even more complex MIS implementations such as asset management and student loan management at play. No matter what their core needs,

educational institutions can get user-friendly MIS system implemented to utilize and track their resources in an efficient manner.

Conclusion

Though there are many advantages of MIS in educational institute it is observed that many educational institutions do teach information technology and management information system theoretically to the students. These subjects are incorporated in the syllabus of all the universities and colleges, but it seen that the explanation just remains the books and in the classrooms. The implement s of educational management information system is not being utilized. Of course nowadays due to the development of ERP many institutions have started implementing it. But it is being utilized for the purpose of data entry in most of the colleges. The reports generated through these tools are not wisely and widely used for the strategic planning of the institution.

REFERENCES

[1] Harsh, Stephen B., L. J. Connor, and G. D. Schwab, Managing the farm business. Prentice-Hall, Inc., Englewood Cliffs, NewJersey, 1981.

[2] Pedarpur, M; etal, „Management Information systems, functions, structure and its importance – In Manager‟s Decision Making‟,IJCRB, Vol. 4, No. 10, 2013, pp 901-997.

[3] House, William C., „Decision support systems – a data-based, model-oriented user developed discipline, Petrocelli Books, Inc. NY.1983.

[4] Laudon, K & Laudon, J., „Management information systems: managing the digital firms‟, 9th ed, Prentice Hall, 2006.

[5] Hinchliffe, J.K., Public Expenditure on Education in Nigeria: issues, estimates and some implications, Washington, WorldBank, 2002.

[6]Iivari, Juham, etal, „Challenges of Professionalization: Bridging Research and Practice through a body of knowledge for IT specialists‟, IFIP 20th World Computer Congress on Advances in Information Systems Research, Education and Practices, Milano,Italy, 2008, pp 15-28.

[7] Jawadekar, W.S, Management information systems

[8]Oka , Milind M, Management information systems: Text and Cases

[9]http://www.acadjournal

International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019
ISSN 2454-7719

Paper ID:M-04

AN EMPIRICAL STUDY OF CREDIT CARDS IN SMALL CITIES OF MAHARASHTRA – WITH SPECIAL REFERENCE TO BHUSAWAL CITY

Dr. Rashmi Sharma
Bhusawal Arts, Science and P.O. Nahata Commerce College, Bhusawal
Email: rashmisharma9@gmail.com

ABSTRACT:
With the advent of technology and with an aim to provide financial services to customers with ease banks have being issuing credit cards, which are the earliest forms of e-payment introduced in India. Though it was like a loan from the bank on which the person holding credit card has to pay interest, from the period of making the purchases to the date of paying back, may be in full or in installments, yet credit cards are in demand. No collateral security is asked except that he had to have an account with the bank – savings or current and has to show his income tax returns of last 3 years. The banks keep a cap on limit of credit a credit card holder could get. It has been a medium for payment by many credit card holders. The researcher undertook the study to find the benefits of credit cards and to understand the problems, if any, in the use of credit cards, especially in small city, namely Bhusawal city in Jalgaon District in Maharashtra. The researcher has tried to find out by interviewing credit card holders in Bhusawal City and recommend measures which will make it more effective in use.

KEY WORDS: Credit card, Card holder, Card issuer, E-payment, Plastic money

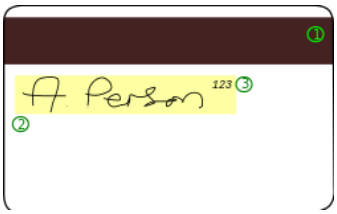
INTRODUCTION:

Credit card, also called a plastic card, is a payment card issued to users, called cardholders to enable him to make payment for goods and services based on the cardholder's promise to the card issuer, usually a bank, to pay them for the amounts plus the other agreed charges. The Bank grants a limit of credit to the cardholder, from which the cardholder can borrow money for payment to a merchant or as a cash advance. The limit is based on his bank account transactions statement of last six months and income tax returns of last three years. Credit cards thus combine payment services with extensions of credit.

Front Side of the Credit Card

1. Issuing bank logo
2. EMV chip on "smart cards"
3. Hologram
4. Credit card number
5. Card brand logo
6. Expiration Date
7. Card Holder Name
8. Contactless chip

Reverse side of credit card:



1. Magnetic strip
2. Signature strip
3. Card Security Code

Source: https://en.wikipedia.org/wiki/Credit_card

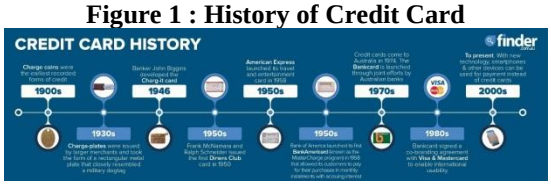
History of Credit Cards

Credit card is also known as plastic card are widely used and accepted as a system of payment. Convenience and ease of use makes it lucrative. The history of credit card can be traced to 1920s with the system of buy now and pay later introduced in US. But those cards could be used only in the stores/firms which issued them to their customers unlike now where banks issue them. Later John Baggins of the Flatbush National Bank of Brooklyn, New York, invented the "Charge-It" program between bank customers and local merchants used during the 1930s and late 1940s. Charge card was almost similar with today credit card function but purchases could only be made locally. The first credit card idea was began in 1949 by Frank McNamara who invented **Diners Club Card and used mainly for travel and**

entertainment purposes and was a cardboard card.The first bank credit card appeared in 1951 by New York's Franklin National Bank as a means of loan to bank account holders.In 1960′s, Diners Club card made of cardboard was replaced with a plastic card. In the same decade American Express issued its own plastic travel and entertainment card. Later on Master Card and Visa, joined the market. Then there was no looking back. The credit card market in India started in 1981 when Visa issued the card. Andhra Bank was the pioneer of credit cards in India. Now all banks issue credit cards.

The use of credit cards increased, and banks too started issuing it. These plastic cards became electronic credit card with improvement in technology. At present, credit card holders can use their cards at across the country and around the world. Credit cards now provide flexibility to pay off balances either each month or make monthly payments as per the card holders budget and convenience. The cards can also be linked to the smartphone of the card holder, if he wishes so.

Figure 1 : History of Credit Card



Source: https://www.finder.com.au/credit-card-history

BENEFITS OF CREDIT CARDS

1. Credit cards reduce the risk associated with carrying large amounts of cash as it may be lost or stolen.
2. By using cards it is easier to pay for a range of goods and services like small fast moving consumer goods items, airline tickets, hotels, online purchases, movie tickets, etc.
3. They offer additional protection in case what the card holder has purchased is lost, damaged or stolen and has also lost the receipt or bill because the credit card statement can act as an evidence that the item was purchased.
4. In situation of emergency, a credit card is handy in paying for requirements which may be completely outside your budget.
5. Credit cards is also considered as a very practical way of facilitating settlement of cross border transactions.
6. Plastic money, in the form of credit cards helps to build good credit history especially is the holder is paying his bill on time and maintaining low balance and not going over the limit. It helps increase the holder's credit score and enables him to get further loan from bank for other purposes.
7. Cards provide security as they come with insurance. In case of theft of the card and it is promptly reported, and if any money is withdrawn by the fraud, it is reimbursed.
8. Credit card holders for various purchases are rewarded with credit points or cash back. Such rewards are very common by airlines which provide airline miles and can make one earn free flights or cash.
9. Banks can increase their earnings through the interest and various fees they charge for use of credit cards.
10. The government also is benefitted. With more extensive use of e-money there is the potential for increase in tax compliance among the shopkeepers as the use of credit cards generates accurate records of purchases. Thus, even if they do not issue receipt the record that the sold the product is there.

RESEARCH METHDOLOGY

Objectives of the Study:

1.To study the history and explore the benefits of credit cards.

2.To find out problems associated with credit cards and its uses in C towns, namely Bhusawal city.

Hypothesis of the Study:

H_o:There are no problems associated with credit cards and its uses in small cities.

H_1:There are problems associated with credit cards and its uses in small cities.

RESEARCH DESIGN:

Research Area: The research is done mainly in Bhusawal City as the study is for a city. In Town Planning parlance, human habitations are classifed as follows:

1. Village : Upto 5000 population;
2. Town : 5000 to 100,000 (1 lakh population) ;
3. City : 1,00,000 (1 lakh) to 10 lakhs (1 Million) population:
4. Metropolis : 10 lakhs (1 Million) to 50 Lakhs (5 Million) population;
5. Megalopolis : 50 lakhs (5 Million) and above.

As per 2011 Census the population of Bhusawal is 1,87,421, making it a small city, just a bit bigger than a town.

Sample: A convenience random sample of 100 male between 25 years and 50 years with income group of Rs. 3 lacs per annum or more were taken and were asked open ended questions. Females were not taken as most the women in Bhusawal are homemakers and dependent on their husbands for shopping.

DATA ANALYSIS

From the responses received it was found that only 9% of the respondents had credit cards and they were those who travelled frequently outside Bhusawal. When those who did not hold credit cards were asked about the reasons for not holding credit cards it was revealed the following:

1. Since they did not travel much, they did not find the need for credit card. They were happy with having debit card to withdraw money from ATMs.
2. Another reason for them for not applying for such cards was that most of the shopkeepers did not have such facility in their shop as to have such facility it was required they pay some fees to the banks whose card they can accept which the shopkeepers did not find profitable. Thus, these shopkeepers had to be paid in cash.
3. If they went online, then they could purchase by cash on delivery option or transfer money online.
4. Many had earlier owned credit card but got them cancelled as they did not use it.

When respondents having credit card was asked questions relating to problems with credit card and its uses, and also from study of secondary data, the following was disclosed:

1. Unnecessary Buying: Credit card leads to tendency of impulsive buying and with the credit facility through credit card easily being available, and increase in consumerism and materialism, overspending is done. At times having a credit card tempts to holders to spend money beyond their means.
2. Interest Rate and Plethora of Fees: Credit card debt often comes with high interest rates. The interest rates are as high as 1 ½ % per month. In addition, various fees like Annual Fee, Balance Transfer Fee, Finance Charges, Foreign Transaction Fees, Returned Payment Fee, etc. too increase financial burden. In Premium Cards, a minimum amount has to be used within a particular period or else fees is charges. In fact, it is often said that with the credit cards "it is the same thing with that laundry list of fees that come with cards".
3. **Decrease in Savings: Due to increase in purchases, which at times are not necessary, coupled with high interest rate and various fee charges, savings of the person decreases which is required for adverse situations in family.**
4. Credit Score: Though credit card helps build credibility, late payment or non-payment or large amount of credit, say 75% of the credit limit taken, affects credit score negatively. It makes it difficult to get loan for others like car loan, etc.
5. Number of Credit Cards: At times people get cards issued in their names whether they require it or not and pay unnecessary charges.
6. Calls and Follow-ups: The credit card department keeps making calls to the holders for offers, increasing credit limit or discounts, reminders for payment, which at times are uncalled for. For delayed payment many times the caller talks very rudely.
7. Theft Threat: Cards can be physically stolen, or credit card numbers can be acquired by thieves over the phone, internet or website and then used illegally to rack up debts. Banks must therefore, develop adequate security measures that can protect it and its clients from the crimes which seem to pervade the electronic based payment platforms.

The following data analysis shows that null hypothesis is rejected and H_1:There are problems associated with credit cards and its uses in small cities is accepted.

SUGGESTIONS

1. Do away with fees charged from shopkeepers for installing credit facility in their shop. This may increase the number of credit card holders and increase sales.
2. Card holders must do away with impulsive buying or buying unnecessarily. They must understand the importance of savings.
3. Plastic money holders in the form of credit card should become more responsible. They should keep a track of their spending. This will also reduce interest rate charges and various fees charges. It is advisable that they keep their credit up to maximum of 50% of their credit limit and pay back their credit every month without fail so as to not fall into debt trap and keep their payment record good. This will help keep their credit score high.
4. People should not apply for credit cards unnecessarily. It should be applied only when it is going to be used. Keeping many credit cards as status symbol is not advisable.
5. Banks should avoid making unnecessarily calls. SMS or email is good enough. Anyone interested in case of offers and discounts will then contact the bank. The caller for late payments should be polite.
6. At times customers are lured by credit cards. Banks should make it clear to consumers exactly how much their credit cards are costing them. As rightly stated by Thaler and Sunstein "By knowing their precise usage and fee payments, customers would get a better sense of what they are paying for".

CONCLUSION:

It cannot be denied that credit card has various advantages like rewards, good credit score, easy availability of cash for purchases, etc. and thus, are used extensively by customers. It is liked for

its convenience, flexibility and security. It is observed that credit card facility is used more by high income earners and highly educated class and they do avail of high credit limits. But despite of its various advantages, credit cards are not much applied for or used in Bhusawal due to fear of falling into debt trap and because they do not travel much it is not of any great use in shops who do not have such facility in C cities. The fact is that having credit card leads to more spending tendency, high interest rates, theft threat, etc. For this is required credit card holders becoming more responsible, not doing impulsive buying, unnecessarily keeping cards, etc. The best is to avoid complacency and maintain financial discipline.

Banks too have to be more understanding towards those who are late in payment. They are coming up with enticing offers like 'bonus sign-up points' or '0% interest' for signing up by a certain date. In the last 5 years online payment services have also developed due to availability of facility to people for banking through internet and mobiles. Popular payment gateways like PayPal, SecurePay and eWay now offer even more secure ways to pay using credit card. One has to wait and watch not long to see how technology brings about changes in credit cards and its uses.

REFERENCES:

1. S. Deviranjitham and Dr. S. Thamilarasan (Jan-Mar 2014). *A Study on Usage And Satisfaction of Credit Cards by Customers in Krishnagiri District*. International Journal of Business and Administration Research Review, Vol.2, Issue.4, pp 160-165. Online: http://ijbarr.com/downloads/2014/vol2-issue4/19.pdf
2. http://content.time.com/time/business/article/0,8599,1897362,00.html
3. https://blog.hellobloom.io/10-problems-with-credit-in-the-united-states a4103ba8e86?gi=cce0f56d874d
4. https://en.wikipedia.org/wiki/Credit_card
5. https://www.bemoneyaware.com/blog/history-of-credit-cards/
6. https://www.bis.org/review/r130815b.pdf
7. https://www.creditcards.com/credit-card-news/history-of-credit-cards.php
8. https://www.creditcards.com/credit-card-news/legal-regulatory-privacy-issues-stories.php
9. https://www.creditkarma.com/credit-cards/i/dangers-of-credit-cards/
9. https://www.finder.com.au/credit-card-history
10. https://www.mymoneycoach.ca/blog/3-common-credit-problems-how-to-fix-them.html
11. https://www.targetmarketingmag.com/article/7-challenges-accepting-credit-cards-online/all/
12. https://www.ufcu.org/personal/learn/tools-advice/financial-advice/understand-your-credit/the-benefits-and-challenges-of-credit-cards
13. Mansfield, Phylis M., Pinto, Mary Beth and Robb, Cliff A. *Consumers and credit cards: s: A review of the empirical literature*. Journal of Management and Marketing Research, pp 1-25. Online http://www.aabri.com/manuscripts/121261.pdf

IJCRT
ISSN 2454-7719
International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019

Paper ID: Lang-01

संगणक व माहिती तंत्रज्ञान आणि मराठी भाषा

भारती तोताराम सोनवणे

भुसावळ

प्रस्तावना -

भाषा हे सज्ञापनासाठी चे प्रभावी व प्रमुख माध्यम आहे. "भाषा मरता देशही मरतो, संस्कृतीचाही दिवा विझे।" एवढ्या थेट शब्दात कवी कुसुमाग्रजांनी भाषा व संस्कृतीचे महत्त्व व त्यांच्यातील परस्पर संबंध स्पष्ट केला आहे.गेल्या दोन दशकातील माहिती तंत्रज्ञानाच्या क्षेत्रातील वेगवान प्रगती मुळे संपूर्ण जग फारच जवळ आले आहे.प्रसारमाध्यमे , मोबाईल, इंटरनेट या सर्वांमुळे वेगवेगळ्या देशातील , प्रांतातील प्रदेशातील माणूस बोटांच्या व बटणांच्या अंतरावर आल्यामुळे अर्थातच सांस्कृतिक देवाणघेवाणही वाढली.त्यांचा आपापसातील संपर्क वाढून संवाद वाढला .या संपर्क साधनांद्वारे संवादाची भाषा म्हणून अर्थातच इंग्रजीला महत्त्व प्राप्त झाले. या सर्वांचा परिणाम अपरिहार्यपणे देशी बोली भाषांवरही पडलेला दिसून येतो .तसाच तो साहित्य , समाज, अर्थकारण, शिक्षण,पर्यावरण,राजकीय,प्रशासकीय याबरोबरच क्रिडा क्षेत्रावरील झालेला असून हा परिणाम काही प्रमाणात नकारात्मक आहे तसाच तो सकारात्मक स्वरूपाचा देखील आहे.

आधुनिक इलेक्ट्रॉनिक्स मीडियाचा प्रारंभ पाश्चात्य देशामधून झाला आणि विसाव्या शतकाच्या अखेरीस तो भारतापर्यंत पोहचला.तंत्रज्ञानाच्या सहाय्याने जगातील विविध भाषांना व त्यांच्यातील माहितीला आपल्यात सामावून घेतले.या प्रक्रियेत प्रसारमाध्यमे अतिशय महत्वाची कामगिरी बजावताना दिसतात.आज प्रसारमाध्यमांचा वेगाने विकास होत आहे.विविध प्रकारच्या प्रसारमाध्यमांमध्ये वर्तमान पत्रांनी विश्वसनीय स्थान प्राप्त करून घेतले आहे.शहराप्रमाणेच खेड्यातही वर्तमानपत्रे वाचन ही महत्वाची बाब बनली आहे.त्याचबरोबर संगणक , मोबाईल , इंटरनेट या माध्यमांनी जग जवळ आणले आहे.फोर जी सेवांसारख्या जलद इंटरनेट सेवा स्वस्तात मिळू लागल्यामुळे त्यांचा वापर शहराप्रमाणेच खेड्यातही मोठ्या प्रमाणावर वाढलेला दिसून येतो.माहितीची देवाणघेवाण इंटरनेटच्या सहाय्याने गतीमान झाली.आणि इंटरनेटचा वापर अपरिहार्य झाला.

मराठी भाषा बोलणारे जवळपास बारा कोटी लोक भारतासह जगात विविध देशात राहतात.त्यापैकी बर्याचशांनी विविध ज्ञानक्षेत्रामध्ये सखोल ज्ञान संपादन करून त्या त्या क्षेत्रात उंच भरारी घेतली असून अशा मराठी भाषिक लोकांना इंटरनेटचा वापर दैनंदिन जीवनात गरजेचा झाला आहे .त्यामुळे संदेशवहन तर अधिक प्रभावी झाले आहेच त्याचबरोबर त्या त्या क्षेत्रातील ज्ञानविकासाला मोठा हातभार लागला आहे

.बातम्या, माहिती,साहित्य,चित्रपट,गाणी,वैद्यकीय, पाककला,वास्तुशास्त्र, विज्ञान इत्यादि सर्वसामान्यांना आवश्यक असणार्या बाबी इंटरनेटच्या माध्यमातून उपलब्ध होत असल्यामुळे, सर्वसामान्य मराठी भाषिकांचाही या महाजालाशी सतत संपर्क येऊ लागलेला आहे.परंतु सर्वांनाच इंग्रजी भाषा यात नसल्यामुळे आणि त्याच बरोबर मराठी भाषेवरील प्रेमामुळे मराठीचा (देवनागरी लिपीचा) इंटरनेट वरील वापर वाढला आहे.संगणक, अँड्रॉइड मोबाईल यांच्या माध्यमातून इंटरनेट वरील पोर्टल, वेबसाईट,मोबाईल ॲप्लीकेशन्स यामध्ये मराठी भाषेचा वापर मोठ्या प्रमाणावर होतांना दिसून येत आहे.व्हाट्सॲप,फेसबुक वरील मराठी संदेश देवनागरीत पाठवले जातात.व्हाट्सॲप सारख्या ॲप्स मुळे तर रोमन आणि देवनागरी या दोन्ही लिप्या इलेक्ट्रॉनिक्स मीडियात मुक्तपणे वापरल्या जात आहेत.त्याचबरोबर मराठी युनिव्हर्सल फॉन्ट यामुळेही त्यात भर पडत आहे.इंटरनेट बरोबरच टेलिव्हिजनचे विविध चॅनल्स,रेडिओ वरील एफ. एम.स्टेशन यांचे प्रादेशिक भाषेतील प्रसरण करण्याचे प्रमाण वाढले असल्यामुळे आधुनिक तंत्रज्ञानाला सामावून घेणारी मराठी भाषा सिद्ध होत आहे.तंत्रज्ञानातील परिवर्तनाप्रमाणेच तिच्यातली परिवर्तन होत आहे.संगणक क्रांतीमुळे 'इलेक्ट्रॉनिक्स मीडिया'विकसित झाला.संपर्काची साधने वाढली.त्यात स्वभाषिकांसोबत इतर भाषिकांशीही संपर्क वाढला,त्यामुळे शब्दादान प्रक्रिया घडल्या.इंग्रजीच्या प्रभावामुळे मराठीतील इंग्रजी शब्दांचे प्रमाण वाढले.त्याचबरोबर जागतिक विकसित देशांतील भाषांचे शब्दही आलेत.उदा - सुझुकी,यामाहा,सॅमसंग इत्यादि.औद्योगिक शब्ददाना बरोबरच सांस्कृतिक आदानप्रदान ही घडत आहे.उदा- व्हॅलेंटाइन डे,फ्रेंडशिप डे , फादर्स डे , मदर्स डे , बर्गर, पिझ्झा इ.कोणत्याही भाषेचा जर विचार केला तर प्रत्येक भाषेची एक स्वतंत्र रचना असते असे दिसून येते.या रचनेत प्रामुख्याने स्वन(मूलध्वनी), शब्दसंग्रह , वाक्यव्यवस्था(व्याकरण),अर्थव्यवस्था हे घटक प्रमुख असतात.

दोन किंवा अधिक भाषांचा संकर होत असतांना या चार घटकांवर प्रभाव पडून त्यात परिवर्तन घडून येत असते.

प्रत्येक भाषा ही हळूहळू सुलभीकरणाकडे वाटचाल करीत असते.इलेक्ट्रॉनिक्स मीडियामुळे मराठी भाषेत आलेले नवीन शब्द उच्चारद्रुष्ट्या सुलभ होत गेले.उदा- मिसकॉल, व्हाट्सअप इ.याबरोबरच मराठीने इंटरनेट महाजालावर प्रवेश केला.तो रोमन लिपीच्या माध्यमातून, परंतु आज पोर्टल, वेबसाईट,ॲप्लीकेशन्स (ॲप्स)हे रोमन लिपीत असले तरी त्यातील माहिती ही देवनागरी लिपीत असते.थोडक्यात मराठी भाषेने इलेक्ट्रॉनिक्स मीडियातील विविध प्रकारचे शब्दाला स्वीकारून आपली व्याकरणीक व्यवस्था जपण्याचा प्रयत्न केला आहे.

भाषेच्या संदर्भात ज्ञान- विज्ञान-माहिती तंत्रज्ञानाची प्रगती -

भाषा ही राष्ट्राच्या संस्कृतीला,अस्मितेला जिवंत ठेवीत असते .कारण ती भाषा म्हणजे त्या प्रदेशातील दळणवळणासोबत वैचारिक देवाणघेवाणाचे माध्यम असते.म्हणूनच भाषेच्या विकासावर त्या राष्ट्राच्या किंवा देशाच्या संस्कृतीच्या विकासाची गती अवलंबून असते.म्हणजेच एक प्रकारे म्हणायचे तर भाषा हीच देशाच्या सर्वांगीण विकासाला कारणीभूत ठरत असते.याच संदर्भात मराठी भाषेची आजपर्यंत ज्ञान - विज्ञान- माहिती तंत्रज्ञानाद्वारे कशी व किती प्रगती झाली याचा आढावा पुढील प्रमाणे घेता येईल.

लेखन विद्येचा शोध -

मराठी भाषा बाराव्या शतकात लिखित स्वरूपात अवतरित झाली, वे दर बारा कोसावर बदलणारे तिचे स्वरूप हळूहळू स्थिर झाले.हा मराठीच्या विकासातील पहिला टप्पा म्हणता येईल.

मुद्रण विद्येचा शोध -

मुद्रण विद्येच्या शोधामुळे लिहिणाऱ्या लेखकाचे गुणदोष घेऊन येणाऱ्या हस्तलिखितांना मुद्रित स्वरूप प्राप्त झाल्यावर त्यातून प्रमाण भाषेची संकल्पना पुढे आली .

इलेक्ट्रॉनिक पुस्तकाचा शोध -

तिसरे संशोधन म्हणजे इलेक्ट्रॉनिक पुस्तकाचा शोध म्हणजे सिडी किंवा फ्लॉपीच्या स्वरूपात उपलब्ध असेल पुस्तक.त्यातुन माहितीतंत्रज्ञान प्रणाली 'information technology ' चा उदय मराठीत होऊ पाहत आहे.

टेक्नॉलॉजी डेव्हलपमेंट मिशन फाॅर इंडियन लँग्वेजेसची स्थापना -

भारतीय भाषांचा प्रयोग संगणकामध्ये करण्याची शक्यता विचारात होण्यासाठी सर्वप्रथम 1975 मध्ये प्रयत्न झाला .1987 मध्ये इलेक्ट्रॉनिक टुल्स फॉर इंडियन लँग्वेजेस हा कार्यक्रम सुरू करण्यात आला . आणि या सर्व योजनांचा समन्वय साधण्यासाठी 1988 मध्ये टेक्नॉलॉजी डेव्हलपमेंट मिशन फॉर इंडियन लँग्वेजेस ची स्थापना भारत सरकार ने भारतीय भाषांसाठी संगणकीय तंत्रज्ञान विकसित करण्यासाठी केली .त्यामधील भारतीय भाषांमध्ये मराठी ही प्रमुख भाषा आहे.

युनिकोड संकल्पनेचा उदय -

संगणक क्षेत्रातील एक मोठी ताकद म्हणून उदयास येत असलेल्या भारताकडे आणि भारतीय भाषांकडे दुर्लक्ष करून चालणार नव्हते . म्हणून यातूनच युनिकोड संकल्पनेचा उदय झाला .युनिकोड मध्ये जगातील सर्व महत्वाच्या भाषांच्या लिप्यांमधील सर्व वर्षांचा समावेश असून त्या प्रत्येक वर्णासाठी एकएक संकेत चिन्ह राखून ठेवण्यात आलेले आहे .जागतिक पातळीवर माहितीची देवाणघेवाण सुव्यवस्थित व्हावी यासाठी हे गरजेचे होते . माधव शिरवळकर यांचे 'युनिकोड' हे तपशीलवार महितीचे पुस्तक संगणक प्रकाशन संस्थेचे प्रकाशित झालेले आहे .

जगातील तसेच भारतातील सर्व नामांकित कंपन्यांच्या संगणकामध्ये युनिकोड अस्तित्वात असून केवळ एक छोटीशी प्रक्रिया करून आपल्याला स्वत : च्या संगणकामध्ये ही 'युनिकोड' पध्दती मराठी साठी कार्यान्वित केल्यास , ही प्रक्रिया करण्यासाठी फक्त अर्धा तास लागतो .ही क्रुती 15-16 आज्ञांची(commands) किंवा पायर्यांची आहे .यासाठी काही वेळेस विंडोज xp या प्रणालीचा installation CD लागू शकतो .http:// www.yunikodatymarathi.blogspot या दुसर्या लिंकवर मराठी कार्यान्वित करण्यासाठीची प्रक्रिया अगदी सहज सोप्या पध्दतीने मराठी भाषेतच दिलेली असून , ही प्रक्रिया पूर्ण झाल्यानंतर मराठी टंकलेखनासाठी इनस्क्रिप्टच्या कळफलकाचा (किबोर्ड चा) सराव आपल्याला करावा लागेल .कळफलकाचे अनेक पर्याय युनिकोड पध्दतीत उपलब्ध आहेत.

निष्कर्ष -

भारतातील इतर भाषांप्रमाणेच मराठी भाषेवरही इंग्रजी भाषेचा परिणाम झालेला दिसून येत असल्यामुळे मराठी भाषिक अभ्यासक व विद्यार्थी इंग्रजी भाषेतील साहित्य वाचतील , त्यामुळे मराठी संस्कृती व साहित्य नामशेष होईल व ज्ञानदेव व तुकोबांची अमृतापेक्षाही अवीट गोडी असलेली मराठी

मागे पडेल की काय ? अशी भिती संगणक व तंत्रज्ञानाच्या या युगात अनेकांना वाटणे साहजिकच आहे. परंतु आज इंटरनेटच्या या झंझावातात 'आंतरपरस्परपूरक' अभ्यास अधिक गतीमान होतांना दिसून येत आहे.हा संगणक व माहितीतंत्रज्ञानाचा चांगला विषय सकारात्मक परिणाम दिसतो.

समाजात झालेली सर्व स्थित्यंतरे ही साहित्य निर्मितीवर प्रभाव टाकणारी अशीच असतात.मराठी साहित्यावरही अशा प्रकारचा प्रभाव दिसतो.संतसाहित्य, पंतसाहित्य, लोकनाट्ये , नाटके, कादंबरी, लघुकादंबरी , दीर्घकथा, लघुकथा, निबंधमाला , बालसाहित्य, स्त्रीवादीसाहित्य , ग्रामीणसाहित्य, दलितसाहित्य, महानगरीय आधुनिक साहित्य, साम्यवादी तसेच फुले आंबेडकरी साहित्य , कविता छंदातील किंवा मुक्तछंदातील इ.अशास्वरूपातील मैलाचा दगड ठरेल इतका मोठा प्रवास मराठी साहित्याने केलेला आहे . एकविसाव्या या विज्ञान तंत्रज्ञानाच्या या युगात माणसाबरोबरच त्याचे साहित्यही वैश्विक होऊन जागतिकीकरणात पोहचत आहे . मुद्रित कागदावरील साहित्य आता ई कागदावर जाऊन मोठमोठ्या दुकानातून संगणकाच्या ब्लॉगवर पोहचले आहे .ई - दिवाळीअंक, ई- कथा, ई- कादंबरी तसेच ई- कविता ही येत आहे.

संगणकाच्या या काळात इंटरनेट मुळे मराठी भाषा व संस्कृती चा प्रभाव लोकांपर्यंत अधिक पोहचत आहे.मराठी साहित्य विश्वात अनेक लेख , ब्लॉग, ट्विटर लिहिले जाऊ लागले आहे .फेसबुक , व्हाट्सॲप यांच्या माध्यमातून मराठी साहित्य , संस्कृती, इतिहास, ललित, कला, वैचारिक , आध्यात्मिक साहित्य सहज उपलब्ध होत असून विशेषत: वाचक त्यासाठी ताबडतोब प्रतिसाद देऊ लागला आहे .त्यामुळे लेखक वाचक संबंध संपर्क वाढून संवाद साधणे सोपे होत आहे .यामुळे नवोदित लेखकांना चालना मिळेल .

पूर्वी मराठी साहित्यातील एखादा संदर्भ किंवा ग्रंथ शोधण्यासाठी अभ्यासकाला फार परिश्रम पडत असत.आता बहुतेक ग्रंथालय डिजिटल झाल्यामुळे संदर्भ ग्रंथ त्वरित उपलब्ध होतात.त्यामुळे वेळ व श्रम वाया जात नाहीत .स्वत: च्या घरात बसूनही मोबाईल किंवा संगणकावर विकिपीडियाच्या माध्यमातून विविध प्रकारची माहीती सहज उपलब्ध होते.ती सुध्दा आपल्याला पाहिजे त्या भाषेत .आज इंटरनेटवर मराठी चित्रपट , मराठी नाटके , कलावंत , लेखक, चरित्र- आत्मचरित्र , कथा , कविता , चारोळी , गझल , कादंबरी , प्रवासवर्णने असे वेगवेगळे साहित्य शहराप्रमाणेच खेडोपाडी सहजासहजी उपलब्ध होते. हा संगणक व माहितीतंत्रज्ञानाचा सकारात्मक प्रभावच म्हणावा लागेल .

आज मराठी भाषा ही महाराष्ट्र राज्याची राजभाषा आहे .परंतु प्रत्येक मराठी भाषिकाने इमाने इतबारे प्रयत्न केले , आणि ज्ञान - विज्ञान - तंत्रज्ञान या क्षेत्रात मराठी भाषेचे संपूर्ण संगणकीकरण केले तर मराठीला विश्वपातळीवरील प्रमाणभाषा व्हायला फारसा अधिक वेळ लागणार नाही.कोणतीही भाषा ही मुख्यत: सामाजिक व्यवहाराचा , सांस्कृतिक जीवनाचा आणि भावनिक अभिव्यक्तिचा आविष्कार असते .जर विज्ञान तंत्रज्ञानाच्या तसेच जागतिकीकरणाच्या प्रक्रियेत भाषेवरती पर्यायाने साहित्य संस्कृती वरती आघात होवू शकतात अशा भितीपोटी जागतिकीकरणाकडे पाठ फिरवायची की त्या वैश्विकीकरणाच्या प्रवाहात वाहून जायचे असा प्रश्न उपस्थित होणे साहजिकच आहे.परंतु जागतिकीकरण हा अडथळा नसून ते आव्हान आहे .हे आव्हान आज मराठी भाषा तज्ज्ञांनी तसेच ज्ञान - विज्ञान- यंत्रतंत्रज्ञान (आयटी) क्षेत्रातील विविध

विषयतज्ज्ञांनी पेलण्याची गरज आहे .मराठी साहित्यिक , समीक्षक व भाषा तज्ज्ञांची निरपेक्ष सेवा यातून मराठी भाषेचे पर्यायाने मराठी संस्कृतीचे योग्य संवर्धन होवून ती विश्वपातळीवरील मान्यताप्राप्त भाषा बनू शकेल .प्राध्यापक पद्माकर दादेगांवकर म्हणतात त्या प्रमाणे ' जशी बोलली जाणारी भाषा लिखित होताच स्थिरावली , लिखित भाषा मुद्रित होताच जशी प्रमाण झाली तशीच प्रमाणभाषा जेव्हा इलेक्ट्रॉनिक होईल तेव्हाच ती विश्व भाषा होवू शकेल'.

संदर्भ -

जागतिकीकरणाचा प्रभाव (प्रशांत पब्लिकेशन्स) - डॉ. भाऊसाहेब गमे .प्रा . धनराज धनगर.

मराठी भाषा संगणक व माहितीतंत्रज्ञान (अंतर्नाद मासिकाच्या फेब्रु 2011च्या अंकातील प्रसिद्ध लेख) - विनय मावळणकर.

संगणक आणि मराठी - विकिपीडिया.

International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
ISSN 2454-7719
Vol - 5 Issue 1, Jan-Jun 2019
Paper ID: Lang-02

ÊbVÉÒ]±É ¨ÉÒÊbªÉÉ +É® Ë½nÒ ºÉÉÊ½iªÉ

डॉ. रुपाली Ên±ÉÒ{É SÉÉvÉ®Ò
हिंदी विभाग,भुसावळ कला, वाणिज्य आणि पी. ओ. नाहाटा कॉमर्स कॉलेज, भुसावळ.
***Email-* jeetuc129@gmail.com**

शोध संदेश

भारत अपने सांस्कृतिक धरोहर के कारण ही ख्यातिप्राप्त है. संस्कृति और साहित्य के माध्यम से ही हर पल आने वाली समस्याओं को सुलझाने का प्रयास मनुष्य करता आ रहा है.साहित्य से तात्पर्य ही है जिस रचना से संपूर्ण ब्रम्हाण्ड का हित समाहित हो उसे साहित्य कहते है. साहित्य का नवआविष्कृत रूप युगानूरूप परिवर्तित हो रहा है.आज के वैज्ञानिक और तकनिकी युग में परंपरागत साहित्य को विभिन्न दृष्टि से परखा जाता हैं. कहा जाता हैं Changing is the law of nature परिवर्तन ही सृष्टि का शाश्वत नियम हैं के अनुसार साहित्य का परिमार्जित रूप ही भी बदल गया चूँकि साहित्य हर जनसमुदाय तक पहुँच नहीं सकता था.फिल्म, टेलीविजन के जरिए यह बात बिल्कुल ही आसान हो गई.साहित्यकार रचना का निर्माण करते समय केवल मनोरंजन ही नहीं करते अपितु समाज की हर गतिविधियों से परिचित करते है.

फिल्म लेखन के द्वारा हिंदी की प्रतिष्ठा को भी उच्चतम स्थान मिल गया हैं.अहिन्दी भाषी लोग भी हिंदी को जानने और समझने का प्रयास करते हैं..फलस्वरूप मीडिया एकमात्र ऐसा अप्रतिम प्रभावी शक्तिस्त्रोत हैं जो हिन्दी में लिखित उपन्यास, काव्य नाटक इन सभी बिधाओं पर टेलीफिल्म,डाक्यूड्रामाटेलीड्रामा या सिनेमा को प्रस्तुत करता है. आज मीडिया ने कला, साहित्य और संस्कृति से जोड दिया हैं.

प्रस्तावना :-

पराआधुनिक युग में फिल्म, टेलीविजन सर्वोच्च स्थान पर है.बडे पर्दे हो या हो छोटे ,उत्तर से लेकर दक्षिण तक,पश्चिम से लेकर पूर्व तक,अमीर से लेकर गरिव तक ,नगर से लेकर ग्राम तक हर जनसमुदाय तक मीडिया पहुँच चुका हैं.फिल्म और रंगमंच के प्रबुध्द अभिनेता बलराज साहनी का मत हैं कि फिल्म कला वस्तुत: एक कला का नाम नहीं बल्कि अनगिनत कलाओं के समूह का नाम है.1

फिल्म लेखन एकमात्र ऐसा माध्यम हैं जो अपने लेखन के द्वारा यथार्थ कठोरसत्यों को अभिव्यक्त करता हैं.समाज को परिवर्तित करने की छटपटाहट फिल्मों में हैं.3 मई 1993 के राजा हरिश्चंद्र नामक भारतीय फीचर फिल्म का प्रदर्शन हुआ, जहाँ ऐतिहासिकता का दौर चल रहा था उसके पश्चात पौराणिक और धार्मिक फिल्मों का दौर आगे आया.2 फिल्म जगत का यह दौर मानवीय संवेदनाओं को संजोनेवाला था.मानवतावादी और यथार्थवादी फिल्मों के कारण भारतीय दर्शक आकर्षित हो गए.जिस कारण हिंदी भाषा को भी राज्य राष्ट्रीय और आंतरराष्ट्रीय स्तर तक पहुँचने का पथ अनायास ही तैयार हो गया.

भारतीय सांस्कृतिक धरोहर को रामाननद सागर द्वारा निर्मित रामायण ओर यश चोपडा द्वारा निर्मित महाभारत इन दो महाकाव्यों ने उजागर कर दिया.जिसे केवल भारतीय जनता ने ही नहीं अपितु विदेशो तक उसकी सराहना हुई.वस्तुत: इन महाकाव्यों का पठन हुआ लेकिन केवल कुछ ही ऐसे विदुषी थे जिन्होने उन महाकाव्यों को समझा और अपने परिवेश का जागृत करने का संकल्प किया लेकिन उनकी संख्या नाममात्र होने के कारण जो प्रभाव होना था वह नहीं हो पाया.लेकिन इन धारावाहिकों के कारण अरूण गोयल और नितीश भारद्वाज सभी के दिलों के सरताज बन गये.जिसकी लोकप्रियता के कारण तमाम वर्ग हिंदी भाषा को चाहने समझने लगा.और फिल्म जगत के नए द्वार आम लेखकों के लिए भी खुल गए.अनेक ऐसी साहित्यिक कृतियों का नवनिर्माण हुआ जो रंगमंच एवं सिनेमा के लिए प्रस्फु टित हुई. उन उपन्यासों में प्रेमचंद का गोदान ,कर्मभूमि,निर्मला.मन्नु भंडारी महाभोज, रेणू का मैला आँचल कृष्णा सोबती का मित्रो मरजानी जगदीशचंद्र माथुर का कभी न छोडे खेत कश्मीरीलाल के करमो वाली आनन्द कुमार के वेगम का तकिया आदि अनेक कृतियाँ हैं. शरतचंद्र का देवदास विमल मित्र का साहब बीबी ओर गुलाम,धर्मवीर भारती का सूरज का साँतवा घोडा, गुनाहों का देवता ,रांगेय राघव का कब तक पुकारूँ,गाईड,आंधी,चित्रलेखा मृगनयनी इन सभी कृतियों को फिल्मी जगत का आधार प्राप्त हुआ जिसके कारण न केवल समाज का मनोरंजन किया अपितु भारतीय सभ्यता,संस्कृति और मूल्यों की रक्षा भी की और ऐसी क्रान्ति हो गई जो पात्र उपन्यासों के पन्नों में किसी के पढने का इंतजार किया करते थे वही पात्र घर परिवार के अंग बन गये.

औपन्यासिक कृतियों की भांति कविताओं ने भी अपना स्थान ग्रहण किया. गजानन माधव मुक्तिबोध की लम्बी कविता अंधेरे मे, धूमिल की मोचीराम सर्वेश्वर दयाल सक्सेना की कुआनो नदी धर्मवीर भारती की कनुप्रिया, प्रसाद का कामायनी महाकाव्य साहिर लुधियानवी की परछाईयाँ इन काव्यों ने भी सफल नाटय् का प्रस्तुतिकरण किया.

मोहन राकेश आषाढ का एक दिन, आधे अधूरे ऐसा फिल्म रूपान्तरण है जो पूर्णत: नाटक के रूप में फिल्माये गये हैं.ऐसे भी नायकों कों मुलाधार बनाकर फिल्मों का निर्माण हुआ जैसे टीपू सूल्तान, चाणक्य, अकबर द ग्रेट मिर्जा गालिब आदि.मुंशी प्रेमचंद के द्वारा लिखित निर्मला इस उपन्यास पर देविका रानी निर्मित फिल्म निर्मला का निर्माण हुआ.उपन्यास में मूल समस्या दहेज और अनमेल विवाह की थी लेकिन फिल्म प्रस्तुत करते समय बालविवाह को दर्शाया गया.प्रेमचंद का ही दुसरा उपन्यास गोदान जो फिल्म त्रिलोक जेटली के द्वारा निर्मित विदेशी सत्ता के अधीन भारतीय जीवन की एक हृदयस्पर्शी उपन्यास है.उस समय की आर्थिक,सामाजिक , धार्मिक,तथा नैतिक अवस्था के यथार्थ चित्रण के कारण गो - दान विश्व साहित्य में अमर हो गया.3

तमस भीष्म साहनी के द्वारा लिखित गोविंद निहलानी द्वारा निमित फिल्म है.जो इतिहास को भूला देते हैं वह उसे दुहराने का अभिशाप भुगतते हैं.भारत विभाजन के कुछ वर्ष पूर्व की स्थिति को दर्शाने का प्रयास किया हैं.इन औपन्यासिक कृतियों को जब सिनेमा के द्वारा दृश्य श्राव्य माध्यमों के द्वारा अपनाया जाता हैं तो वह पात्र अपने आप ही समा जाते हैं और तब स्थिति यह होती है कि निर्मला एक रत्नजडित महल तो उसका पति टू टा फूटा खंडहर.4 इन यातनाओ को चुपचाप सहनेवाली निर्मला फिल्म के द्वारा रूबरू कर दिया कि कल के नारी की क्या स्थिति थी और शायद यही कारण भी हो सकता हैं कि आज नारी अपना स्वयं का अस्तित्व चाहती है.वह भी मनुष्य बन कर जीवन यापन करना चाहती है.

निष्कर्ष :-

समग्र रूप से कहा जाता है कि मीडिया के द्वारा साहित्य को घर घर पहुॅचाने का जो मानस था वह पवित्र मानस सम्पन्न हुआ. आम तौर पर मीडिया का कार्य मनोरंजन करना यही होता हैं इससे एक जनक्रांति तो हो गई अपितु श्रोताओं की संख्या में वृध्दि तो पाठकों की संख्या में ऱ्हास होता हुबा दिखाई दिया.आज के वैज्ञानिक युग ने हार्ड वर्क की जगह स्मार्ट वर्क लिया हैं. जो कोई इस स्मार्ट वर्क को आत्मसात करेगा उसकी पर्सनॅलिटी डायनामिक हो जाएगी. लेकिन यह फिल्म जगत के आविष्कारों से सम्भव नहीं है.मीडिया ने आविष्कार तो कर दिये पर मनुष्य को यह ज्ञात होना चाहिए किकेवल मीडिया विलास का साधनमात्र ही नहीं तो ज्ञान का आध्यात्मिक धरोहर का यथोचित कलाविष्कार ही हैं.संजय रोशन तलवार जो कि एक जाने माने संगीतकार हैं उनके द्वारा निर्मित फिल्म गृहलक्ष्मी हैं उसकी प्रस्तुति करते समय उनका कथन हैं कि फिल्म डिजीटल मीडिया भगवान श्रीकृष्ण की ऐसी देन है हमारे लिए जिसका प्रयोग जागृत अवस्था में एक योगी ही कर सकता हैं.5 जिससे संपूर्ण ब्रम्हाण्ड का विकास होगा और साहित्यभी यही चाहता हैं कि साहित्य का रसास्वादन कर आंतरिक चेतना जागृत करें,अपने विचारों में, सूझ बूझ में, हमारी समझ में परिवर्तन लाने का संकल्प करें.और ऐसे सतयुग का नवनिर्माण करें जहाँ कोई भी झगडा, द्वेष, क्रोध, जाति वर्ण, रूप रंग भेद न हों, और न हो सत्ता का मिथ्या आकर्षण.शांति के मार्ग से प्रशस्त होने का बस एकमात्र आवाहन हों. तभी इन सभी उपादानों का मुख्यार्थ निहित होगा.

संदर्भ :-

1. प्रयोजन मूलक हिंदी डॉ लक्ष्मीकांत पाण्डेय पृ,265
2. प्रयोजन मूलक हिंदी डॉ लक्ष्मीकांत पाण्डेय पृ,266
3. गोदान प्रेमचंद पृ.88
4. निर्मला प्रेमचंद पृ. 97
5. सहजयोग और भक्ति संगीत संजय रोशन तलवार पृ.58

IJCRT
ISSN 2454-7719
International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019

Paper ID: Lang-03

´ÒÖ×ÆÌYÒß YÖ¡Ö–ान आणि मराठी भाषा

|ÉÉ.bÉ. ¶ÉEòiÉ±ÉÉ ×´ÖšÖ¸Ö´Ö ¦ÉÉ®¤É

Eò±ÉÉ, ´ÉÉÊhÉVªÉ ´É EòÉ¨{ªÉ] õ®ú +{±ÉÒEò¶ÉxÉ ¨ÉÊ½±ÉÉ ¨ÉÊ½ÉÊ´ÉtÉ±ÉªÉ, bÉMÉ®ú Eò`öÉ®ú

Email- smbharambe37@gmail.com

भाषा हे संप्रेषणाचे महत्वाचे माध्यम आहे. संप्रेषणामुळेच भाषेची देवाण-घेवाण होत असते. समाजातील सर्व स्तरांतील लोकांपर्यंत भाषेच्या माध्यमातून विचारांचे आदान-प्रदान करुन जगातील –ानाची कवाडे माहितीतंत्र-ानामुळे खुली –ÖÖ»Öß †ÖÆüÖŸÖ. मुद्रित माध्यमांपेक्षा हे माध्यम खुप प्रभावी ठरले आहे. आजच्या आधुनिक युगात कम्प्युटरने एक प्रकारे क्रांतीच घडवून आणली अहे. माहिती तंत्र-ानात मराठी भाषा देखील आपले कार्य करीत आहे. असे समजले जाते की कम्प्युटर केवळ इंग्रजी भाषेच्या संदर्भातच काम करते परंतु तसे नाही. कम्प्युटर इंग्रजी भाषेसोबतच मराठीसारख्या देवनागरी लिपीतील इतर 3ाषांमध्येही काम करते. आजमितीला तरी जगाची –ानभाषा आणि संपर्क भाषा म्हणून इंग्रजी भाषेला महत्वाचे स्थान आहे. त्यामुळे अनेक महत्वाच्य YÖ¡Ö–ानाचा शोध आणि प्रगती इंग्रजी भाषेतून –ाली. यात संगणकाचा देखील समावेश होतो. संगणकाशी निगडित प्रगती –पाटयाने होण्यामागचे एक महत्वाचे पण अप्रत्यक्ष कारण रोमन लिपी हे देखील आहे. रोमन लिपी ही वर्णलिपी आहे. युनिकोडचा वापर करुन संगणक¾ÖÖ¸ü ´ÖÖ¸üÖŠÖß ¾ÖÖ¯Ö¸üŸÖÖ येते.

आज संगणक युगात मराठीला जागतिक स्तरावर विस्तार पावण्यासाठी चांगल्या संधी निर्माण –ाल्या आहेत. अगदी अलिकडे संगणकावर मराठी हे इंग्रजी भाषेसारखे रोमन लिपीतून लिहावे लागायचे आज सॉफ्टवेअरच्या मदतीने संगणकावर देवनागरीत लिहिता येणे शक्य –ाले आहे. युनिकोडमुळे तर ते आणखीनच सोपे –ाले आहे. युनिकोड प्रमाणित करुन व संगणकाचे मराठीकरण करुन युनिकोड फॉंटमुळे इंटरनेटवरील मराठी भाषेला अस्तित्व प्राप्त –ÖÖ»Ö †ÖÆêü. ´ÖÖ×ÆüŸÖß YÖ¡Ö–ान क्षेत्राचा विकास –ाल्याने छपाई क्षेत्रातही टंकलेखन यंत्राऐवजी संगणकाचा ¾ÖÖ¯Ö¸ü ÃÖÖ¹ý –ाला. सुंदर छपाईसाठी संगणकीय लिपीसंच (फॉंट) विकसित केले. जलद गतीने टंकलेखन करता यावे यासाठी विविध प्रकारचे कळफलक यासाठी वापरण्यात येऊ लागला. मराठी भाषेपुरते बोलायचे –ाले तर इन्फोटेकचे श्री लिपी, अंकुर श्रेणीतील फॉंट, सीडॅकचे योगेश, सुरेश हे फॉंट, कृतीदेव, शिवाजी, योगेश, चाणक्य, वरुण यासारखे अनेक प्रकारचे फॉंट वापरुन संणकावर मराठी भाषेतील मचकूर लिहिता येता. मराठीचा वापर करतांना संगणकावर मराठी फॉंट स्थापित करावा लागतो. इंटरनेटवर मराठी अक्षरे नीट दिसायची असतील तर पाहणाऱ्याच्या संगणकावर असा फॉंट असणे जरुर असते. त्यामुळे मराठी भाषेतून संकेत ÃÆ£ÔôÖ (¾Öê²ÖÃÖÖ‡™) असेल तर त्या संकेतस्थळावर वापरलेला फॉंट डाऊनलोड ठेवावा लागतो. तो आपल्या संगणकावर स्थापित केल्याशिवाय संकेतस्थळावरील माहिती वाचता येत नाही. सहाजिकच या संकेतस्थळावरुन तो पाहणाऱ्याच्या दर्शक पडदयावर कार्यान्वीत व्हावा असे डायनॅमिक फॉंट्स तंत्र-ान विकसित करण्यात आले.

विकिपिडिया सारख्या जागतिक –ानकोशात इतर भाषांच्या बरोबरीने मराठीतून –ानसंक्रमण करण्याचे माध्यम खुले –ÖÖ»Ö †ÖÆêü. मायक्रोसॉफ्टने संगणकावर मराठीतून सर्व प्रकारचा पत्रव्यवहार, माहितीची साठवणूक, हिशेब ठेवण्याची सुविधा उपलब्ध करुन दिली आहे. मराठी-इंग्रजी शब्दकोश, शुध्दलेखनाची आ–ÖÖ¾ÖÖ»Öß आता संगणकाच्या पडदयावर इंटरनेटच्या माध्यमातून जागातल्या कुठल्याही कोपऱ्यात आता वाचता येतात. विशेष म्हणजे पूर्वी मराठी साहित्य वाचण्यासाठी संग्रही करावे लागायचे तेच मराठी साहित्य किंवा भाषेबाबतची माहिती गुगलवर शोध घेऊन मिळते पण विशेष विषयासाठी खास साइट असेल तर ते अधिक सोपे होते. आज मायबोली, मराठी सृष्टी, मराठी साहित्य या वेबसाइट्स अशा पकारचे काम करताहेत. यामुळे घरबसल्या जुनं-नवं साहित्य वाचायला मिळत आहे. इंटरनेट माध्यमातून साहित्याचे जतन –ÖÖ»Ö †ÖÆêü. ´Ö¸üÖšüß»ÖÖ –ानकोश आणि अन्य कोशांची मोठी परंपरा आहे. एकोणिसाव्या व विसाव्या शतकात जे –ानकोश मराठीत आले त्यात खरं तर लाखाहून अधिक लेखांचे विषय आलेले आहेत. मराठीचा विकीपिडिया जगाचे डोळे दिपवू शकेल इतके विषय मराठी ग्रंथालयामध्ये तयार आहेत. युनिकोडने

बहाल केलेले वेबवरील लिपीचे तंत्र यांच्या साहाय्याने मराठीही इंटरनेटवरील आघाडीची भाषा बनू शकत आहे. आता तर मराठी विश्वकोशाचे सगळे खंड विश्वकोशाच्या संकेत स्थळावर उपलब्ध आहे. वेब, ब्लॉग, रेडिओ यामुळे प्रकाशकाच्या मध्यस्थीशिवाय कुणालाही आपले लेखन, मनोगत आपल्या भाषेत व्यक्त करण्याची संधी मिळाली आहे. या बाबींचा लाभ घेत संगणक-इंटरनेटचा वापर आज मराठी भाषिक करीत असलेला दिसून येतÖ. ´Ö¸ÖŠßŸÖß»Ö“Ö ¯Ö“Ö›> ´ÖÖ×ÆŸÖß“Ö, –ानाचे चलन-वलन-वहन सहजतेने होत गेले तर मराठी भाषेचा प्रसार हया संगणकीय युगात वेगाने होऊ शकेल. वेगवेगळया –ानशाखांमधले –ान इंग्रजीतून मराठीत †ाणताना पारिभाषिक सं–ा घडवाव्या लागतात. सामाजिक वि–ाने किंवा अन्य सर्वच विषयात नवनव्या –ानाची भर पडत असते. हे –ान इंग्रजी भाषेत ज्या वेगाने, सक्षमतेने आणि समर्थपणे येते तो वेग, ती सक्षमतÖÖ, ŸÖß ÃÖ´Ö£ÖÔŸÖÖ Æ –ान मराठी आणण्याच्या दृष्टीने दिसत आहे.

भाषेचा संगणकावर आणि महाजालावर (इंटरनेटवर) होणारा वापर हा आजच्या युगात सर्वाधिक महत्वाचा घटक आहे. यावरच भाषेचा x¾ÖÃŸÖÖ¸ ¾Ö विकास मोठया प्रमाणावर अवलंबून आहे. अलिकडच्या समाजमाध्यमांवर ई-मेल, ब्लॉगलेखन, फेसबुक, टविटर, व्हाट्स-†¯Ö ‡. माध्यमातून मराठीचा वापर वाढत आहे. सध्या जगाच्या कान्याकोपऱ्यात असणाऱ्या मराठी माणसांना इंटरनेटने एकत्र आणले आहे. आधुनिक जगाचे संवाद माध्यम असणाऱ्या सायबर विश्वात अगदी आत्मविश्वासाने संचार करुन मराठीनेही 'अमृताशी पैजा जिंकणारी भाषा' हा –ानेश्वरांनी व्यक्त केलेला विश्वास सार्थ ठरविला आहे. तुकारामाची गाथा, छत्रपती शिवाजी महाराज, शाहिरी काव्य ते थेट गदिमा, पु.लं पर्यंतची मराठी मनात घर करुन बसलेली अनेक श्रध्दास्थाने इंटरनेटवर उपलब्ध आहे.

इंटरनेटची मराठी भाषेविषयी कार्ये -

१.इंटरनेट हे आपल्या सभोवताली घडणाऱ्या शैक्षणिक, राजकीय, सांस्कृतिक व आर्थिक घ्टनांची मराठी भाषेतून विविध वेबसाइट्सव्दारे माहिती देण्याचे काम करतात.

2.´ासिके, नियकालिके, वर्तमानपत्रे इ, विषयीची माहिती मराठी भाषेतून x¤»Öß •ÖÖŸÖ.

३.दैनंदिन व्यवहार- रेल्वे, विमानप्रवासाचे आरक्षरण, बँक व्यवहार, ऑनलाईन सल्लागार इ, विषयी मराठी भाषेतून ´ÖÖ×ÆŸÖß x¤»Öß •ÖÖŸÖ.

४.नोकरीविषयक माहिती - विविध कंपन्यांमध्ये, संस्थांमध्ये तसेच परदेशात उपलब्ध असलेल्या रिक्त जागांची माहिती मराठी भाषेतून दिली जाते.

5.‡-मेल किंवा ब्राऊजच्या मातीने शंकेचे निरसन करता येते.

६.मराठी विषयासाठी संदर्भ साहित्याचा उपयोग करता येऊ शकतो.

७.विविध मराठी भाषा साहित्यातील नामवंत लेखक, कवी, नाटककार,विचारवंत, अभिनेते, सामाजिक कार्यकर्ते, नामवंत राजकारणी यांच्याविषयी मराठी भाषेतून माहिती दिली जाते.

IJCRT
ISSN 2454-7719
International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019

Paper ID: CS-22

Threats and Security Issues of Cloud Computing

Mr. Bhavesh G. Wani
S.Y.B.Tech, Dept. of Computer Engg.
Govt. College of Engineering, Jalgaon
e-mail : wanibhavesh767@gmail.com Cell no.: 7798200480

ABSTRACT:

***Abstract*— Cloud computing is model that enables sharing of resources on demand with cost effectiveness and location independent. Cloud Computing is a new technology model for IT services. It helps to increase IT requirement quickly and easily. It enables demand network access to share pool of configurable computing resources such as networks, servers, storage, applications, and services at low cost. Though cloud computing is advantageous some critical security problem related to data security, unauthorized access of the network and use of inflected application etc. are there. The ultimate aim of this paper is to discuss threats and security issues of cloud computing.**

Keywords— cloud computing, data security

I. INTRODUCTION

Cloud computing plays an important role in everyone's life. It provides applications and storage spaces as services over the Internet with low cost. We utilize cloud computing services on a daily basis. For example,
we use email systems (Yahoo and Google), social networking sites like Facebook and Twitter to share information and communicate with friends. We also use
it to store music, videos, photos and documents. Cloud computing also be useful in businesses; companies rent services from its service providers to minimize operational costs and improve cash flow. For example, the news website, the digital photo sharing website, rents Amazon S3 (Simple Storage Service) for their photo hosting service.
Though cloud computing is advantageous, the security issues associated with cloud computing. Hackers use a variety of techniques to gain access to clouds without legal authorization. Hackers might trick a cloud into treating their criminal activity as a legitimate instance, therefore, gaining unauthorized access to the data hold on within the cloud. Once data is located from its original location, hackers steal private and vital information for criminal activities.
In this paper, section 2 presents an overview of cloud service models. Section 3 discussed the cloud security issues. Section 4 conclude the paper.

II . CLOUD SERVICE MODELS

There are three categories of cloud services:

i) Software as a Service (SaaS),
ii) Platform as a Service (PaaS), and
iii) Infrastructure as a Service (IaaS).

Cloud computing includes 3 layers: the system layer, the platform layer, and also the application layer. the highest layer is that the application layer, additionally referred to as Software-as-a-Service (SaaS). the center layer is that the platform layer and is thought as Platform-as-a-Service (PaaS). very cheap layer is that the system layer, which incorporates procedure resources like infrastructure of servers, network devices, memory, and storage. it's referred to as Infrastructure-as-a-service (IaaS). Table 1 shows cloud services model as :

Table 1 : Cloud Services Model

Model	Service	Service Providers
SaaS	It offers renting application functionality from a service provider rather than buying, installing and running software by the user.	Google Apps, Microsoft, IBM
PaaS	It provides a platform in the cloud, upon which applications can be developed and executed.	Amazon AWS, Google Apps,
Iaas	computing power and storage space offering to the vendors.	IBM, OpenStack, Rackspace, Savvis, VMware,

III. SECURITY ISSUES

Three cloud service models (SaaS, PaaS and IaaS) provides different types of services to end users and disclose data security problems and risks of cloud computing systems. The following are the security related issues of cloud computing –

a. Data related Security :

- Data Breach: In which sensitive, protected or confidential **data or knowledge** has probably been viewed, retrived or utilized by an individual unauthorized user.
- **Data Lock in**: If user migrate from one vendor to another vendor, they may lose data.
  - **Data Remanence:** It is the residual representation of data that have been nominally erased or removed in some way.
  - **Data Recovery: Sometimes server fail down, damage or loss to users data. It is necessary to** backed up to be recovered in future.
  - **Data Locality:** In SaaS model of cloud environment, location of data is unknown to the user, this issue is overcome by SaaS model. This model provide reliability to the customer on location of data of the user.

b. Application related Secuirty :

Follwing are the application related to the security:

- **Cloud malware injection attack:** In this attack a malicious virtual machine or a service implementation is injected into the cloud system. one solution to prevent this is to perform the integrity check to the service instance.
- **Cookie poisoning:** In this associate unauthorized access is created into the applying by modifying the contents of the cookie. One answer is to scrub up the cookie or code the cookie knowledge.
- **Backdoor and Debug Option:** To implement any changes requested at later stage in website, debug option is used. This provides back entry for the developers.
- **Hidden Field Manipulation**: In this some fields are hidden and used by only developers.

c. CSP level Attacks :

Guest hopping attack: An attacker will try get access to one virtual machine by penetrating another virtual machine hosted in the same hardware.

SQL injection: It can be done by injecting the SQL commands into the database of an application to crash the database.

- **Malicious Insider:** In private cloud, its employee is granted access to the sensitive data of some or all customer administrators. Such privileges may expose information to security threats.
- **Side channel attack:** It occurs when an attacker places a malicious virtual machine on the same physical machine as the victim machine so that he can access all the confidential information on the victims machine.

d. Network Level Attacks :

DNS attacks:

- **Domain hijacking:** Domain hijacking means changing the name of a domain without the knowledge or permission from the domain's owner or creator. This enable the intruders to access the sensitive information.
- **Cross site scripting:** In which user enters right URL of a website and hacker on the other site redirect the user to its own website and hack its credentials.

IP spoofing:

- **DOS attack:** When hackers overflows a network server or web server with frequent request of services to damage the network, the denial of service cannot keep up with them, server could not legitimate client regular requests.
- **Man in the middle attack:** This is related to network security. It will happen if secure socket layer (SSL) is unconfigured.
- **Network Sniffing:** It is also related to network security in which unencrypted data are hacked through network.

IV. CONCLUSION

Cloud computing enables demand network access to share pool of configurable computing resources such as networks, servers, storage, applications, and services at low cost. There is a need of security in cloud computing. In this paper, we discussed models of cloud computing and some security issue related to data, application and networks.

REFERENCES

[1] Rabi Prasad Padhy, Manas Ranjan Patra, Suresh Chandra Satapathy, "Cloud Computing: Security Issues and Research Challenges", IRACST - International Journal of Computer Science and Information Technology & Security (IJCSITS) Vol. 1, No. 2, December 2011

[2] Te-Shun Chou, "SECURITY THREATS ON CLOUD COMPUTING VULNERABILITIES", International Journal of Computer Science & Information Technology (IJCSIT) Vol 5, No 3, June 2013

[3] R. L Grossman, "The Case for Cloud Computing," IT Professional, vol. 11(2), pp. 23-27, 2009, ISSN: 1520-9202.

IJCRT
ISSN 2454-7719
International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019

Paper ID: CS-23

DESIGN AND ANALYSIS OF SELENIUM WEBDRIVER AUTOMATION TESTING FRAMEWORK

Smt Leena Jadhav
E-mail id : leenavishal83@gmail.com
Contact No. : 9977123851
Address:- Sindhipura , Burhanpur[M.P.]

Mr. Narendra Bhardwaj
E-mail id : narendrambhardwaj@gmail.com
Contact No. : 9179449667

ABSTRACT:

Todays living age, lots of software system has been implemented as web-based applications. These web applications are very complex. It is very difficult to test such complex web applications. Automation testing uses automation tools to reduce human intervention and repeatable tasks. In this paper we have designed and implemented automation testing framework for testing web applications. This new automation testing framework has been implemented using selenium WebDriver tool. Using this framework tester can easily write their test cases efficiently and in less time. Tester need not to study the selenium webdriver toolin detail. This framework is helpful to developer to analyze their code due to screen shot property of framework. This frameworkproduces the customized test report to tester. It is very easy to maintain and repair the test suite for new release of the applicationusing this framework.A common question for software testers and developers is, when do weautomate testing and when is manual testing sufficient? In the following report I will describe the benefits of automated testing when applied to a web application. I have also come to a conclusion about what stage in the development process it is best to begin testing and what tools are particularly helpful. This experience report will mostly describe the standard environment for testing with Selenium Integrated Development Environment (IDE). It includes lessons I learned about script writing, using the Selenium Integrated Development Environment, and building sustainable, efficient tests that will save time testing in the long run and ensure that the product is tested often. I will highlight the areas that a tester will most likely need to aid Selenium, as Selenium is not always able to sufficiently record and playback user interactions with the browser. I will also discuss what areas of a web application would benefit most from being tested with atool like Selenium and how to be sure that Selenium has tested the functionality of the most crucial aspects of the program.

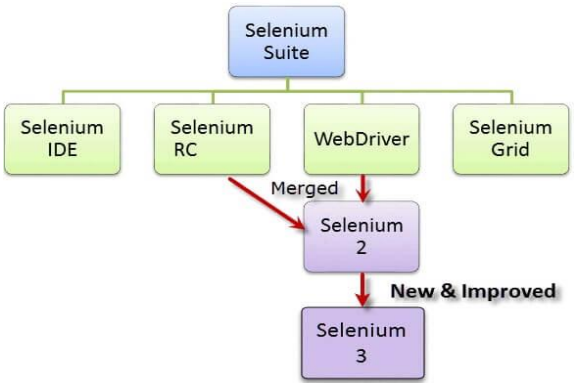
KEYWORDS*:* Web applications; Automation testing; selenium webdriver; Automation testing framework.

INTRODUCTION

Selenium- is a free (open source) automated testing suite for web applications across different browsers and platforms. It is quite similar to HP Quick Test Pro (QTP now UFT) only that Selenium focuses on automating web-based applications. Testing done using Selenium tool is usually referred as Selenium Testing.

Selenium is not just a single tool but a suite of software's, each catering to different testing needs of an organization. It has four components.

- Selenium Integrated Development Environment (IDE)
- Selenium Remote Control (RC)
- WebDriver
- Selenium Grid



At the moment, Selenium RC and WebDriver are merged into a single framework to form **Selenium 2**. Selenium 1, by the way, refers to Selenium RC.

Selenium was **created by Jason Huggins in 2004**. An engineer at ThoughtWorks, he was working on a web application that required frequent testing.

Having realized that the repetitious Manual Testing of theirapplication was becoming more and more inefficient, he created a JavaScriptprogram that would automatically control the browser's actions. He named this program as the "**JavaScriptTestRunner**."

Simon Stewart created WebDriver circa **2006** when browsers and web applications were becoming more powerful and more restrictive with JavaScript programs like Selenium Core. **It was the first cross-platform testing framework that could control the browser from the OS level.**

The goal of software testing is to find defects in software as early as possible. Software testing consumes 30 to 60percent of all life cycle cost, depending on product criticality and complexity [1].With the development of internettechnologies, web applications became more popular. Nowadays large number of software systems has beenimplemented as web applications. The quality of these web applications is one of the important factors whiledeploying these web applications. So to increase the quality of software, testing plays an vital role.

Softwaredevelopment cycle becomes shorter and shorter; this makes the software testing more difficult. Manual testing is atime consuming process and it require human intervention. So to avoid these problems, automation testing came intopicture.

Automation testing means to automate the testing process or activities including design and execution of testscripts and use effective software automation tools. Automation testing improves the quality of software testingand minimizes the human intervention in software testing process. To support these tasks there are variouscommercial and open source tools available, such as Watir, JMeter, Selenium, QTP and many other. The Seleniumautomation tool considered most popular and open source tool for testing the web applications .In this paper wehave proposed automation testing framework based on the selenium webdriver and TestNG tool.

Basics of Selenium WebDriver

In contrast to IDE, Selenium WebDriver provides a programming interface to create and execute test cases. Test cases are written such that, web elements on web pages are identified and then actions are performed on those elements.

WebDriver is an upgrade to RC because it is much faster. It is faster because it makes direct calls to the browser. RC on the other hand needs an RC server to interact with the web browser. Each browser has its own driver on which the application runs. The different WebDrivers are:

- Firefox Driver (Gecko Driver)
- Chrome Driver
- Internet Explorer Driver
- Opera Driver
- Safari Driver and
- HTM Unit Driver

Benefits Of Selenium WebDriver

- Support for 7 programming languages: JAVA, C#, PHP, Ruby, Perl, Python and .Net.
- Supports testing on various browsers like: Firefox, Chrome, IE, Safari
- Tests can be performed on different operating systems like: Windows, Mac, Linux, Android, iOS
- Overcomes limitations of Selenium v1 like file upload, download, pop-ups & dialogs barrier

Short-comings Of Selenium WebDriver

- Detailed test reports cannot be generated
- Testing images is not possible

No matter the challenge, these shortcomings can be overcome by integrations with other frameworks. For testing images, Sikuli can be used, and for generating detailed test reports, TestNG can be used.

So that draws the conclusion tothis blog on what is Selenium. To learn more about Selenium WebDriver and TestNG, read the other blogs in this Selenium tutorial blog series.

Selenium Webdriver does not have built infunctionality to generate the screenshots for failure test cases. Selenium webdriver does not have built in capabilityto generate the test results. It depends on third party tools to generate the test reports. This limitation can be avoidedby using TestNG framework.

TestNG is a testing framework designed to overcome the limitations of JUnit testing framework. TestNGprovides some new functionality that makes it more powerful than JUnit. TestNG covers all categories of tests suchas unit, functional, integration testing. In the proposed framework we have integrated TestNG with eclipse to generate the test report and execute multiple test cases in parallel. This TestNG report contains all the passed and failed test cases. TestNG report is very tedious to understand, so it requires some modifications. Each organization has different requirements about the test report. In proposed framework we have customized TestNG reportaccording to organization requirements. So, organization can get the test report as they want. This report alsocontains the link for failure test cases. By using this functionality, developer can easily find out defects in webapplication.

TestNG is an advance framework designed in a way to leverage the benefits by both the developers and testers. For people already using

JUnit, TestNG would seem no different with some advance features. With the commencement of the frameworks, JUnit gained an enormous popularity across the Java applications, Java developers and Java testers, with remarkably increasing the code quality. Despite being an easy to use and straightforward framework, JUnit has its own limitations which give rise to the need of bringing TestNG into the picture. TestNG was created by an acclaimed programmer named as "Cedric Beust". TestNG is an open source framework which is distributed under the Apache Software License and is readily available for download. Talking about our requirement to introduce TestNG with WebDriver is that it provides an efficient and effective test result format that can, in turn, be shared with the stakeholders to have a glimpse of the product's/application's health thereby eliminating the drawback of WebDriver's incapability to generate test reports. TestNG has an inbuilt exception handling mechanism which lets the program to run without terminating unexpectedly.

Both TestNG and JUnit belong to the same family of Unit Frameworks where TestNG is an extended version to JUnit and is more extensively used in the current testing era.

Features of TestNG

- Support for annotations
- Support for parameterization
- Advance execution methodology that does not require test suites to be created
- Support for Data Driven Testing using Data providers
- Enables user to set execution priorities for the test methods
- Supports threat safe environment when executing multiple threads
- Readily supports integration with various tools and plug-ins like build tools (Ant, Maven etc.), Integrated Development Environment (Eclipse).
- Facilitates user with effective means of Report Generation using ReportNG

TestNG with Selenium

Nowadays Selenium is a one of the most famous functional testing tool used for web based application testing . Selenium has a lots of features inbuilt in it which helps web application testing teams to automate their functional test cases. The following is a list of such features of Selenium

- Provides record and playback capabilities supports multiple Browsers and browser versions for example for firefox Chrome I Opera and so on
- Inbuilt support for Android and IOS testing
- Inbuild grid setup for testing of a setting up selenium server grid
- simultaneous or parallel execution of test
- easy API for easy use and enhancement.

These are just few advantages of using Selenium it has vast used and has been used by numerous team worldwide for automating the functional test majority of people use Selenium along with test NG due to the minerals features provided by test NG one of the most important features being the multithreaded execution of test this features help the functional test to execution simultaneously or multiple browsers or even multiple parallel using test NG.

4. **Proposed Work—**

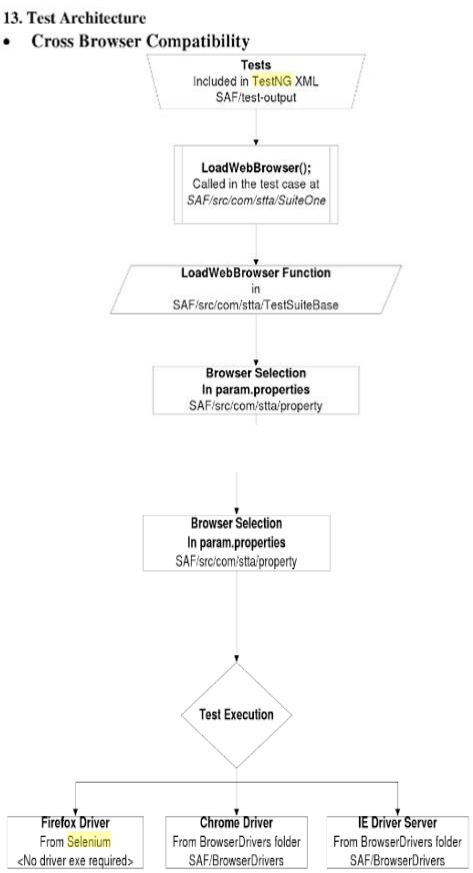


Figure 69 Cross Browser Compatibility

Figure 71 Object Repository

3. **Design of Automation Framework**

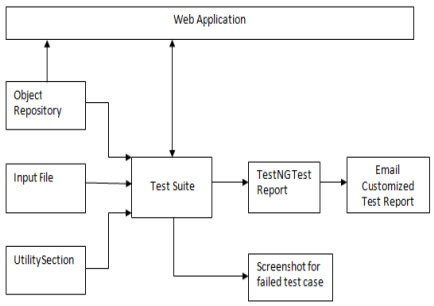


Fig.1. Architecture of Proposed Framework

4. Proposed Work :-We have designed test automation framework based on selenium webdriver and TestNG testing framework (Fig. 1).

The framework designed in this paper includes five components listed below.

- Object Repository
- Input File
- Utility Section
- Test Suite
- Customization Test Report

4.1 Object repository

Selenium webdriver supports various types of locator to locate the web page elements. Web page elements can belocated by its id, link text, xpath or css locators. Object repository stores all the locators of web page elements. Thiswill simplify the task of maintaining and repairing the test cases. For e.g. previous version of web applicationcontains 'Login' button. In next version of web application 'Login' button changed to 'Login Now', so it is rto change the all the test cases which contains the 'Login' button [2]. To avoid such kind of problems, we haveimplemented object repository which contains the id's, xpath and link text for all web page elements. Whenevertester writes the test case, tester will use the information to locate the web page element. This will reduce themaintenance cost of test cases. Whenever change occurs in web application elements, tester needs to change onlyobject repository.

4.2 Input file:- In Web application, end user needs to enter some information for e.g. Gmail login requires user name andpassword to login. Such kind of inputs stored in input file. Instead of entering same information in web application,tester may access these inputs from input file. In this file tester can store the input values required by webapplication.

4.3 Utility Section :- Utility section contains two files which are described below.

1. User Actions File: Selenium webdriver doesn't support the direct functions to perform certainoperations like clicking a button, selecting checkbox etc. This section contains the common functionslike click button, select checkbox, click link etc. This will reduce the redundancy of code in testscript. This file also contains the application specific functions for example if web applicationcontains table and you need to verify particular column is sorted or not. To verify this kind ofapplication specific functionality, separate functions can be created. These functions will be useful forwriting different test cases.

2. Utility file: This file comprises the common functionality of web application like login and logout. Intest suite tester need to login to web application to test internal functionality of application and log outafter completion of suite it needs to logout. To avoid this kind of repetition, we have added login andlogout functions in utility file.

3. Screenshot Generation: Selenium webdriver does not support the screenshot for failure test cases.We have implemented new function that will take the screenshot for failure test case only. Using thisfunction tester can easily capture the error occurred in web application. This will also help todeveloper to analyze their failure. After execution of test suite, screenshots for failure test cases arestored in directory according to date wise folder.

Steps to generate screenshot

1. Create directory where you store the screenshot for failure test case.
2. Capture the result from TestNG
3. Verify the result is pass or fail
4. If the result is fail then capture the screenshot for web page.
5. Set the date and time for screenshot Image as title.
6. Store the image file in defined directory.

4.4 Test suite:- In Web application, end user needs to enter some information for e.g. Gmail login requires credentials to login.Such kind of inputs stored in input file. Instead of entering same information in web application, tester may accessequiredthese inputs from input file. In this file tester can store the input values required by web application.

Tests, Suites, and Configuration Annotations

TestNG defines a very specific terminology to describe tests, which is illustrated in Listing 1-13.

Listing 1-13. Sample `testng.xml`

```
<!DOCTYPE suite SYSTEM "http://testng.org/testng-1.0.dtd" >

<suite name="TestNG JDK 1.5">
  <test name="Regression1" >
    <classes>
      <class name="com.example.ParameterSample" />
      <class name="com.example.ParameterTest" >
        <methods>
          <include name="database.*" />
          <exclude name="inProgress" />
        </methods>
      </class>
    </classes>
  </test>
```

This file tells TestNG to run all the methods found in the class `ParameterSample` and all the methods in the class `ParameterTest` that start with `database` and to exclude the method called `inProgress`.[7]

Listing 1-14 also shows how packages can be specified.

Listing 1-14. Specifying packages in testng.xml

```
<suite name="Package suite">
  <test name="Parameters" />
    <packages>
      <package name="test.parameters.Parameter*" />
    </packages>
  </test>
</suite>
```

The `testng.xml` file captures a very simple terminology.

The `testng.xml` file captures a very simple terminology.

- A *suite* is made of one or more tests.
- A *test* is made of one or more classes.
- A *class* is made or one or more methods.

This terminology is important because it is intimately connected to configuration annotations.

Configuration annotations are all the annotations that start with `@Before` or `@After`. Each of these methods defines events in the TestNG lifecycle. As we saw in the previous section, TestNG defines five different configuration annotations. Every time a method is annotated with one of these annotations, it will be run at the following time:

- `@BeforeSuite`/`@AfterSuite`—before a suite starts / after all the test methods in a certain suite have been run
- `@BeforeTest`/`@AfterTest`—before a test starts / after all

that a test is made of one or more classes)

- `@BeforeClass`/`@AfterClass`—before a test class starts / after all the test methods in a certain class have been run[8]
- `@BeforeMethod`/`@AfterMethod`—before a test method is run / after a test method has been run
- `@BeforeGroups`/`@AfterGroups`—before any test method in a given group is run / after all the test methods in a given group have been run

As we will see in the following chapters, configuration annotations offer a very flexible and granular way to initialize and clean up your tests.

4.5 Customization of test report :- Selenium webdriver doesn't support built in functionality to generate the report .Here we are using TestNGtesting framework to generate the test report. TestNG generates the report in HTML format, which is tedious tounderstand. Some organization want specific format of report. So there is need to customize the TestNG reportaccording to organization.

We have implemented one class in which we have captured the TestNG report. We have used iText library togenerate the report in PDF format. IText is an open source library that allows you to create or manipulate PDFdocuments. This class implements ITestListener of TestNG framework. This report contains the link to the failuretest case screenshot. So, one can easily verify the error page of web application.

4.6 Email customized report to respective person

After customization of test report, it needs to send to respective authority. Here we have used mail.jar for sendingthe mail to the respective person. Mail.jar file support multiple protocols like SMTP, POP3. After each test suit wehave used the sendreport () method to send the test report.

5. Implementation Result

After use of implemented automation testing framework, the regression testing efficiency is highly improved.

Tester can write the test cases twice than older approach of writing test cases. This minimizes the human resourcerequired to test the web application. The maintenance cost of test cases also reduced due to centralized repository.As the version of web application changes, you need to change only object repository for newly added elements.Sometimes test cases are failed due to synchronization issues of selenium webdriver not due to web applicationdefects. This framework reduces the error rate of failing the test cases due to synchronization issues.Ultimately passing rate will increases. This shows the accuracy of proposed framework over traditional approach of testing.

We have executed test suite of 250 test cases on student information system web application. After automation

run we got the following results (Table 1.) in terms of overall pass rate, failure rate, execution time etc. Pass rate

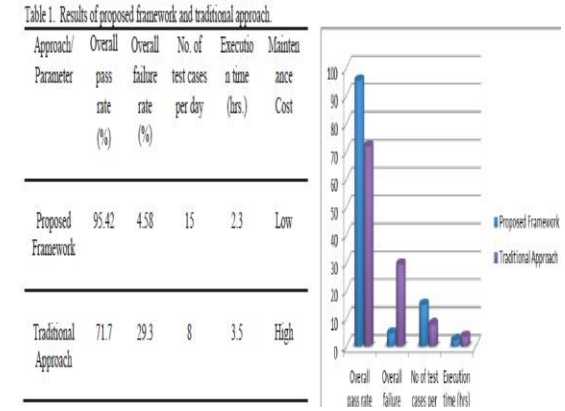
shows that test case gives the exact result as manual test case gives. Sometimes web application works correctly buttest cases fails due to synchronization. Proposed framework synchronizes the test cases properly, so failure rate isreduced than traditional approach.

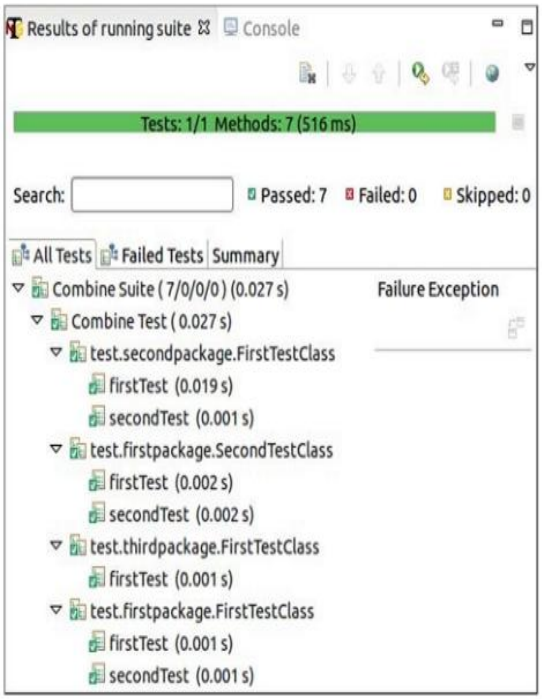
Table 1.Results of proposed framework and traditional approach.

Fig

Table 1. Results of proposed framework and traditional approach.

Approach/ Parameter	Overall pass rate (%)	Overall failure rate (%)	No. of test cases per day	Execution time (hrs.)	Maintenance Cost
Proposed Framework	95.42	4.58	15	2.3	Low
Traditional Approach	71.7	29.3	8	3.5	High



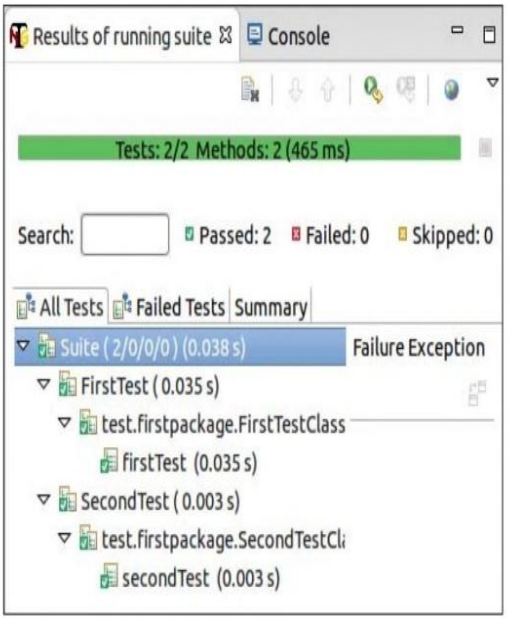


Repotting errors :- The first questions we need to answer is this how do we report errors in our program?

In the earlier days the traditional way to report errors in program was to use return codes for example if your method was accepted to return a positive integer you would use a special negative value such as - 12 to indicate that something went wrong.

Thereare several problems with this approach -
1. When the caller of your method receives the value it need to perform a test to know whether the call was successful or not and this results in contrived code of nested if else statements
2. You need to define a singular value that is clearly different from the usual values returned by this method it's easy in certain cases such as the example above but whatever code do you return when all integers are legal
3. What is server error cases can arise and each of them must be dealt with separately how do you and code these cases in the singular value so they can be differentiated what is more than one value need to be returned to represent the error accurately indicate an error.

For example all these reasons the software community quickly realize that's something better than we can quote needed to be invented in order to represent failures in and effectively and mentally bananas the nicest wrapped in a terrorist reporting walls to use parameters instead of letting the loose to send the letter for example the matter that created an account would receive the name of the account to be treated and also an additional parameter dead vendor matter return with certain would content of a description of anything went wrong while mood expressive then returning error codes the absolute take also brought this sucks I was just fishin
send provide any easy way to distinguish the regular parameter from those that contain the error
to make the signatures of your methods harder to read not all programming languages support out parameters
negatively making the core harder to read and to interpret.



6. Conclusion

In this paper we have proposed new automation testing framework to test the web based applications based on
selenium webdriver. In order to test the web application proposed automation framework surely reduces the timerequired to write the test cases and increase the pass percentage of test cases. It also reduces hectic workload oftester. By using this framework one can generate the customized test reports and also analyze the failures usingscreenshots of failed test cases. Tester can maintain the all data from central place. This framework is very useful fordynamically changing web applications. The

automation test scripts are easy to understand using this framework. Inthis way automation framework helps organization to test web applications efficiently.

REFERENCES

1. MacarioPolo,PedroReales,MarioPiattini. Computing Test Automation; IEEE Software, VOL. 30, NO. 1, January 2013.
2. Maurizio Leotta,DiegoClerissi,FilippoRicca,CristianoSpadoaro. Comparing the Maintainability of Selenium WebDriver Test Suites Employing Different Locators; ACM,2013.
3. AndrzaM,Giesel A. etl. Extension of Selenium RC Tool to Perform Automated Testing with Databases in Web Applications; Automation of Software Test (AST), 2013 8th International Workshop ,2013.125–131.
4. Sherry Singla, HarpreetKaur. Selenium Keyword Driven Automation testing Framework, International Journal of Advance Researchin Computer Science and software Engineering, VOL. 4,Issue 6,2014
5. RigzinAngmo,Monika Sharma. Selenium Tool:A web based Automation testing Framework. International Journal of Emerging Technologies in Computational and Applied Science,2014.
6. Z. Wanadan,J. Ninkang,Z. Xubo. Design And Implementation Of A Web Application Automation Testing Framework; Ninth International Conference On Hybrid Intelligent Systems, 2009.
7. Selenium Documentation.[Online].(http://www.seleniumhq.org) . (Accessed 15 DEC. 2014).
8. TestNG Documentation.[Online].(http://www.testng.org). (Accessed 25 DEC. 2014).
9. F. Wang., Du.A Test Automation Framework Based on WEB.IEEE/ACIS 11th International Conference on Computer andInformation Science,2012, 683-687.
10.https://www.softwaretestinghelp.com/testng-framework-selenium-tutorial-12/
11.Selenium Webdriver: Software Automation Testing Secrets Revealed Part 2, Part 2
By Narayanan Palani
12. Next Generation Java Testing: TestNG and Advanced ConceptsBy Cédric Beust, Hani Suleim
13. Computer Science 50 (2015) The Authors. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/). Peer-review under responsibility of scientific committee of 2nd International Symposium on Big Data and Cloud Computing (ISBCC'15)
doi: 10.1016/j.procs.2015.04.038
ScienceDirect
14. TestNG Beginner's GuideBy Varun Menon

IJCRT
ISSN 2454-7719
International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019

Paper ID: LIB-01

IMPROVEMENT OF LIBRARY SERVICES AND EDUCATION SYSTEM BY DIGITIZATION AND ICT

Mr. Ashish Chaudhari
Asst. Librarian
Bhusawal Arts, Science & P.O. Nahata Commerce College, Bhusawal

Dr. B. H. Barhate
Associate Professor
Bhusawal Arts, Science & P.O. Nahata Commerce College, Bhusawal.

ABSTRACT:

Improvement in Library and Education system can be possible by using ICT services and Digitization. Information extraction get much faster and accurate as well as to search relevant data from Web search engines are become more faster. Nowadays, untrained users are also following web based services.

INTRODUCTION

Digitization of Library is one of the need to improve as well as to maintain the old records of library. Traditionally very costly as well as value aided books are maintained by costly methods. Nowadays every reading material is available on internet and users also follow to search such material through internet.

Reading habits of readers get improved by internet if we take a example of whatsapp, if we post readable material to our friends or in groups all the readers reads this material by taking interest, some interested readers send the links of some popular novels and other books through internet. There are many more examples of such cases and are increasing day by day.

Digital Library is one of the concept which is popularity used in various public and private library. Digital library is a collection of documents in organized electronic form, available on the internet or on any secondary storage media.

Digital copy of book may use for different purpose for researchers and readers, which book contains important and similar type of information in digital copy of book. The relevant information collected of captured from such book.

Preservation of digital copy of book is used in the form of Big data, It has multidimensional focus about to use of preserved copy, providing access to different users etc. ICT (Information Communication Technology) provides more scope to Big data. The extraction of data with minimal cost and to search relevant information in the least amount of time by using ICT concept.. To search structural data well become very use using world. 'Big Data' but there is a large scope to handle unstructured data.

ICT METHODS

Some are the very popular methods which are generally used in ICT as a teaching and learning methods in colleges and schools.

1. Google Classroom

It is the free method for both teacher and students, here teachers creates online classroom and invite student in that classroom. In this classroom teacher can distribute teaching material to students and also conduct online assessment of students and test their progress. In this classroom all type of tests as well as confession between student and teacher is possible. Teacher may give assignments through multiple choice as well as descriptive questions to students.

2. Moodle

It is one of the world's open source learning platform**.** Moodle allows educators, of any kind, to create a private space online, filled with tools that easily create courses and activities, all optimized for collaborative learning. Nowadays, Moodle is very popular due to its nice and soft features such as:

i. Powerful, flexible and collaborative learning
ii. Ease course editing.
iii. Latest multimedia tools

3. Socrative

It is the teacher-student session about teaching, learning and evaluation. Teachers distribute the teaching material to students and also give some exercise to them. This LMS supports 'Think-pair-share strategy'. The idea behind this strategy is teacher asks questions to students and they are required to write answers (think part) and discuss answers with pair (pair part). The discussion with pair will lead to some ideas collected by student and the ideas would be shared with all in the group with the

help of pair (share part). The concrete and firm strategy is collected by student through this exercise.

1. **MOOC** (Massive Open Online Course)

It is online course for unlimited participants and open access via web. Many MOOCs provide online interactive courses to students, trainers and teachers to support community interaction as well as immediate feedback to assignments

Web-Based Learning is one of the crucial applications of ICT. By accessing to the websites the students can get the information they looking for. Today knowledge becomes available on the students' hands especially, in the rural areas, where the big libraries are not available. The learners of the country side by the help of ICT can get all the types of the information in different disciplines like the students of the capital cities. Therefore, the crowded in the central universities will be reduced, since the information becomes available at the student home.

CONCLUSION:

Information and communication technology (ICT) plays a critical role by providing learning support through teacher and student .

REFERENCES

1. Sunilkumar, "Technology based Curriculum for 21st Century" Relevance of Higher Education for the Development of Human Resources. Ed. N. U. Bari et al. Kumud Publications, Jalgaon, 2014. pp.94-95.
2. Wadhwan, Heena. "E-learning in Higher Education" Relevance of Higher Education for the Development of Human Resources. Ed. N. U. Bari et al. Kumud Publications, Jalgaon, 2014. pp.52-53.
3. National Institute of Multimedia Education in Japan, https://stories.linways.in/ict-enabled-education-d190bcc91bf0.
4. Gary Ka-Wai Wong, Min Yang, "Using ICT to Facilitate Instant and Asynchronous Feedback for Students' Learning Engagement and Improvements", Emerging Practices in Scholarship of Learning and Teaching in a Digital Era **pp 289-309**

IJCRT
ISSN 2454-7719
International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019

Paper ID: M-05

AN ANALYSIS OF E-BUSINESS MODELS

Vaishali Y Patil
Asst. Professor,
DOCS&IT, BASPONC College, Bhusawal-425201, India.
Email-vaishu21.patil@gmail.com

ABSTRACT:
The aim of this paper is to understand the extent of e-business utilizationfor the companies.Many people believe that electronic commerce & electronic business are the same.But it is not true, because e-commerce is part of electronic business.

Electronic business is not just the buying and selling of products and services electronically.It includes connection of these electronic process to other parts of the organization that relate internally to finance,fulfillment,staffing,marketing,customer services etc. and externally to customers and the supply chain.

Keyword: *E-business, B2C, B2B, B2G, C2C, C2G, C2B, B2G.*

INTRODUCTION:

Electronic business is simply "doing business online". It is buying and selling, marketing and servicing, delivery and payment of products or services and information over the internet, intranet, extranet and www i.e. various websites. When businessman combine the resources of traditional information system with the vast reach of the web and connect critical business system directly to critical business constituenclas customers, employees and supplier via internet,intranet,extranet and www i.e various websites.

Importance of e business:

The full benefits can only be realized when there is total process integration,a seamless end to end process from customer to supplier,connecting to website,with sales,inventory,manufacturing,supplier,delivery and customer services.

Electronic business is about building relationship between buyer and seller,A website does not create a relationship,the process of ordering,payment,delivery,logistics and customer service is where relationships are created.

E-business model:

Business - to - Consumer (B2C)

A business that sells online produce to individual customers is categorized as B2C. It refers to the business communicating with or selling to an individual customer rather than a company.For example, purchasing clothes from a mall, having pizza in Domino's, pay for internet connection, taking beauty treatment from a parlor, etc.

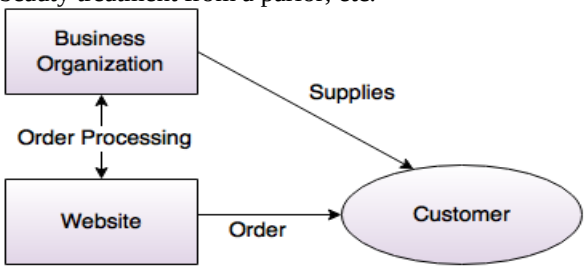


Figure: B2C Model

PROCESS OF BUYING IN B2C MODEL:

- The first step in the process the customer need / obligation.
- The customer will search for required product or service on the website.
- Comparison of the similar product on different websites.
- Placement of the order.
- Bill payment
- Receiving the order on the prescribed delivery date.
- Seeking after sale service.

ADVANTAGES OF B2C:

- Easier business administration.
- Frees your staff.
- More efficient business relationship.
- Workflow Automation.
- Economical.
- Unlimited market place.
- 24 hours store reduced sale cycle.
- Lower cost of doing business.
- Eliminate middlemen.
- Secure payment systems.
- Customer will love it.

DISADVANTAGES OF B2C:

- Catalog inflexibility
- High marketing expenses
- Limit market place
- Require higher cost of doing business
- Require a middleman
- Inefficient business administration
- Need to employ no. Of staff
- High sales cycle.

Business - to - Business (B2B)

- In this b2b e-business model the buyer provides information about the product or service to the seller. Mostly the buyer want to buy the product in bulk and this is most popular in govt. sector. In this b2b e-business model the seller provides information about the product to the buyer. Generally the seller displays the product through advertisement. In this b2b e-business models the agent who acts as a intermediary that deals between the seller and the buyer. Neither the buyer nor the seller have the direct contact

ADVANTAGES OF B2B:

- Lower administration cost
- Reduces inventory cost
- Lower transaction cost
- Lower search cost
- Decrease product cycle time
- Improve the quality of product
- Create greater transparency in price
- Increase the opportunities for collaboration
- Increase production of employees
- Enables customized online catalogues
- Create new sale opportunity
- Effective customer services

DISADVANTAGES OF B2B:

- Sale processes might get complicated
- Lacking from the side of govt. department
- Inverted power structure

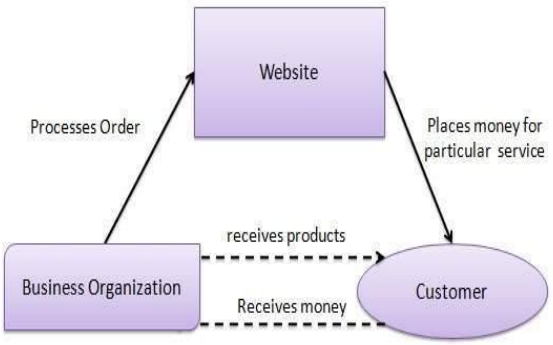
Key Differences between B2B and B2C:

In The difference between B2B and B2C:

1. B2B is a business model where business is done between companies. B2C is another business model, where a company sells goods directly to the final consumer.
2. In B2B, the customer is business entities while in B2C, the customer is a consumer.
3. B2B focus on the relationship with the business entities, but B2C's primary focus is on the product.
4. In B2B, the buying and selling cycle is very lengthy as compared to B2C.
5. In Business - to -Business (B2B) the business relationships last for long periods but in Business - to - Consumer (B2C), the relationship between buyer and seller lasts for a short duration.
6. In B2B, the decision making is fully designed and consistent whereas in B2C the decision making is affecting.
7. The volume of merchandise sold in B2B is large. Conversely, in B2C small quantities of merchandise are sold.
8. Brand value is created on the basis of trust and personal relationship of business entities. In compare to, Business - to - Consumer (B2C) where selling and support to create brand value.
9. In Business - to –Business (B2B), the decision making is completelyconsidered and reliable whereas in Business - to - Consumer (B2C) the decision making is affecting.
10. The volume of merchandise sold in B2B is large. Conversely, in B2C small quantities of merchandise are sold.
11. Brand value is created on the basis of trust and personal relationship of business entities. In compare to, Business - to - Consumer (B2C) where selling and support tocreate brand value.

Business - to - Government (B2G)

Business - to - Government (B2G)model is alternate ofBusiness - to - Business (B2B)model. Such websites are used by government to trade and exchange information with various business organizations. These websites are recognized by the government and provide a medium to businesses to submit application forms to the government.



Consumer - to - Consumer (C2C)

- In c2c model a consumer directly sells goods or services to another consumer absence of intermediary makes this model unique as consumer can directly interact and transact business by the use of technology. Generally, in this model website provide space to consumer to sell their products to other consumers through auctions etc.

FEW EXAMPLES OF C2C

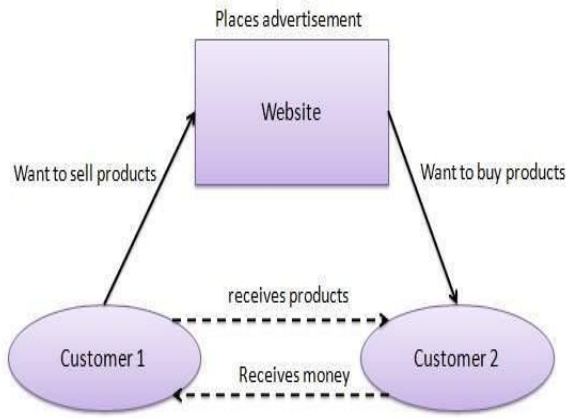
- E-Bay
- OLX
- Bazee.com
- Quikr

ADVANTAGES OF C2C

- Lowest cost is involved
- Elimination of intermediary
- Direct interaction
- Profit is highest
- Large no of buyers
- Elimination of wastage of time

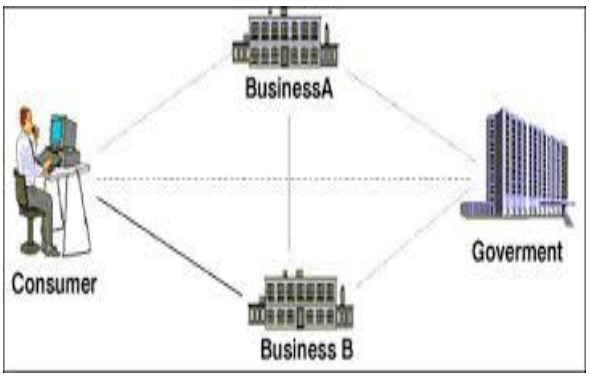
DISADVANTAGES OF C2C

- Fake communities can be created in this system
- Product quality is suffered
- Question of security
- Fake products which leads to scams

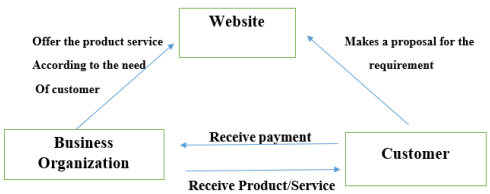


Consumer to government(C2G):

Consumer to government means C2G, consumer can contact to the government for obtaining the information regarding various G.R.,circular and orders issued by government from time to time regarding industrial policy,mercantile law,business laws and export/import policy.in this system consumer directly contact to government offices with the help of websites and email,video conferencing.e.g online tender,online bidding,online action.



Customer ToBusiness (C2B):

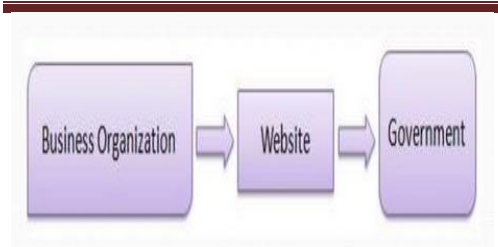


The C2B model involves a transaction that is conducted between a consumer and a business organization.The C2B model has involved as a result of decreased cost of technology where individual has access to various technologies.

C2B model is based on a business transaction originated by the customer,who establishes the transaction,conditions from the start.Instead of responding to a specific product or service offer by the company,it's the customer who makes a proposal and collaborates. In this system individual offers are made and here the customer personalization is taken to the extreme. It works very well in the leisure and tourism industries.

- C2B is the most recent E-Commerce business model. In this model, individual customers offer to sell products and services to companies who are prepared to purchase them. This business model is the opposite of the traditional B2C model.
- C2B has become about as a result of two major changes. One is that the traditional media used to be unidirectional, but the internet is bidirectional, making this type of relationship [C2B] possible. Second is the decline in the cost of technology which means that individuals now have to access to technologies such as powerful computer systems, audio and video capture systems and other digital technologies that were once the exclusive province of large companies.
- In C2B model, a consumer approaches website showing multiple business organization for a particular service. For e.g. comparison of interest rates of personal loan etc. provided by the banks via. Websites.
- Certain examples are:
  - Bank Bazar.com
  - Policy Bazar.com
  - Go Ibibo.com
- This model also includes the category where the individual's offer their services to the organizations.For example Monster.com & Naukri.com are such websites on which consumer can post their bio-data for the services they can offer. Any business organization that is interested in deploying their services, can contact and employee them if suitable.
- GENERAL FEATURES OF C2B MODEL
  - Direct action
  - Collaborative consumption
  - Interaction
  - Reciprocity
  - Bi-directionality

Business ToGovernment (B2G):



It refers to businesses selling products, services or information to governments or government agencies. B2G is also referred to as public sector marketing.

It can usually include following steps:
- determination and evaluation of government
- agency needs.
- creating a proposal.
- submitting the proposal.
- completion of proposed work.
- payment of the work.

B2G e-commerce network allows businesses to bid on government requests for proposals in a reverse auction fashion. The government is the big buyers in the world.

Web based purchasing policies increase the transparency of the procurement process and reduces the risk of irregularities.

It will be wise for the governments to use online market places to take advantage of their enormous buying power and reduce prices across the board.

CONCLUSION:

If we combine both models e-commerce and e-business will cover the complete business process which is required by any firm who is willing to do online business. For the businesses that are willing to sell something to some other company after adding some value, B2B is the process they need to opt. While B2C can be opted by the company who would like to do direct sell to the end consumer / customer.

E-business is completely new and profitable way of doing business online. E-business provides all requirements as desired by company willing to do online business.

The Internet is equivalent to the online world where all resources used are not fully used but still end consumer or customer can take advantages from it. The companies which are using e-business may raise their profit further and end customer can get desired product easily without any stress.

REFERENCES:-

[1] Timmers, P. (1998) "Business Models for Electronic Markets", Electronic Market (8:2), pp 2-8.
[2] Porra, J. (2000) "Electronic Commerce Internet Strategies and Business Models – A Survey", Information
Systems Frontiers (1:4), pp. 389-399.
[3] Amit, R., and Zott, C. (2001) "Value Creation in E-Business", Strategic Management Journal (22), pp. 493-520.
[4] Allen, E., and Fjermestad, J. (2001) "E-Commerce Marketing Strategies: Integrated Framework and Case Analysis", Logistics Information Management (14:1/2), pp. 14-23.
[5] Afuah, A., and Tucci, C.L. (2001) Internet Business Models and Strategies: Text and Cases. Boston: McGraw-
Hill.
[6] Applegate, L.M. (2001) "Emerging E-Business Models: Lessons from the Field, HBS No. 9-801-172, Harvard
Business School, Boston
7)www.google.com

IJCRT
ISSN 2454-7719
International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019

Paper ID: CS- 24

QUALITY OF SERVICE IN CLOUD COMPUTING: A SYSTEMATIC LITERATURE REVIEW

Prof. Shubhangi Tidake
Sinhgad College, Pune

ABSTRACT:

Quality of Service (QoS) plays a critical role in the effective provisioning and reservation of resources within service-oriented distributed systems and has been widely investigated in the now well-established paradigm of Grid Computing. The emergence of a new paradigm, Cloud Computing, continues the natural evolution of Distributed Systems to cater for changes in application domains and system requirements. Virtualization of resources, a key technology underlying Cloud Computing, sets forth new challenges to be investigated within QoS and presents opportunities to apply the knowledge and lessons learned from Grid Computing. QoS has been a topic of great interest in Distributed Computing paradigms, such as Grid Computing and High-Performance Computing. The primary goal of this paper is to address QoS specifically in the context of Cloud Computing and its current best effort approaches to provisioning resources that are limiting its adoption. The scope of the research is primarily concerned with the management and performance of resources such as processors, memory, storage, and networks, in Cloud Computing to improve the quality of service.

Keywords—Cloud Computing, Quality of Service, SLA, Load Balancing.

INTRODUCTION

Cloud Computing is a continuous evolving model for providing on-demand IT resources as a service over the Internet [1-10]. The name cloud computing refers to the images of clouds that are representing networks and the Internet in most drawings [8]. Cloud computing makes data and applications available through the Internet[9]. By doing this, data and applications can be accessed from everywhere. Cloud computing is not a new technology or a new device; it is a new way of using existing technology Cloud Computing is a standardized IT capability (services, software or infrastructure) delivered via Internet technologies in a pay-per-use, self-service way [11]. With cloud computing, it becomes easier to access data with several devices. Especially for mobile devices, this can be useful since the only thing that is needed, is an Internet connection[12]. This new computing paradigm emerged initially as a solution for hosting large-scale online applications has rapidly revolutionized the IT industry and enabled new trends of delivering, managing and consuming IT capabilities [13]. With the speedy evolution of the Internet and virtualization technologies and the support of Leader IT companies, the long-held dream of "Computing as the utility" has finally come true, and Cloud Computing has matured one of the fastest growing fields in IT [14-21]. According to a CISO study more than 86% of workloads will be processed in Cloud data centers by 2019 [22]. Cloud computing has become a significant component of today's software system. Cloud computing allows companies of any size, industries and, individual software developers access to a voluminous collection of the global foundation, platform, and application services without the need for skills to operate or invest in the required infrastructure themselves[23]. The scalability of cloud computing services has many advantages for companies by for example allowing them to adapt to optimize operational costs by growing and shrinking their computing resource use to adapt to daily and monthly changes. Even small and young companies have now the possibility to meet rapid changes to their computing needs[24]. Companies such as Netflix are practical examples of how cloud computing can be used as the platform to build networked consumer services with global reach. The speedy extension of the cloud computing market has also highlighted many relevant concerns about its security, safety, and reliability. It is relatively simple for an interested party to determine performance metrics of cloud resources such as CPUs, memory, disk, and network[25]. It is extremely more difficult to objectively evaluate the more qualitative metrics such as security and reliability[26].

OVERVIEW OF CLOUD COMPUTING

The cloud offers a variety of services to cloud users. These services are managed and monitored by cloud service providers on pay- as -you-go basis. Cloud essentially provide the following services.

On-demand self-service: Consumers can automatically provision IT resources at any time, in a simple way through a web-based management interface. A user expects provision computing capabilities, such as network storage and server time, as required automatically without human interaction with each service's provider [22,23].

Broad network access: Cloud resources are remotely accessible over the network through standard mechanisms holding heterogeneous client platforms. Capabilities are available over the network. They promote the use of thin or thick client platforms (e.g., mobile phones, tablets, laptops, and workstations)[21-24].

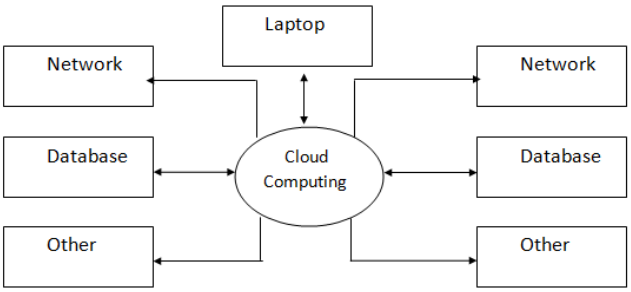


Figure 1.1 Overview of Cloud Computing Paradigm [27]

Resource pooling: The cloud provider pools its resources to serve multiple customers using a multi-tenancy architecture based on virtualization technologies. The provider's computing resources are blended to give multiple consumers using a multi-tenant model.In this model different virtual, and physical resources dynamically assigned and reassigned according to user demand. There is a provision of location independence in that the user generally has no control over the exact location of exact resources. It specifies location at a higher level of abstraction Examples of resources include storage, processing, memory, and network bandwidth[22,25].

Rapid elasticity: Capabilities can be applied automatically. It scales rapidly outward and inward commensurate with demand. To the user, the capabilities available for provisioning often appear to be unlimited.It can be held for any quantity at any required time. These Cloud systems can control and optimize resource. Resource usage can be observed, controlled, and reported, providing transparency for both the provider and consumer of the utilized service [21,22].

SYSTEMATIC LITERATURE REVIEW

Wei Wei ; Xunli Fan (2018) proposed a model to increase the profits of service providers and infrastructure suppliers simultaneously. They proposes a cloud resource allocation model based on an imperfect information Stackelberg game (CSAM-IISG) using a hidden Markov model (HMM) in a cloud computing environment. CSAM-IISG was shown to increase the profit of both the resource supplier and the applicant.

Koti Reddy &Subba Rao (2017) proposed to dynamically allocate the resources to the different task is given by users. In that paper, Particular tasks of a user's job can be assigned to different types of virtual machines that are dynamically created and terminated during the job execution time. The proposed model using location-based and task scheduling. If user creates a fake ID for access the services, but users location alone can discloser users identify. If users wants to access services they should sent their location to trusted server. Then it allows u to access information if the users are correct. Task scheduling considers the location-based services. It provides the privacy protection. Malicious can't know about your personal identification. Through this method we can achieve quick response and user privacy to access the services. In dynamic allocation execute the jobs having large data. This method is called Many-Task Computing (MTC) which is less. Demerits are Performance bottleneck and computation complexity.

Shikharesh Mujumdar et al. (2016) proposed a match making and scheduling to represent the resource allocation in cloud computing. This method allocates jobs to resources that are taken form a resource pool. Scheduling is used to find the order in which jobs have to be mapped to a selected resource so that it can be executed successfully. The advantages of this method are more cost effective and less delay. The demerit of this paper is uncertainty in match making, wrong calculation of job execution time, less of knowledge of resource management policies.

Rajkamal Kaur Grewal &Pushpendra Kumar Pateriya (2016) proposed a rule-based resource management method that can be used in the hybrid environment. This method increases the scalability and cost of private cloud. This method sets a time to process the request in time. Based on the resource utilization rate and cost the performance of the resource manager is calculated. This method follows a priority-based resource allocation. The advantage of this method is High priority resource served by private cloud, less cost and time consumption and demerits of the method is the inefficient management of resource needs between two clouds.

Bo Yin et al. (2016) proposed that the resource allocation to the distributed system is the major issue in cloud computing. The SLA of the user is considered for resource allocation. The aim of this allocation method is to create a SLA based resource allocation for multi-tier applications in cloud computing. It considers the average response time and the SLA to allocate the resource. This model considers two types of SLA classes they are Gold and bronze. Gold gives an average response time and maximum arrival rate for the user requests. A penalty is charged if the average response time is not met. In the Bronze class, the probability of distributed function is used to determine the amount of resources allocate to users. Merits of this method are improved profit. Demerits of this method are they are not homogeneous.

Vinay Chavan, Parag Ravikant Kaveri (2014) proposes an architecture, based on clustering virtual machines in data centers for higher availability of resources with improved scalability. Clustering helps virtual machines to reconfigure and easy scheduling. In this paper, the main focus is on the

performances of the three algorithms as Round Robin, Equally spread current execution load, Throttled Load balancing. They found the request time for the three policies applied are same so they conclude that there is no effect on data centers requests time after changing the algorithms. The cost analysis for each algorithm is calculated in the experimental work — the cost calculated for virtual machine usage per hour. This cost is the same for two algorithms Round Robin, Equally spread current execution load. But the Throttled Load balancing algorithm reduces the cost of usage. This means that the Throttled Load balancing algorithm works more efficiently regarding cost for load balancing on cloud data centers.

OVERVIEW OF QUALITY OF SERVICE

Cloud computing provides virtual services over the Internet so that users can access them from anywhere in the world on paying a cost which is calculated based on their Quality of Service (QoS) expectations. The users of a particular cloud provider may be geographically distributed across the globe. During a particular time each user may request for different services form the provider that may have multi requirements based on the type of customer, services requested for and the resources available. There may be a situation where users submit large

Service Response Time

The availability of a service is measured in terms of the response time. By response time it shows how fast the service is made available or provided to the user by the provider. The user request may be of any type like requesting some storage for placing the files. For a request like this response time means how fast the provider allocates the storage to the requesting user. This also includes provisioning the VM, booting the VM, assigning an IP address and starting application deployment.

Sustainability

Sustainability is defined as the carbon footprint or energy efficiency which is measured in terms of the environmental factors that impacts the cloud service. This property is connected with the accountability which measures the level of service that the service provider is able to render. Today with the increased number of cloud services provided and huge virtual resources in cloud it is very difficult for the users to select the best provider or service that will meet their QoS expectations like performance and security. To find the best cloud services, the customers should have a way to select and measure the performance ratio that are important to their applications.

Reliability

The term reliability means how well a particular service executes without failure during the given time and specified condition. It can be defined

number of requests but the providers will not be able to process the requested services that have come from the user within requested time. To overcome this situation, a ranking technique is used. While servicing the request of the user QoS is an important factor that has to be considered by the service provider. QoS is related to both the end users and providers. Some of the QoS are availability, usability, reliability, security, throughput and efficiency.

Accountability

Accountability means how far the service providers are able to ensure the security and other damage that may be caused to the applications that is place by the user. This factor is very important since without accountability the cloud user will not trust the provider and store the data with a third party. Hence this becomes a crucial QoS factor that each and every cloud provider must meet.

Agility

Agility means how far the service that the provider provides is elastic, portable, adaptable, and flexible under various situations. This accounts to the agility of the organization also since the organization can change without expenditure in a minimum amount of time. So this factor is very important for any organization that is using the cloud for its services.

as the mean time to failure assured by the cloud provider and the previous failures experienced by the users.

Stability

Stability is defined as the deviation or difference in the performance of a particular service. For example in storage service, it is the difference between the average upload and download time.

Throughput and Efficiency

These two parameters are the most important measures to evaluate the performance of the services provided by a cloud provider. Throughput can be defined as the number of tasks completed by the cloud service in per unit of time. It is different from the Service Response Time metric, which can be defined as a measure which calculates how fast the service is provided. Throughput is a factor that can affect execution of a task. For example if an user application has ‘n’ tasks and they are submitted to run on ‘m’ machines in the cloud. Then Te(n,m) will be the execution time of n tasks on m machines. Let Tov be the time overhead due to various issues like infrastructure initiation delays and inter task communication delays.

CONCLUSION

The parameters for quality of Serivce are availability, usability, reliability, security, throughput and efficiency. Most of researchers try to investigate methods to improve the quality of service.

REFERENCES

1. Wei, W., Fan, X., Song, H., Fan, X., & Yang, J. (2018). Imperfect information dynamic stackelberg game based resource allocation using hidden Markov for cloud computing. IEEE Transactions on Services Computing, 11(1), 78-89.

2. Sarkar, S., Chatterjee, S., & Misra, S. (2018). Assessment of the Suitability of Fog Computing in the Context of Internet of Things. IEEE Transactions on Cloud Computing, 6(1), 46-59.
3. Li, J., Zhang, Y., Chen, X., & Xiang, Y. (2018). Secure attribute-based data sharing for resource-limited users in cloud computing. IEEE Transactions on Computers & Security, 72, 1-12.
4. Jiang, Q., Ma, J., & Wei, F. (2018). On the security of a privacy-aware authentication scheme for distributed mobile cloud computing services. IEEE Systems Journal, 12(2), 2039-2042.
5. Xia, Z., Zhu, Y., Sun, X., Qin, Z., & Ren, K. (2018). Towards privacy-preserving content-based image retrieval in cloud computing. IEEE Transactions on Cloud Computing, 6(1), 276-286.

6. He, D., Zeadally, S., & Wu, L. (2018). Certificateless public auditing scheme for cloud-assisted wireless body area networks. IEEE Systems Journal, 12(1), 64-73.
7. Abbas, N., Zhang, Y., Taherkordi, A., & Skeie, T. (2018). Mobile edge computing: A survey. IEEE Internet of Things Journal, 5(1), 450-465.
8. Chen, M., Qian, Y., Hao, Y., Li, Y., & Song, J. (2018). Data-driven computing and caching in 5G networks: Architecture and delay analysis. IEEE Wireless Communications, 25(1), 70-75.
9. Gai, K., Qiu, M., & Zhao, H. (2018). Energy-aware task assignment for mobile cyber-enabled applications in heterogeneous cloud computing. Journal of Parallel and Distributed Computing, 111, 126-135.
10. Wei, W., Fan, X., Song, H., Fan, X., & Yang, J. (2018). Imperfect information dynamic stackelberg game based resource allocation using hidden Markov for cloud computing. IEEE Transactions on Services Computing, 11(1), 78-89.
11. Wu, Y., He, F., Zhang, D., & Li, X. (2018). Service-oriented feature-based data exchange for cloud-based design and manufacturing. IEEE Transactions on Services Computing, 11(2), 341-353.
12. Thota, C., Sundarasekar, R., Manogaran, G., Varatharajan, R., & Priyan, M. K. (2018). Centralized fog computing security platform for IoT and cloud in healthcare system. In Exploring the convergence of big data and the internet of things (pp. 141-154). IGI Global.
13. O'Driscoll, A., Daugelaite, J., & Sleator, R. D. (2013). 'Big data', Hadoop and cloud computing in genomics. Journal of biomedical informatics, 46(5), 774-781.
14. Varghese, B., & Buyya, R. (2018). Next generation cloud computing: New trends and research directions. Future Generation Computer Systems, 79, 849-861.
15. Qiu, C., Shen, H., & Chen, L. (2018). Towards green cloud computing: Demand allocation and pricing policies for cloud service brokerage. IEEE Transactions on Big Data.
16. Sahni, J., & Vidyarthi, D. P. (2018). A cost-effective deadline-constrained dynamic scheduling algorithm for scientific workflows in a cloud environment. IEEE Transactions on Cloud Computing, 6(1), 2-18.
17. Mahmud, R., Kotagiri, R., & Buyya, R. (2018). Fog computing: A taxonomy, survey and future directions. In Internet of everything (pp. 103-130). Springer, Singapore.
18. Thota, C., Manogaran, G., Lopez, D., & Vijayakumar, V. (2018). Big data security framework for distributed cloud data centers. In Cyber Security and Threats: Concepts, Methodologies, Tools, and Applications (pp. 589-607). IGI Global.
19. Sun, Y., Zhang, J., Xiong, Y., & Zhu, G. (2014). Data security and privacy in cloud computing. International Journal of Distributed Sensor Networks, 10(7), 190903.
20. Amato, A. and Venticinque, S. (2016), 'Multiobjective Optimization for Brokering of Multicloud Service Composition', ACM Transactions on Internet Technology 16(2), 13- 25.
21. Jog, M. and Madiajagan, M. (2012), Cloud Computing: Exploring security design approaches in Infrastructure as a Service, in 'Proceedings of the IEEE International Conference on Cloud Computing Technologies, Applications and Management', pp. 156- 159.

22. Rajaraman, V. (2014). Cloud computing. Resonance, 19(3), pp. 242-258
23. Wattal, S., & Kumar, A. (2014). Cloud computing-an emerging trend in information technology. IEE International Conference on Issues and Challenges in Intelligent Computing Techniques (ICICT), pp. 168-173.
24. Ghaffari, K., Abdolvand, N., Delgosha, M. S., & Mirsaeidi, S. (2015). Towards cloud computing: A SWOT analysis on its adoption in SMEs. Journal of Information Technology and Applications, 9(3), pp. 82-91.
25. Habib, S. M., Ries, S., & Muhlhauser, M. (2010). Cloud computing landscape and research challenges regarding trust and reputation. In IEEE 7th International Conference on Ubiquitous Intelligence & Computing and Autonomic & Trusted Computing (UIC/ATC), pp. 410-415.
26. Zhang, Q., Cheng, L., & Boutaba, R. (2010). Cloud computing: state-of-theart and research challenges. Journal of internet services and applications, 1(1), pp. 7-18.
27. Puthal, D., Sahoo, B. P. S., Mishra, S., & Swain, S. (2015). Cloud computing features, issues, and challenges: a big picture. IEEE International Conference on Computational Intelligence and Networks (CINE), 2015, pp. 116-123.
28. Rodriguez, M. A., & Buyya, R. (2014). Deadline based resource provisioning and scheduling algorithm for scientific workflows on clouds. IEEE transactions on cloud computing, 2(2), pp. 222-235.
29. Voorsluys, W., Broberg, J., & Buyya, R. (2011). Introduction to cloud computing. Cloud computing: Principles and paradigms, pp. 1-41.

30. Youssef, A. E. (2012). Exploring cloud computing services and applications. Journal of Emerging Trends in Computing and Information Sciences, 3(6), pp. 838-847
31. Dave, Y. P., Shelat, A. S., Patel, D. S., & Jhaveri, R. H. (2014). Various job scheduling algorithms in cloud computing: a survey. IEEE International Conference on Information Communication and Embedded Systems (ICICES), pp. 1-5.
32. Mathew, T., Sekaran, K. C., & Jose, J. (2014). Study and analysis of various task scheduling algorithms in the cloud computing environment. IEEE International Conference on Advances in Computing, Communications and Informatics (ICACCI). pp. 658-664.
33. Santhosh, B., Manjaiah, D. H., & Suresh, L. P. (2016). A survey of various scheduling algorithms in cloud environment. IEEE International Conference on Emerging Technological Trends (ICETT), pp. 1-5.
34. Gupta, A., Bhadauria, H. S., Singh, A., & Patni, J. C. (2015). A theoretical comparison of job scheduling algorithms in cloud computing environment. IEEE International Conference on Next Generation Computing Technologies (NGCT), pp. 16-20.
35. Arya, L. K., & Verma, A. (2014). Workflow scheduling algorithms in cloud environment-A survey. IEEE Recent Advances in Engineering and Computational Sciences (RAECS).pp. 1-4.

36. Tian, W., Zhao, Y., Xu, M., Zhong, Y., & Sun, X. (2015). A toolkit for modeling and simulation of real-time virtual machine allocation in a cloud data center. IEEE Transactions on Automation Science and Engineering, 12(1), pp. 153-161.
37. Sivakumar, P., & Elakia, K. (2016). A survey of ant colony optimization. International Journal of Advanced Research in Computer Science and Software Engineering, 6(3).
38. Chowdhury, A., & Tripathi, P. (2014). Enhancing cloud computing reliability using efficient scheduling by providing reliability as a service. IEEE International Conference on Parallel, Distributed and Grid Computing (PDGC), pp. 99-104.
39. Bilgaiyan, S., Sagnika, S., & Das, M. (2014). An analysis of task scheduling in cloud computing using evolutionary and swarm-based algorithms. International Journal of Computer Applications, 89(2).
40. Garg, A., & Krishna, C. R. (2014). An improved honey bees life scheduling algorithm for a public cloud. IEEE International Conference on Contemporary Computing and Informatics (IC3I),pp. 1140-1147.
41. Sukhija, K., Aggarwal, N., & Jindal, M. (2014). An optimized approach to CPU scheduling algorithm: min-max. Journal of Emerging Technologies in Web Intelligence, 6(4), pp. 420-429
42. Xiao, J., & Wang, Z. (2012). A priority based scheduling strategy for virtual machine allocations in cloud computing environment. IEEE International Conference on Cloud and Service Computing (CSC), pp. 50-55
43. Koti Reddy, S & Ch. Subba Rao 2017, 'Dynamic Resource Allocation In The Cloud Computing Using Nephele's Architecture', International journal of engineering science and advanced technology, vol.2, no. 4, pp.410-413.
44. Gunho Leey, Byung-Gon Chunz & Randy Katzy, H 2017, 'Heterogeneity-Aware Resource Allocation and Scheduling in the Cloud', Hotcloud'17 HotCloud'17 Proceedings of the 3rd USENIX conference on Hot topics in cloud computing, pp. 1-5.
45. Preeti Agrawal & Yogesh Rathore 2016, 'An Approach for Effective Resource Management in Cloud Computing', International Journal of Technology, vol.1, no. 2, pp.121-124.
46. Shikharesh Mujumdar 2016, 'Resource management on cloud: Handling uncertainties in parameters and policies', CSI Communications, vol.35, no.2, pp.40.
47. Rajkamal Kaur Grewal & Pushpendra Kumar Pateriya 2016, 'A Rulebased Approach for Effective Resource Provisioning in Hybrid Cloud Environment', International Journal of Computer Science and Informatics, vol.203, pp.41-57
48. Bo Yin, Ying Wang, Luoming Meng & Xuesong Qiu 2016, 'A MultiDimensional resource allocation Algorithm in cloud computing', Journal of Information & Computational Science, vol. 11, no. 9, pp. 3021-3028.
49.
50. Vinay Chavan, Parag Ravikant Kaveri 2014, 'Clustered virtual machines for higher availability of resources with improved scalability in cloud computing' ,IEEE conference on Networks & Soft Computing (ICNSC) 221-225
51. Sowmiya, S & Kuppuswami, S 2013, 'Efficient Resource Allocation Strategies using DRIVE for Cloud', International Journal on Advanced Computer Theory and Engineering (IJACTE) , vol.1, no. 2, pp.35-40.
52. Rostand Costa, Francisco Brasileiro, Guido Lemos de Souza Filho, Denio Mariz Sousa 2012, 'Just in Time Clouds: Enabling HighlyElastic Public Clouds over Low Scale Amortized Resources', www.lsd.ufcg.edu.br/relatorios_tecnicos.
53. Saurabh Kumar Garg, Steve Versteeg & Rajkumar Buyya 2011, 'SMICloud: A Framework for Comparing and Ranking Cloud Services', Fourth IEEE International Conference on Utility and Cloud Computing, pp.210-218.
54. Jiayin Li, Meikang Qiu, Jian-Wei Niu, Yu Chen & Zhong Ming 2011, 'Adaptive Resource Allocation for Pre-empt able Jobs in Cloud Systems,' 10th International Conference on Intelligent System Design and Application, pp. 31-36.
55. Shinichi Kuribayashi 2011, 'Optimal Joint Multiple Resource Allocation Method for Cloud Computing Environments', International Journal of Research and Reviews in Computer Science (IJRRCS), vol.2, no.1, pp.1-8.

56. Dakshayini, M & Guruprasad, HS 2011, 'An Optimal Model for Priority based Service Scheduling Policy for Cloud Computing Environment', International Journal of Computer Applications (0975 – 8887) vol. 32, no. 9, pp. 23-29.
57. Shamsollah Ghanbari & Mohamed Othman 2012, 'A Priority based Job Scheduling Algorithm in Cloud Computing', International Conference on Advances Science and Contemporary Engineering (ICASCE 2012) pp. 778-785.
58. Shalmali Ambike, Dipti Bhansali, Jaee Kshirsagar, Juhi Bansiwal 2012 ' An Optimistic Differentiated Job Scheduling System for Cloud Computing' International Journal of Engineering Research and Applications (IJERA) vol. 2, no. 2, pp.1212-1214.
59. Selvarani, S & Sudha Sadhasivam, G 2010, 'Improved cost-based algorithm for task scheduling in Cloud computing' International conference on Computational Intelligence and Computing Research, pp 1-5
60. Hamzeh Khazaei, Jelena & Vojislav 2012, 'Performance Analysis of Cloud Computing Centers Using M/G/m/m+r Queuing Systems', Published in the IEEE Transactions on parallel and Distributed systems, vol. 23, no. 5, pp. 936-943.
61. Ani Brown Mary, N 2013, 'Profit Maximization For Saas Using SLA Based Spot Pricing in Cloud Computing', International Journal of Emerging Technology and Advanced Engineering, vol. 3, Special Issue 1, pp.19-25.
62. Chitra, B, Sreekrishna, M, Naveenkumar, A, 2013, 'A Survey on Optimizing QoS during Service Level Agreement in Cloud', International Journal of Emerging Technology and Advanced Engineering, vol. 3, no. 3, pp.750-753.
63. Xiao Liu, Yun Yang, Dong Yuan, Gaofeng Zhang, Wenhao Li & Dahai Cao 2011, ' A Generic QoS Framework for Cloud Workflow Systems', Ninth IEEE International Conference on Dependable, Autonomic and Secure Computing, pp.713-720
64. Saurabh Kumar Garg, J, Steve Versteeg & Rajkumar Buyya 2013, 'A framework for ranking of Cloud computing services', Future Generation Computer Systems, Elsevier, of, vol. 29, pp. 1012-1023.
65. Sonal Dubey & Sanjay Agrawal, 2013, 'Methods to Ensure Quality of Service in Cloud Computing Environment', International Journal of Advanced Research in Computer Science and Software Engineering, vol. 3, no. 6, pp.406-411
66. Li Pan 2011 'Towards a framework for automated service negotiation in Cloud computing' Proceedings of IEEE International conference on Cloud Computing and Intelligent Systems, pp.364-367.
67. Kaiqi Xiong & Harry Perros 2012, 'Service Performance and Analysis in Cloud Computing', Published in the Annual SRRI Global Conference, pp. 11-20.
68. Wu, L, Garg, SK & Buyya, R 2011, 'SLA-based Resource Allocation for Software as a Service Provider (SaaS) in Cloud Computing Environments', 11th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing, pp. 195-204.
69. Emeakaroha, VC, Brandic, I, Maurer, M & Breskovic, I 2011,'SLA Aware Application Deployment and Resource Allocation in Clouds', 35th IEEE Annual Computer Software and Applications Conference Workshops (COMPSACW), pp. 298-303.
70. Sharma, RK, Thulasiram, P, Thulasiraman, SK, Garg & Buyya, R 2012, 'Pricing Cloud Compute Commodities: A Novel Financial Economic Model', 12th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing, pp. 451-457.
71. Ani Brown Mary, N 2013, 'Profit Maximization For Saas Using SLA Based Spot Pricing in Cloud Computing', International Journal of Emerging Technology and Advanced Engineering, vol. 3, Special Issue 1, pp.19-25.
72. Iosup, A, Ostermann, S, Yigitbasi, N, Prodan, R, Fahringer, T & Epema, D 2011, 'Performance analysis of Cloud computing services for many-tasks scientific computing', IEEE Transactions on Parallel and Distributed Systems, vol. 22, no. 6, pp. 931-945.
73. Amir Vahid Dastjerdi & Rajkumar Buyya 2012, 'An Autonomous Reliability aware Negotiation Strategy for Cloud Computing Environments', Published in 12th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing, pp. 284-291.
74. Guofu Feng, Saurabh Garg, Rajkumar Buyya & Wenzhong Li 2012, 'Revenue Maximization Using Adaptive Resource Provisioning in Cloud Computing environments', ACM/IEEE 13th International Conference on Grid Computing, pp. 192-200

IJCRT
ISSN 2454-7719
International Journal of Computer Research & Technology
** A Peer Reviewed Journal **
Vol - 5 Issue 1, Jan-Jun 2019

Paper ID: Lang-04

Role of Technology in Education: Teaching Learning with ICT

Dr. S. P. Zanke
Head & Associate Professor
Bhusawal Arts, Science & P.O. Nahata
Commerce College, Bhusawal

ABSTRACT:
Teaching learning with technology has become essential in today's educational system. Worldwide, governments, education systems, researchers, school leaders, teachers and parents consider technology to be a critical part of a child's education. Technology, in one form or another, has always been part of the teaching and learning environment. It is part of the teacher's professional toolbox. In other words, it is among the resources that teachers use to help facilitate student learning. Technology has changed dramatically over recent decades. The increasing variety and accessibility of technology has expanded the toolbox and the opportunities teachers have to use technology. Computer devices are more powerful and come in different forms, from those that sit on our desks to those that sit in the palm of our hands. The internet connects those devices and connects students to each other in the classroom, through the educational institutes and around the world. The transition to digital within education is leading to a raft of new exciting opportunities for education. The present paper aims at leading a discussion on the role of technology in education, identify technological applications and resources used in classrooms today, evaluate technological tools to support teaching and learning, and possible challenges and barriers using technology.

Keywords: Internet based technology, learning, strategies, teaching, tools.

INTRODUCTION

Today, traditional colleges and universities face reduced funding, changing student demographics, questions regarding quality and value, and increased competition. Their success requires transformative change to enable new teaching and learning approaches. Technology is changing the landscape of higher education. Educators are using everything from technology in the classroom, to massive open online courses (MOOCS), to flipped classrooms to find new ways to enhance access and the student experience. Massive online education has changed the academic landscape.

In order for higher education to fulfill its promise as a great equalizer, a means of social mobility, an engine of economic growth, and a defender of democracy, we need continued innovation that can move us toward increased access, affordability and equity. This innovation will develop an ecosystem that will include a range of opportunities for a variety of high-quality educational experiences and credentials with marketplace value suited for the differing needs of students.

The 2016 National Education Technology Plan (NETP) gave a call for transformational learning enabled by technology at all levels of our education system. It recommended for lifelong learning, equity, and accessibility, and for everywhere, all-the-time learning and ensure greater equity and accessibility to learning opportunities over the course of a learner's lifetime. NETP asserts for the use of technology as to serve the needs of a diverse group of students seeking access to high-quality postsecondary learning experiences, especially those students from diverse socioeconomic and racial backgrounds, students with disabilities, first-generation students, and working learners at varying life stages— all with differing educational goals, but who all share the desire to obtain a postsecondary credential.

Use of technology in education has overthrown the traditional type of students' institutional categorization, and made higher education easily available to everyone, located in a specific place, taking place formally over discrete periods of time, and mostly optional for workforce advancement and may also cause us to overlook and undervalue learning experiences that occur apart from discrete, formal institutional experiences. Because of this, whether a student succeeds in higher education may be determined more by the student's ability to navigate institutional structures than by their academic potential. All this put students at the center.

CHANGING WORLD

The changing world is a universal topic of interest, with particular resonance to higher education. Colleges and universities research change, teach about change, and often impact current and future change. To support students to live in this ever-changing world, those of us who work in higher education strive to provide solid, relevant preparation at the baccalaureate and graduate levels. We proactively and thoughtfully integrate and rely on educational technologies — in curriculum and instruction, labs, assignment design, libraries, support services, and more. But increasingly, employers tell us that our graduates are not adequately prepared for the changing world. Why? Because the "world of work" has also changed, and these changes are not always configured as one would expect.

TECHNOLOGY AND EDUCATION

At the end of the 20th and beginning of the 21st century, social media were beginning to coalesce into what is now commonly referred to as Web 2.0. Many of the tools commonly associated with social media were on the cusp of being invented, such as Myspace in 2003, Facebook in 2004, YouTube in 2005, and Twitter in 2007. Since the turn of the new millennium, technological devices, software programs, and the influence of the Internet on educational practice have evolved substantially.

Rutherford (2010) points out that education can be enhanced by the use of social media to strengthen the relationship between students, classmates, and instructors. Therefore, teachers may find uses for social media tools in the teaching process because students can access the information from laptops and mobile devices during class, as well as before and after class. With this in mind, new technology tools and programs can also be an important element in the future of distance education, opening doors of educational opportunity students could not access before. By using social media tools in distance education, students can have a positive and effective relationship with their instructors, the materials, and their peers. These findings were also borne out by Exter, Korkmaz, Harlin, and Bichelmeyer, (2009) during their investigation of the role of technology in higher education, specifically in distance learning.

Teaching with technology is a complex process that involves matching content, delivery, and device with the oversight of the instructor. Effective technology integration is sporadic. When it is implemented successfully, it involves students constructing their own learning using both hardware and software tools and allows for student-centered approaches for both teacher and student (Woodbridge, 2004); this is the essence of andragogy understood as student-centered learning.

The successful implementation of e-learning in higher education may need a change of perception by both students and teachers (Liaw & Huang, 2013; Lin, 2012; Rosenbaum, 2012). Jung (2011) identified seven dimensions that may be considered in evaluation the quality of e-learning. These dimensions include interaction, staff support, institutional quality assurance mechanisms, institutional credibility, learner support, information, as well as publicity and learning tasks. Jung's 2011 study demonstrated that the seven-factor model is a good fit for the observed data from online learners; all seven dimensions are important in evaluating the quality of e-learning from the learner's perspective.

Taking a different approach, Kirkwood (2009) examined variance between the potential and actual impact of e-learning on learning and teaching in higher education. He also posited that the use of information and communication technologies does not, in itself, result in improved educational outcomes and ways of working. However, various contextual factors exert greater influence upon what and how students learn. Kirkwood also suggested that institutions of higher education need to focus evaluation of teaching and assessment practices on e-learning practices to better understand the impact e-learning has on students' experiences of learning.

The implementation of e-learning in higher education has the potential to create more opportunities and raise the quality of education for a greater number of students (Basham, Smeltzer & Pianfetti, 2013; Renes & Strange, 2011; Veletsianos, 2011). In the future, e-learning in higher education can create environments in which learners receive more convenient and easier access to the educational process (Fisher & Sadera, 2011; Keengwe, Schnellert, & Mills, 2012).

While talking about technology in teaching and learning, the word ‘integration’ is often used. The idea of integrating technology into the curriculum came about through a concern that we may have been teaching about and teaching how to use technology but not addressing how students can apply technology related knowledge and skills. To address this problem, there was a move to integrate technology into each key learning area. With technology now being part of our everyday lives, it is time to rethink the concept of integrating technology into the curriculum and instead aim to embed technology into pedagogy, to support the learning process.

ROLE OF ICT IN EDUCATION

Today's generation of students are growing up in a digital world. Using digital devices is a huge part of their everyday experience out of classroom. Through 'Google' they have access to a wide wealth of digital information, content and resources. With all of this so intrinsic to their 'outside college' experience, the challenge for the teaching profession is how to harness all this for learning within the classroom and at home. This generation of 'digital natives' has much lower need for libraries of physical content for example, the traditional resource used by students half a generation ago. Learning styles are changing and teachers need to adapt their teaching styles accordingly. With the change in learning styles, the role of the teacher is changing too; as well as being a presenter of lesson material; they also assume the role of facilitator/coach in an increasingly collaborative learning environment. The two key styles of learning; presenting and collaborating; link directly to some of the different types of technology employed in the classroom. Interactive White Boards have been the bastion of the presenting style of learning, where the teacher is at front of class, and all students are involved in interactive learning.

For the more personalized learning, laptops, notbooks and tablets are increasingly pervasive in the classroom. The crucial point is that the teacher will still want and need to be in charge of the classroom, they may decide to let students use technology for some parts of a lesson but they will still want to be the centre-point of attention and control. This may be at the front of the classroom or, as is becoming more relevant, to be able to move around the classroom and still remain in control. In these styles of classroom environment clearly the ability of devices to talk to each other that is, the seamless connectivity between student tablets and front-of-class display becomes increasingly key.

The first individual student communication technology was the voting system, allowing each student to answer questions which could then be automatically collated and attributed to them. Teachers would often start the lesson with a couple of short questions to assess understanding of the previous lesson and if they needed to go back and recap – much more precise then just a show of hands. However mobile PCs (laptops, netbooks, tablets) truly unleash the full potential of learning, allowing a fully personalized learning experience for each student.

The concept of the "Flipped Classroom" is a method of teaching which is turning the traditional classroom on its head. Students do not need a teacher there when they are just viewing a lecture which can be done at home, perhaps by watching a video created by the teacher, or when they are completing an assignment.

Teachers do need to be present to help understand issues and work through problems and answer questions. The teacher then becomes a facilitator, tutor or guide and can spend more time one on one with the students. Teachers are finding that they can start to introduce this concept and slowly build on it and does not need to start as a complete radical change.

CONCLUSION

To sum up, teaching with ICT focuses on software, applications and resources that support teaching and learning. We consider the tools that teachers use to help their students use, create, manipulate and share information on computer devices and over computer networks. Technological devices and networks have changed our schools and classrooms.

There are outcomes of the use of ICT in education that are conclusive, which indirectly impact on learning outcomes. These include improvements in: Engagement, Motivation, Independent learning, Parental engagement, Student and staff attendance and punctuality, Extending the children's learning time. There now are computers and interactive whiteboards in schools and colleges, which are connected to each other and the world at higher speeds than ever before. Technology in educational institutes has become mobile, with laptop computers, tablet devices and smartphones now part of the teaching and learning context. Teachers are using ICT to support their role in providing students with structure and advice, monitoring their progress and assessing their accomplishments. When students use technology to conduct research projects, analyse data, solve problems, design products and assess their own work, they work with others to create and communicate new knowledge and understandings. The need to keep pace with society and prepare students for their roles in society are just two reasons to use technology in education. Educators and researchers point to the potential of technology to increase motivation and engagement of learners, cater for different learning styles and improve learning outcomes. This means that technology becomes an integral part of the learning experience and an important consideration for teachers, from the onset of

preparing learning experiences through to teaching and learning with students. The important role that technology plays in education gives teachers the opportunity to design meaningful learning experiences that embed technology. The advances and accessibility of technologies have made the possibilities seem almost endless. The enormous use of e-learning content indicated a robust growth pattern for distance education: campuses reported a continuous increase for distance education enrolments.

WORKS CITED

Basham, J., Smeltzer, A. & Pianfetti, E. (2013). An integrated framework used to increase preservice teacher NETS-T ability. *Journal of Technology and Teacher Education*, 257-276.

Eady, Michelle J. and Lori Lockyer. Tools for learning: technology and teaching strategies. University of Wollongong Research Online. 2013.

Exter, M. E., Korkmaz, N., Harlin, N. M. & Bichelmeyer, B. A. (2009). Sense of community within a fully online program. *The Quarterly Review of Distance Education*, 10(2),177–194.

Fisher, C. & Sadera, W. A. (2011). Comparing student learning and satisfaction between learning environments in continuing medical education. *International Journal of Instructional Technology and Distance Learning*, *8*(5), 29-38.

Kirkwood, A. (2009). E-Learning: You don't always get what you hope for Technology, *Pedagogy and Education, 18*(2), 107-121.

Liaw, S. S. & Huang, H. M. (2013). Perceived satisfaction, perceived usefulness and interactive learning environments as predictors to self-regulation in e-learning environments. *Computers & Education*, *60*(1), 14-24.

Reimagining the Role of Technology in Higher Education. A Supplement to the National Education Technology Plan. Office of Educational Technology, January 2017.

Rutherford, C. (2010). Using online social media to support preservice student engagement. *Journal of Online Learning and Teaching*, Retrieved from http://jolt.merlot.org/vol6no4/rutherford_1210.pdf

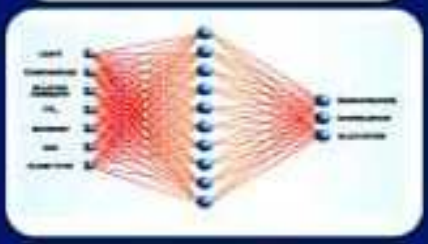
Witeck, Chris. and Nicole Nesrsta. Technology Trends in Higher Education Today and Tomorrow.
Woodbridge, J. (2004). Technology integration as a transforming teaching strategy. Retrieved from http://www.techlearning.com/story/showArticle.jhtml?articleID=17701367

ISSN NO 2454-7719

International Journal of Computer Research & Technology (IJCRT)

A Peer Reviewed Half yearly Research Journal

Vol-5 Issue - 1
Jan-June,2019.



Special Issue
Proceeding of the 4th National Conference on
" Emerging Trends in Computer and Information Technoloty"
held on 25th January,2019.

Editor in Chief
Dr. B. H. Barhate

Dept. of Computer Science & I.T.
TES's Bhusawal Arts Science & P.O.Nahata Commerce College,
Bhusawal (Maharashtra)