संकलन SANKALAN:-

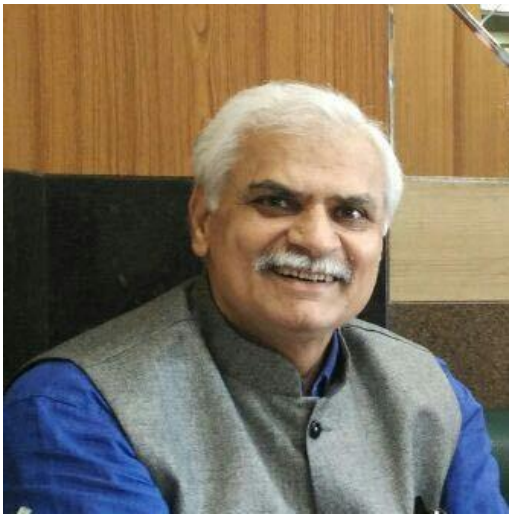
The Journal of Science, Technology & Humanities

JULY – DECEMBER, 2017 VOLUME – III, ISSUE – II

I.S.S.N. (ONLINE) : - 2455 - 3557

MESSAGE AND NOTE THROUGH DESK

[A]. Mentor:- Prof. (Dr.) R. K. Khandal



Prof. (Dr.) R. K. Khandal

Brief Profile:

a. Prof. Dr. R.K. Khandal Is the President, R&D and Business Development at India Glycols Limited, a well renowned and one of its kind company in the world manufacturing Surfactants from sugarcane molasses. Former Vice Chancellor, Uttar Pradesh Technical University, Lucknow, a Fellow of the Royal Society of Chemistry, London

b. Unanimously elected President of WAITRO (World Association of Industrial & Tech. Organizations), a UN body, 2010-2012 and 2012-2014

c. Expert member of High level Committees of Govt. of India:

   i. Ministry of Science and Technology
   ii. Ministry of Child and Women Welfare
   iii. Ministry of Food Processing Industries
   iv. Recruitment and Appraisal committees of CSIR, DRDO etc

d. Guided 30 PhD's from 10 Universities. 15 International Patents, published 118 research papers in peer reviewed journals, five books and two edited.

e. He has received several awards; prestigious ones include:
   i. INSME (International award for innovation);
   ii. R.N. Bangur Memorial award for novel technologies;
   iii. R.G. Deshpande award for popularizing Radiation processing technology;
   iv. U.P. Ratna Award, 2014 for Transforming Technical Education in U.P.

v. Rajasthan Samman Award, 2015 from Rajasthan Associations;
vi. Meri Dilli award, 2010 for improving the living standards of citizens of Delhi
vii. Srishti awards for green technologies, waste management etc.
viii. Amity Academic Excellence award for pioneering research and academics
ix. AMAR UJALA Excellence Award for outstanding contribution to education
x. Life time achievement award by World Environment Congress in food preservation, safety, environment protection and renewable energy,
xi. Eminent Engineers Award by Institutions of Engineers, India
xii. Academic Excellence Award from Engineering Watch, India, in Singapore,

Growth Path:

a. Born on September 6, 1957, he started his career in 1982, as a **lecturer in Indian School of Mines, Dhanbad** at a very young age of less than 25 years.

b. In 1985, joined as a **Group leader in a UNIDO project of Govt. of India.** Post-Doctoral research` ~ 1 year in England and 2 years in France.

c. On return from France in 1991, joined as **Manager, ICI Specialty chemicals**, an MNC and worked for developing Technologies for specialty chemicals.

d. In 1993, joined **India Glycols Limited as General Manager.** Managed team of R&D and Production for 8 years to for new products for growth of the Company.

e. From 2001 to 2012, as the **Director, Shriram Institute, Delhi** established as a leader par excellence. Developed and established a self-sustainability model.

f. DURING 2012 – 2015, AS THE VICE CHANCELLOR OF UTTAR PRADESH TECHNICAL UNIVERSITY, TRANSFORMED THE UNIVERSITY INTO AN INNOVATION UNIVERSITY.

g. 2015 onwards, Prof. Khandal is, the **President, R&D and Business Development, India Glycols Limited,** a global supplier of Green performance chemicals

h. Prof. Khandal has been associated with leading private universities and institutions as a mentor.

Virtues:

Prof. Khandal is a person of eminence with unique expertise and capabilities; a rare profile covering 360° research and innovation cycle in career: as an Academician and a Researcher (Govt. and Pvt.). He knows how to convert challenges into opportunities.

MY WISHES: - Sankalan will become the driving force for research in different areas of Science, Technology & Humanities. It will also modify the course curriculum to make it up to date as per the industry trends. Recording my felicitations to Mr. Rishabh Rai. I wish him ever success in his life forever.

[B]. Patron - in - Chief: – Prof. S.K. Singh

He is serving the nation in the field of science & technology. He has completed his graduation degree in Engineering in Electronics & Communication Engineering, from B.I.T. Sindri, in 1986 and postgraduate in Business Management from X.L.R.I. Jamshedpur, in 2004.

He has 30 years of wide experience in applied Research, Product Development and Program Management besides developing algorithms and their implementation for real-time embedded applications for signal processing in technologies like Software Defined Radio, Digital Subscriber Line, Cable Modem, Meteor Burst Communications and Satellite communications.

Background Highlights:-

- 1986 - 1997, Defence Research & Development Organization (D.R.D.O.) as Scientist
- 1997 - 2006, As Engineering Manager / Program Manager in Multinationals like, Freescale Semiconductor, Ishoni Networks, General Electric Plessey etc.
- 2006 - 2008: Cofounded a Telecom Company Hertz Tele Networks Pvt. Ltd
- 2008 - 2010: Director: Genesis Futuristic Technology Ltd, Noida
- 2010 till date: Founded Vidyadaan Institute of Technology and Management (V.I.T.M.), Buxar
- He had Co-authored a paper on the issue of inter modulation products for D.S.P. based Modulators in 2nd International Symposium on "D.S.P. for Communication Systems" held at Adelaide in 2004. D.S.P. based Modulators: Problems and Solutions.

Message from the Patron - in - Chief's Desk:-

"SANKALAN:- The Journal of Science, Technology & Humanities" (I.S.S.N. Online:- 2455 - 3557) is a Journal started with a goal to publish innovative ideas which proposes value in creating technologies for tomorrow and solving problems of today right from concept to implementation.

This Journal will try to set an example for extending opportunities to scholars of different field to publish their papers with ethics and honesty. I wish a grand success to all the stakeholders of the Journal.

[C]. Executive Editor / Publisher: - Rahul Rai

He is working as Assistant Registrar at B.I.T. Mesra, Ranchi, Jharkhand. His areas of interest are Analytics, Marketing & Entrepreneurship. He is M.B.A with Distinction Marks from B.I.T.S., Pilani, Rajasthan and B.Tech with Distinction in IT and Management. He has 06 years of industrial experience in Analytics and Research industry.

Background Highlights:-

- Worked as Academic Associate in Department of Management, B.I.T.S., Pilani, Rajasthan
- Qualified All India Level :- U.G.C. National Eligibility Test – Junior Research Fellowship (U.G.C. – N.E.T – J.R.F.) in Management in the year 2013
- Diverse Experience in various domain like Banking, Retail, Media & Marketing
- Awarded Many Prizes and appreciations in the career in several fields till date
- Organized & Participated in several seminars and events till date

Note from the Publisher / Executive Editor's Desk:-

Wishing you all a great year ahead!!!

Firstly, I will pay my gratitude to Almighty, my parents and all well-wishers with whose blessings and support we are able to start this journal "**SANKALAN:-The Journal of Science, Technology and Humanities",** (I.S.S.N. Online: - 2455 - 3557) We have started this journal publication for publishing new findings on Science, Technology and Humanities.

I hope this initiative will bring great value for academicians, researchers, students and all those who are involved in Research & Development work. We do have a highly reputed pool of advisory board members from well renowned universities, who help us in keeping high benchmark for quality and originality of our publications. Hence, I am confident that our mission to be the leading Research Journal in field of science, technology and humanities will very soon become true.

I hope very soon Buxar- Land of Rishi Vishwamitra; will soon become educational hub of Bihar.

[D]. Editor - in - Chief: - Rishabh Rai

He is the Editor in Chief of this Journal. His areas of interest are Digital System Design, Communication Systems, Nanotechnology, Embedded System Design, Wireless & Mobile Communications & Low Power V.L.S.I. Design. He is M.Tech in V.L.S.I. Design specialization with Distinction Marks & B.Tech in Electronics & Telecommunication Engineering with Honours.

Background Highlights:-

- Appreciated by the Government of India for the quality publication of the Journal – Sankalan :- The Journal of Science, Technology & Humanities (e-ISSN - 2455-3557)
- Earned the respective academic degrees in the career till date i.e. (Class X^{th} to M. Tech.) with Distinction / Honours in aggregate
- Published 20 Technical / Research / Review / Study Papers in several National / International Conferences and Journals till date
- Awarded Honorarium & Appreciated for the Paper Publication by A.K.G.E.C. International Journal of Technology in 2016
- Appreciation for the Academic Performance in M.Tech. – (2013 – 2015)
- Academic Excellence Award , for the aggregate performance in B.Tech (2009 - 2013)
- I.E.E.E. National Merit Award – 2013, for the best Paper Presentation in National Conference - E.T.E.A.T – 2013
- Project Selection in the Sixth Science Conclave – 2013, at I.I.I.T Allahabad
- Amul Vidya Bhushan Award – 2009, for the academic excellence & performance in A.I.S.S.C.E. – 2009

Note from the Editor - in - Chief's Desk:-

Firstly, I am thankful to god and grateful to my venerated parents, and all those whose blessings and constant encouragement have helped me to complete this work, i.e. compilation and finalizing of the current issue of the Journal, "**SANKALAN:-The Journal of Science, Technology and Humanities", (I.S.S.N. Online: - 2455 - 3557)**. Authors are requested to emphasize on novel theoretical standard and downtrodden concerns of the mentioned areas against the backdrop of proper objectification of suitable primary materials and documents. The papers must not be published, copied in parts or whole or accepted for publication anywhere else. For more information and ideas, one must visit the **"Quality & Plagiarism Check"** for such issues, as given in the website www.sankalan.org .

I think that, we provide only quality and original research / technical / review / study / implementation papers in our Journal as we have strictly gone through the Plagiarism policies, which must be followed for anyone in writing any paper. The entire article will must be double blind peer reviewed by our Advisory Board and will be thoroughly checked on the Plagiarism Software if selected, may be published by completing the copyright policies with the Journal. I think that it will really help the academicians / scholars / faculty members / industry delegates & professionals as well as students in finding knowledge and information on several emerging aspects in the world. Lastly, I want to thank all the concerned authorities who are directly or indirectly related to our Journal, and must expect that their co-ordination and support are always valuable and required for us forever.

SENIOR ADVISORY EDITORIAL / REVIEWER BOARD:-

ADVISORY EDITORIAL BOARD

DISCLAIMER

"SANKALAN"

The Journal of Science, Technology & Humanities

SANKALAN welcomes and encourages scholarly unpublished papers on various fields of Science, Technology & Humanities from students, teachers, scholars and professionals. The Journal invites the submission of papers that meet the general criteria of significance and academic brilliance. Authors are requested to emphasize on novel theoretical standard and downtrodden concerns of the mentioned areas against the backdrop of proper objectification of suitable primary materials and documents. The papers must not be published in parts or whole or accepted for publication anywhere else.

OBJECTIVES:

- To develop and promote academic research activities on various contemporary techno-engineering issues and trends in management and humanities.
- To provide a platform to discuss the problems related to the technical as well as the managerial and research issues.

The most valuable and suggestive comments of all the readers are always awaited and welcomed in order to achieve the ultimate goal. We are looking forward for your contributions. All communications must be made only in electronic form e-mailed to:

SANKALANDOTEDITOR(AT)GMAIL(DOT)COM

CONTACT:-

"SANKALAN -
The Journal of Science, Technology & Humanities" (I.S.S.N. Online: - 2455-3557)

Rahul Rai

Executive Editor / Publisher

Permanent Address: - S / O, Shri J.P.N. Rai,

Opposite Ambassador Hotel, Vishnupuri,

Syndicate, Buxar

Bihar- 802101, India

Email: - sankalan.editor@gmail.com

Rishabh Rai

Editor - in - Chief

Permanent Address: - S / O, Shri J.P.N. Rai,

Opposite Ambassador Hotel, Vishnupuri,

Syndicate, Buxar

Bihar- 802101, India

Email: - sankalan.editor@gmail.com

Prof. Dr. R.K. Khandal
President - R&D and Business Development

INDIA GLYCOLS LIMITED

Foreword

I am pleased to write this note in appreciation of the endeavours of a young Faculty of Engineering in a far flung remote area of the state of Bihar. This is to express my pleasure on a publication called "Sankalan." It has impressed me a lot and that is why I am glad to write this. I am pleased to note that this journal is on its way to emerge as a leading publication for faculty and students of hundreds of technical as well as non-technical institutions in the country. It has already earned its name and fame in such a short time period and I am sure it will serve its visionary objectives, in times to come. It's a matter of pride for me, personally, also because the editor-in-chief of this journal Mr Rishabh Rai is a young engineer who graduated from the University that I happened to be the Vice Chancellor of at that time. I am really delighted for him!

Education is aimed at imparting knowledge to youth to get them ready to serve the society after they complete their education. In order to be able to achieve the real objectives of education, institutions adopt best of the pedagogies and employ state-of-the-art-of-technologies of teaching. At the end of it, a human resource is made available to society to solve their problems. Teaching and Learning have always been the two important pillars of education. Focus on learning has to be more than just mere teaching, even though both have a vital role to play. It's mainly because for development of skills, learning is more important than teaching. One must appreciate that the education always leads to new knowledge, created in the process. For creation of new knowledge, there is need for exchange of ideas between the faculty and the pupil as exchange only will generate further new ideas. There are several ways of exchanging ideas and one of the most widely adopted for this pertains to the publication of journals. When one gets new knowledge, new idea, new process, new method, new procedure, new product, etc. one must share them with others to learn views of others who read them. Readers then share their opinions and at times they also pause challenges and this cycle goes on from one level to the next bringing further improvements. Such is the power of idea-exchange!

"Sankalan" is an initiative that would certainly become a platform for all to publish results of their studies and experiences for societal benefit. This, I am sure, will also inspire all those who rarely write articles as reading articles written by others will help them emulate. All new knowledge will thus get communicated to concerned stakeholders of knowledge. This way, Sankalan will also become the driving force for research in different areas of Science, Technology and Innovation. Ultimately, it will also help modify the course curriculum to make it up-to-date as per the industry trends. Recording my felicitations to Mr Rishabh Rai, I wish him success.

RKKhandal
28|12|2017
Prof Dr Rakesh Kumar Khandal

Plot No. 2-B, Sector -126, NOIDA, GB Nagar, UP - 201304
Tel. : +91 (120) - 3090100/3090200/3090158, Fax : +91 (120) - 3090111/3090211, Direct : 3090158, Mobile : +91 11 9599433590
E-mail : profrkkhandal@indiaglycols.com, drrakeshkhandal@gmail.com Website : www.indiaglycols.com

CONTENTS

A Comparative study of BIG DATA-Technical Aspect, Challenges and Security Issues

Awanish Kr Kaushik[1] Shishir Mehrotra[2], Dr. (Prof) R.K.Mishra[3,] Dr. S. K. Garg [4]

[1]*A P, Electronics and Communication Engineering (AS)*
[2] *AP, Electrical Engineering (AS)*
[3] *Professor, Mathematics.* [4] *Associate Prof, Mathematics.*
[1, 2, 3. 4] *G. L. Bajaj Institute of Tech & Management Greater Noida, Uttar Pradesh, India*
[1] awanishkkaushik@gmail.com, [2] mehrotra.shishir@gmail.com, [3] rkmsit@rediffmail.com, [4] sudeshdsitm@gmail.com

Abstract- Man and machine would quickly generate information. Same time composing an email, calling, texting, tweeting, streaming sound and video, on the web shopping, reservation, generates information around their needs What's more inclination. Indeed when we need aid not utilizing our devices, the organize is generating time, location, logged off records, pending messages Furthermore different information that keeps benefits running Furthermore prepared for next use.

In this period about majority of the data technology, those compelling reason for security need achieved fundamental imperativeness. Similarly as the greater part of our touchy data is saved in machines the need for information security gets to be progressively paramount. Ensuring this data against unapproved get will be hence a real worry for both working frameworks and clients indistinguishable. Cryptography is particular case such system for safeguarding touchy information from continuously stolen alternately intercepted by unwanted third gatherings. By the forms for encoding (cryptography) furthermore deciphering (crypto analysis) data or messages (called plaintext) under overall negligible information (cipher text) joined is cryptology.
So in this paper we are discussing about Technical Aspect, Challenges and Security Issues of Big data.

Index terms - Big Data, Security, Cryptography, Privacy, Challenges

I.INTRODUCTION

Those huge information is an rising zone connected should oversee datasets whose size will be past the capability for regularly utilized programming instruments will capture, manage, What's more auspicious examine that add up from claiming information. The amount about information to be investigated will be normal should twofold each two quite some time (IDC, 2012). Know these information would altogether frequently all the unstructured and from Different wellsprings for example, social media, sensors, experimental applications, surveillance, feature Furthermore picture archives, web look indexing, medicinal records, business transactions Furthermore framework logs.

Huge information will be getting an ever increasing amount consideration since those amount of units associated with those alleged "Internet" will be at present expanding with unforeseen levels, generating a lot for information which necessities should be changed under profitable data. Additionally, it will be Verwoerd well known should purchase all the on-demand extra registering control What's more stockpiling starting with general population cloud suppliers will perform

escalated consideration data-parallel transforming.

Similarly as enormous information extends for that assistance from claiming general population clouds, universal security results customized on private registering infrastructures, restricted on a well-defined security perimeter, for example, such that firewalls and demilitarized zones (DMZs) are no more compelling. Utilizing enormous Data, security capacities are needed to fill in over that heterogeneous piece about different hardware, operating systems, and Furthermore system domains.

Enormous information acquires huge esteem. For propelled huge information breaking down technologies, insights might be procured with empower finer choice making for incredulous advancement regions for example, wellbeing care, monetary productivity, energy, and common catastrophe prediction. Those huge information alludes with gigantic sums of advanced majority of the data organizations and legislature gather around us Furthermore our surroundings voluminous information are produced from an assortment from claiming clients What's more devices, What's more need aid with be put away Also transformed in capable information focuses. Similarly as such, there may be a solid interest to fabricating an unobstructed organize base to accumulate geologically disseminated Furthermore quickly created data, and move them to information focuses for successful learning finding. It's exactly standard information that's typically dispersed crosswise over numerous locations, from a different show of sources, in distinctive formats also often unstructured. Those tests incorporate analysis, capture, search, sharing, storage, transfer, visualization, Furthermore protection violations.

The point when individuals at first attempted should impart through distances, they attempted to guarantee the mystery for their correspondences. Afterward there need aid Different innovations include giving work to the security of the information What's more information, cryptography also Steganography formed for this destination. The statement cryptography developed starting with two Greek expressions – Crypto (hidden, secret); Also Graphein (writing). At first cryptography might have been accomplished for exactly confidentiality, which might have been guarantee by encryption. Those message might be changed over from an intelligible type should an endless person former should sending again an untrusted channel. Those reverse might make done in the opposite conclusion. This might make the message safe from interceptors or eavesdroppers, not possessing the mystery enter for decrypting that message. In cutting edge contexts, cryptography incorporates guaranteeing message integument alongside secrecy. It is the science of mystery communications, guaranteeing that the unique message could make perused main toward those planned recipient, again actually an untrusted medium. To other intruders, it makes no feeling. Cutting edge day cryptography employments those systems of mathematics, machine science, and correspondence building. Steganography Additionally goes starting with Greek, truly implying "Covered writing". It may be an information technique, which transmits a message in a channel the place some other sort of data (like an image) may be generally continuously sent. Steganography hides messages inside other messages, What's more keeps intruders starting with Comprehending that a second mystery message may be exhibit. Steganography need created a considerable measure recently, since advanced strategies permit concealing a percentage majority of the data inside different data. At first this might have been utilized within main warfare, in any case presently it may be additionally generally utilized to general requisitions. Steganography necessities stealth, since whether an assailant could identify those vicinity of the message, he could attempt on extricate it.

In this way, security what's more protection issues could be possibly helped toward those volume, variety, furthermore totally territory sending of the framework frame work should backing enormous information requisitions.

Here in this paper tosses A percentage light on huge information concept, for segment II, demonstrate the Characteristics, clinched alongside, segment III, demonstrate a portion definitions On security contexts, done segment iv illustrate the security and security Challenges, On area v characterize those real security problems, Previously, area VI examine the working procedure to security and done area VII examine the requisition.

II. Characteristics of BIG data

Enormous information might a chance to be depicted by those taking after characteristics:

1) **Volume:** That amount of information that is created is extremely critical in this setting. It will be the extent of the information which determines the quality What's more possibility of the information under attention What's more if it might really make acknowledged as huge information or not. Those sake 'Big Data' itself holds an expression which is identified with measure also henceforth those trademark a number Components help the increment done information volume. Unstructured information streaming Previously, from Online networking , location-based data, client interactions, those supply chain, and in addition information generated all the contractors, accomplices and suppliers utilizing person to person communication sites, intranets, extranets, Furthermore corporate wikis, clinched alongside fact, sources for example, portable and internet transactions, Online networking movement Also GPS coordinates Notwithstanding produce more.

2) **Variety:** The next part for huge information will be its mixed bag. This implies that the class on which huge information belongs to will be also a crucial way that needs on be referred to toward those information investigators. This aides the people, who would nearly examining those information Also are connected with it, to adequately utilize the information should their preference What's more consequently upholding the vitality of the huge information. Information today goes altogether sorts for formats. Structured, numeric information over accepted databases. Data made starting with line-of-business provisions.

3)Velocity: Those expression "velocity" in this setting alludes all the of the pace for era about information or how quick the information is created and transformed on meet the requests and the tests which lie ahead in the way from claiming Growth and advancement. Information will be streaming over in phenomenal speed and must be managed for to an auspicious way. RFID tags, sensors Also advanced mobile metering are crashing the necessity will manage torrents from claiming information clinched alongside near-real occasion.

4) Variability: This is an element which could make an issue for the individuals who dissect the information. This alludes all the of the conflict which could be demonstrated by those information toward times, In this way hampering those transform from claiming having the capacity to handle Furthermore wrist bindings those information adequately. Will be something inclining to social media? Daily, occasional also event-triggered top information loads make testing on wrist bindings.

5) Complexity: Information administration might end up a perplexing process, particularly when huge volumes of information come starting with numerous sources. These information compelling reason will a chance to be linked, associated and associated in place with have the ability should grasp those majority of the data that is assumed should make passed on by these information. This situation, will be therefore, termed Likewise the "complexity" about huge information. Today's information originates from various wellsprings.

III- Some Definitions in Security Contexts

A percentage terms which would over utilized within those setting for cryptography Furthermore steganography:

i- **Plaintext:** those unique message or data, which may be the information of the calculation.

ii- **Cio text:** this may be the fried message generated Concerning illustration yield of the encryption algorithm, which goes on the

untrusted state funded medium. It relies on the plaintext what's more mystery key. For a provided for message, two separate keys will handle two diverse cio writings.

iii- **Mystery key:** that mystery fact that additionally enter of the calculation. The accurate substitutions and transformations performed Eventually Tom's perusing the calculation relies on upon the key. That same message will produce different writings for separate keys for that same calculation.

iv- **Encryption algorithm:** Performs substitutions/ transformations on the unique plaintext.

v- **Unscrambling algorithm:** here those encryption calculation runs previously, reverse. It takes those cio content What's more same mystery enter What's more produces those first plaintext.

vi- **Blanket medium:** this is the medium on which we need to conceal information.

vii- **Installed message:** this may be the stowed away message on a chance to be place in the spread. It might be a few data, or copyright information, or included content for advanced watermarking.

viii- **Stego key:** this is a percentage mystery information, required to extricate once more the message.

ix- **Stage-medium/ medium:** it will be those last bit of data that those easy eyewitness might view.

x- **Formula:** Cover-medium + embedded-message = stego-medium or stego-message.

xi- **Diffusing Function:** those mystery imparted data the middle of sender furthermore recipient something like those pixels to which those inserted message may be substituted in the LSB.

IV-Security and Privacy Challenges

The diverse security furthermore security tests would isolated under four distinctive sort of those huge information biological community. These viewpoints need aid foundation Security, information Privacy, information administration Also integument and sensitive security. Each for these parts countenances those accompanying security challenges:

A- Base security.

1. Secure dispersed transforming from claiming information.
2. Security best movements for Non-Relational Data-Bases.

B- Information security.

3. Information examination through information mining Preserving information security.
4. Cryptographic results for information security.
5. Granular right control.

C- Information administration what's more integument.

6. Secure information stockpiling what's more transaction Logs.
7. Granular Audits.
8. Information Provenance.

D- Sensitive security.

9. End-to-end sifting & acceptance.
10. Directing those security level clinched alongside ongoing.

These security What's more protection tests disguise the whole range of the huge information lifecycle: wellsprings about information handling (devices), the information itself, information processing, information storage, Furthermore information transport Furthermore information utilization with respect to separate gadgets.

V- Security Problems

There will be fundamentally different sort for security issues concern for the enormous information. Some security issues need aid examined here-.

i- Unstable Web Interface: which could permit an assailant to misuse an organization web interface Furthermore acquire unapproved get to control those web gadget.

ii- Insufflate Authentication/Authorization: could permit an assailant should misuse an awful watchword policy, break powerless passwords Also entry with privileged modes on the web gadget.

iii- unstable organize Services: which camwood prompt an assailant exploiting unnecessary alternately feeble benefits running on the device, alternately utilize the individuals benefits Likewise a bouncing perspective with ambush different units on the web organize.
iv- absence of transport Encryption: permitting a assailant on spy information done travel the middle of web units and backing frameworks.
v- protection Concerns: raised from the reality the mossy cup oak web gadgets Also backing frameworks gather particular information from clients Also come up short will protect that information.
vi- unstable cloud Interface: without best possible security controls an assailant might utilize various ambush vectors (insufficient authentication, absence of transport encryption, record enumeration) should entry information alternately controls by means of those cloud website.
vii- unstable portable Interface: without fitting security controls an assailant might utilize various ambush vectors (insufficient authentication, absence of transport encryption, record enumeration) on right information alternately controls by means of the portable interface.
viii- insufflate security Configurability: because of those way this absence alternately poor setup components a assailant camwood right information or controls on the gadget.
ix- unstable Software/Firmware: attackers camwood take advantage about unencrypted Furthermore unauthenticated associations with capture web units updates, What's more perform pernicious redesign that could bargain those device, An system for gadgets and the information they hold.
x- Poor physical Security: In the web gadget may be physically approachable over an assailant camwood utilization USB ports, SD cards or different capacity methods on right the gadget OS Furthermore conceivably any information saved on the gadget.

It may be reasonable that huge information exhibit fascinating chances to clients also businesses; however these chances need aid countered by gigantic tests As far as protection Furthermore security. Conventional security components need aid insufflate on gatherings give a skilled solution for the individuals tests. In the following section, A percentage of these solutions/proposals would setting off should make tended to.

VI. Working Methodology for Security

For present day machine systems, registering alternately ascertaining mind boggling scientific calculations in secondary speeds is barely not sufficient. Those majorities of the data needs with a chance to be done a dependable Furthermore secure surroundings. PC framework security need to satisfy those destinations of secrecy (only commissioned & planned client could translate those information) Furthermore integument (only commissioned & planned client could change the information). Cryptography tries will attain these. Alongside these two, it is necessary on confirm the genuineness of the sender to guarantee Non-repudiation i. e. The sender can't deny Hosting sent that message). Sometimes, concerning illustration for every the prerequisite of the issue during hand, Steganography strategies are utilized to information concealing.

A- Private-Key Cryptography: Here, that sender and the collector allotment the same (Private) key. The working standard for this strategy may be illustrated in figure 1. The sender employments an imparted way with scramble those plaintext. This cio quick will be sent of the beneficiary. Those beneficiary decrypts the content message once again under plaintext with those same imparted enter. Concerning illustration those algorithm will be known of the world, the best path to guarantee protection may be toward keeping the mystery of the "shared key". That period about this mystery fact that paramount to guarantee that protection of the message. It chooses those straightforwardness (or difficulty) for which those cio quick camwood a chance to be decrypted & the measure for assets & time

needed will break it. A percentage calculations attempting once this guideline would DES, AES, and so forth.

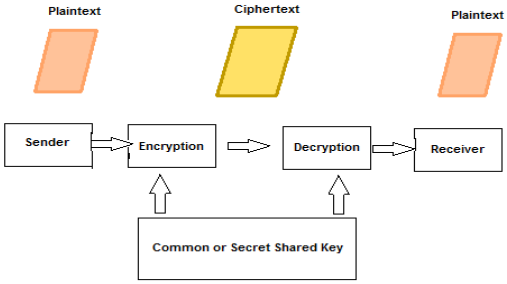


Figure 1-Encryption by Private-Key Cryptography

B. Public-Key Cryptography:

Done deviated (public key) cryptography, the sender encrypts information with you quit offering on that one key, yet the recipient employments an alternate key will unscramble cio quick. People in general fact that open to those world, same time those private fact that held mystery alternately individual for those member. People in general way of the beneficiary will be used to scramble information. It camwood make openly conveyed on every last bit the individuals who need to scramble a message to that beneficiary. That private way of the beneficiary will be used to unscramble messages, and main the beneficiary must have the capacity with get it. Accompanying figure depicts those attempting for deviated encryption. The sender makes content Eventually Tom's perusing encrypting that plaintext with a deviated encryption calculation and the recipient's general population key, et cetera sends those content should beneficiary. That beneficiary decrypts those cio quick again to plaintext utilizing the private key that corresponds of the general population magic which might have been used to scramble those message. State funded key encryption may be unpredictable compared with private magic encryption. Something like that it necessities more registering energy & period. Its value over Private way encryption will be that it obliges maintenance, and will be utilized to mystery key management provision.

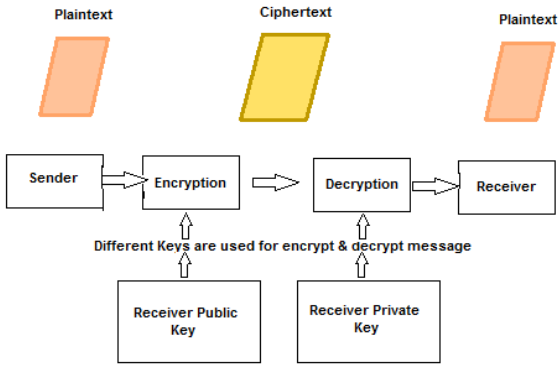


Figure 2-Encryption by Public-Key Cryptography

C. Hashing Algorithms:

Hashing calculations would use to accomplish verification & Non-repudiation. Similarly as delineated over figure 3, the working guideline of hashing calculation is as takes after: government funded fact that by accessible. It might make dispersed for the message. Yet the private fact that secret, What's more will be never sent for a message. A signature made furthermore checked eventually Tom's perusing a deviated public/private enter pair, may be called an advanced signature. Those sender indications the message content as much private way Furthermore connects it of the message, and sends those message for the advanced mark of the beneficiary. The beneficiary verifies those advanced signature for the sender's open magic.

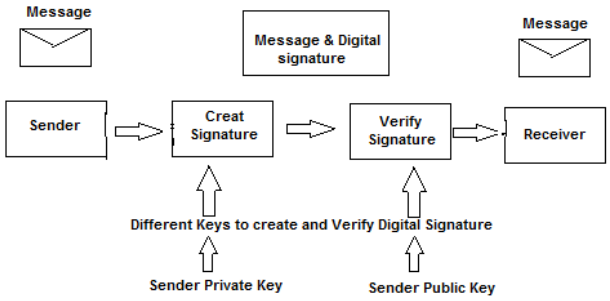


Figure 3-Encryption by Hashing Algorithm

The algorithm regularly utilized on make an advanced signature may be known as “Digital signature calculation (DSA)”. DSA utilization those public/private magic pairs to make and

confirm marks. For marking What's more encryption purposes, deviated keys necessity will make figured out how. They are figured out how through an state funded enter foundation (PKI). Majority of the data describing the customer will be bound will its government funded key, Furthermore supported from a trusted one gathering to structure a testament. Certificates permit the beneficiary on confirm those private way over client's mark for people in general enter in the client's testament. Advanced marks are utilized to no repudiation, since the private fact that as a rule open best of the manager of the key.

D- Steganography systems. Cryptography scrambles a message with the goal that it can't make comprehended. On the different hand, Steganography hides the message thereabouts it can't a chance to be seen. Key content may stimulate suspicion on the and only those channel observers, same time an "invisible" message made with steganographic systems won't. Thus, Steganography complements cryptography, also really there are normally two ciphers should break. Person is those particular case with which the message might have been embedded, and the other will be the person with which those message might have been enciphered.

Over early days from claiming communications, A percentage of the strategies utilized were, death messages underneath the wax of a composing tablet, dotting progressive letterpress in an disguise content for An mystery ink, tattooing mystery information, for example, such that an map, on the shaved head for someone, thereabouts that those hair developing once more might hide it. Unobservable ink advertised a widely recognized structure of unobservable composing.

Those fundamental technique behind steganography may be indicated previously, figure 4.

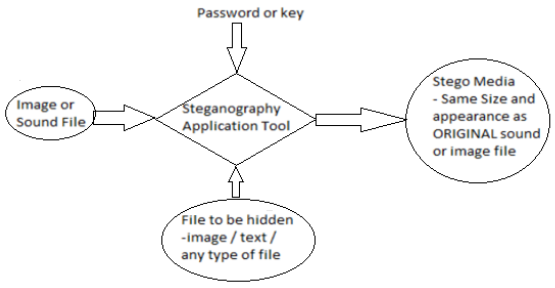


Figure 4. Steganography Principle

VII. Application

- Engage with your customers effectively – and individually – using insights from Big Data
- Identify and address potential fraud before it happens by uncovering patterns in Big Data
- Monitor supply and demand in real time to respond faster than ever before
- understand the affinity between products and use Big Data to improve price promotions
- Create innovative business applications to deliver competitive advantage.

VIII. CONCLUSION

We spoke to "Big information Security". Enormous information bring Different tests identified with security like-computation done dispersed programming, security from claiming information stockpiling Furthermore transaction log, enter sifting starting with client, versatile information mining Also analytics, get control Also secure correspondence. To handling with such security tests we utilized diverse security routines in cryptography (Public & private), hashing calculations what's more Steganography standard for security for huge information. In this paper additionally talked about exactly side of the point for Characteristics, A percentage definitions clinched alongside security contexts, security Furthermore security Challenges, significant

security problems, attempting procedure for security and the provision.

REFERENCES

[1] ”Cloud Security Alliance Top Ten Big Data Security And Privacy Challenges “by CSA Big Data Working Group

[2] Yang Yang,Xianghan Zheng”Type Based Keyword Search For Securing Big Data” in 2013 International Conference On Cloud Computing And Big Data.

[3] Xueli Huang and Xiaojiang Du”Achieving Big Data Privacy Via Hybrid Cloud” in 2014 IEEE INFOCOM workshops:2014 IEEE INFOCOM workshop on security and privacy in Big Data

[4] Min-Sheng Lin,Chien-Yi Chiu,Yuh-Jye Lee and Hsing-Kuo Pao”Malicious URL Filtering-A Big Data Application” in 2013 IEEE International Conference on Big Data.

[5] Roger Schell”Security –“ A Big Question for Big Data”in 2013 IEEE International Conference on Big Data

[6] Katina Michael, Keith W. **Miller “**Big Data: New Opportunities and New Challenges,” Published by the IEEE Computer Society 0018-9162/13/$31.00 © 2013 IEEE

[7[. Advantech. (2013). Enhancing Big Data Security. Retrieved from http://www.advantech.com.tw/nc/newsletter/whitepaper/big_data/big_data.pdf

[8]. Agrawal, D., Das, S., & El Abbadi, A. (2011). Big data and cloud computing. In Proceedings of the 14th International Conference on Extending Database Technology - EDBT/ICDT ’11 (p. 530). New York, New York, USA: ACM Press. doi:10.1145/1951365.1951432

[9]. Carlos Serrão, Neves, D., Trevor Barker, & Massimo Balestri. (2003). Open SDRM -- An Open and Secure Digital Rights Management Solution. In Proceedings of the IADIS International Conference e-Society. [10] Chen, P., Jorgen, B., & Yuan, Y. (2011). Software behavior based trusted attestation. In Proceedings - 3rd International Conference on Measuring Technology and Mechatronics Automation, ICMTMA 2011 (Vol. 3, pp. 298–301). doi:10.1109/ICMTMA.2011.645

[11] Chen, X., & Shi, S. (2009). A literature review of privacy research on social network sites. In Multimedia Information Networking and Security, 2009. MINES’09. International Conference on (Vol. 1, pp. 93–97).

[12] DARPA. (2014). MINING AND UNDERSTANDING SOFTWARE ENCLAVES (MUSE). Retrieved August 03, 2014, from http://www.darpa.mil/Our_Work/I2O/Programs/Mining_and_Understanding_Software_Enclaves_(MUSE).aspx.

[12] William Stallings, Cryptography and Network Security, PHI Publications,Third Edition,

[13] Neil F. Johnson, Sushil Jajodia, George Mason University, "Exploring Steganography: Seeing the Unseen", IEEE Computers, February 1998, pp. 26-34

[14] W. Bender, D. Gruhl, N. Morimoto, A. Lu, "Techniques for Data Hiding" IBM Systems Journal, Vol. 35

[15] Ross Anderson, Roger Needham, Adi Shamir, "The Steganographic File System", 2nd Information Hiding Workshop, 1998

[16] Behrouz A Fourouzan, Cryptography and Network Security, McGraw Hill, Second Edition.

[17] Bruice Schneier, Applied Cryptography, Wiley India, Second Edition

[17]. Mukherjee, J.; Mitra, S.K.; Enhancement of Color Images by Scaling the DCT Coefficients, IEEE Transactions on Image Processing, 2008.

Authors Details-

1-Awanish Kr Kaushik- is working as Assistant Professor in ECE Department at GLBITM Greater Noida, Uttar Pradesh. He has graduated (B.Tech) from UPTU Lucknow in 2005, post graduated (M.Tech) from UPTU Lucknow in 2010 in area of Image Processing and PhD (pursuing) from IIT(ISM) Dhanbad. He has teaching experience of 11 years and 2 years of industrial experience.

2-Shishir Mehrotra-

is working as Assistant Professor in EEE Department at GLBITM Greater Noida, Uttar Pradesh. He has graduated (B.Tech) from UPTU Lucknow in 2004 and post graduated (M.Tech) from UPTU Lucknow in 2010 in VLSI. He has teaching experience of 13 years,

3-Dr. (Prof) R. K. Mishra- is working as Professor & HOD in Applied Science Department at GLBITM Greater Noida, Uttar Pradesh. He has graduated from Rohilkhand University, Bareilly in 1991, post graduated from Rohilkhand University, Bareilly in 1993 and Ph.D. from Rohilkhand University, Bareilly in 1998 in the area of Mathematics. He has teaching experience of 18+ years.

4-Dr S. K. Garg- is working as Associate Professor in Applied Science Department at GLBITM Greater Noida, Uttar Pradesh. He has graduated from CCS University in 1994, post graduated from CCS University in 1996, M. Phil from CCS University in 2007 and PhD from CCS University in 2013 in area of Mathematics. He has teaching experience of 17+years

SANKALAN: - The Journal of Science, Technology And Humanities I.S.S.N. (Online): 2455-3557

Artificial Intelligence Autonomous Robot Based On Reverse Bayesian

Yashank Tiwari, Noida, (yashankieee@gmail.com),
Madhvendra Raj Singh, Vivek Gupta
JSSATE, Noida, Uttar Pradesh, India

Abstract: - ***The system is autonomous to the extent that its behaviour is determined by its own experience. This abstract describes the autonomous capabilities of a robot using the methods of localization and a newly coined term of reverse Bayesian probability method in this method we make use of the least collision possibility in all directions of movement of the robot .We also make set of all three probability i.e. for axes P (x, y, z) probability for type of terrain P (u, v, w) and probability of collision (a, b, c). After this we make the subset of elements having least possible collision paths making the robot in a pretty much an autonomous and learning based body. We make use of complexity of interference in case the robot is in a random object environment where there is no particular alignment of objects which is the case in almost all the environment. The robot is then programmed in accordance with the Artificial Intelligence kept in mind where we make use of different preceptors in different type of environment and make the robot respond to those using sensors through signal conditioning. There are also some terms like 3SAT for truth table of the operation using Boolean methods and variables. With many types of agents in environment the more rational and logical behaviour the robot possesses the more autonomous and robust its operation becomes***.

Keywords: Reverse Bayesian Probability, Localization, Decision Theory, Failure driven-Learning

I. INTRODUCTION

Artificial Intelligence is a very curious field for many researcher programmers, engineers. The thought of providing the basic thought process almost as if that of humans rational, logic and not fully computational models. It is the study of mental faculties through the use of computational models. Locational aspects of robot and its behaviour in different environment are also conceived rational agents perceptors signal conditioning. Localization is used for the movement of robot in an unknown environment through decision making.

The concept of 3SAT is also taken into account for the cause of operational movement of a robot in an unknown environment through failure driven learning. Autonomous behaviour of robots is defined as a system is autonomous to the extent that its behaviour is determined by its own experience either success or failure.

II. RATIONAL AGENTS

The performers measures that defines degree of success everything that the agent has perceived so

far and what the agent knows about the environment ideal rational agent should do whatever action is expected to maximize its performance measure on the basis of environment and effect of signal conditioning.

Ideal mapping from percept sequences to actions mapping describe agents specifying which action an agent ought to take it response to any given percept sequence provides a design for an ideal agent.

```
function sqrt(x)
z←{1,0}
repeat until |z^2-x|<10^-a
z←z-(z^2-x)/2z
end
return z
```

The above programming is ideal for mapping square root for (number of accurate) digits.

II.1 Reverse Bayesian:

We all know the condition for a Bayesian concept is that for the condition we want to find its probability we put it in an equation deduce by Bayes

P(x)=p(x1)/p(x1)+p(2)+p(3).....p(xn).

But if we put up this probability in autonomous condition of movement of a robot in an unknown environment we have a very instigative difficulty that for it will take all the possible collisions but it cannot make out the best possible way to get out of the unknown field.

In Reverse Bayesian which a very much newly conceptualized condition in which we find out the probability of all those possible which are there all possibilities such as:

{P(x)=P(x2)+P(x3).....+P(xn)/P(x1)+P(x2)+P(x3).....+P(xn)}.

P(y=t)=(2n-1)Ɛ(2m-1)ƐP(Y=T)|Cβ)P(Cβ|U)P(Uα)

II.2 Decision Theory: Let us assume that there is a scale of utility on which all outcomes can be ranked .This scale can be vary from environment to environment, but we must assume a given decision maker has such a tree.

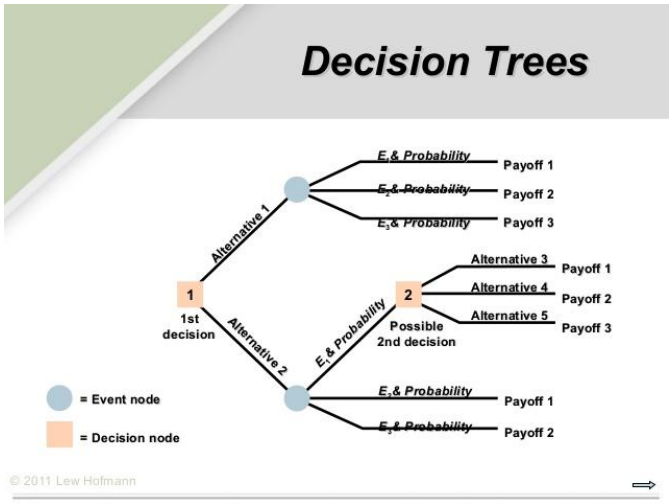


Figure 1 (a) State what the above figure shows.

Expected utility =(probability of outcome1)(utility of outcome 1)+(probability of outcome 2)(utility of outcome 2)+(probability of outcome 3)(utility of outcome 3)+(probability of outcome 4)(utility of outcome 4)+(probability of outcome 5)(utility of outcome5)= M.

Decision making tree in this case , only the first three branches of the tree corresponds to an action by the decision maker .But the theory can also encompass sequences of actions, in which future decisions must be anticipated .Often these actions can be expected to produce more information, and hence to change the outcome of various decisions.

Suppose the test for different probabilities in decision making the expected utilities have changed. The probabilities of the branches labeled "correct" or "incorrect" must be changed to take the new evidence into account. In other words, the numbers put there must be P(e|y) and P(r|y) , rather than a priori probabilities P(e) and P(r) we had that

before These probabilities are easy to compute , using Bayes's Theorem.

Bayes's Theorem=P(y|e)P(e)/P(y).

At decision nodes, we compute the expected utility for each possible action and subtract the cost of performing that action . The utility at the decision node is then the maximum of utilities of each action and the chosen action is the one with that maximum net utility .At outcome nodes we take the weighted average of the utilities of each outcomes, using the probabilities of the outcomes as weights.

Table 1. Probability utility

Form	Paper	Ink	Probability	Utility
Order	Color	BW	58	0.96
Advanced Order	White	BW	66	0.28
Manufacturing Journal	White	BW	76	0.32
Manufacturing Quarterly Report	White	BW	94	0.08
Vouchers	White	BW	82	0.40

III. PROBABILISTIC INTERFERENCE

Probabilistic interference using multiply connected network with all variables instantiated to specific values also require only time linear in the size of the network. This fact is apparent from equation which demonstrates that only n products are needed to calculate a particular instantiated variable appears to be much computationally difficult.

Currently there are several algorithms for performing probabilistic interference using multiply connected networks .All of them has a time complexity that, in the worst case the exponential as a function of the number of instantiated variables at the network.

IV. SAT CONDITION

The 3SAT problem involves a collection C={c1,c2,c3...cm} of clause on a finite set U of n boolean variables.

if u is a variable in U, then u and -u are literals over U. the literal u is true if and only if the variable u is true (T). the real -u is true if and only if the variable u is false (F). each case contains a disjunction of three literals over U, for example ,(-u2 u6 u8).

the clause in this example will be satisfied (i.e. ,true) unless u2=T,u6=F, and u8=T.

A collection C of clauses over U is satisfied if and only if there exist some truth assignment for U that simultaneously satisfies all the clauses in C. The 3SAT decision problem involves determining whether there is a truth assignment for U that satisfies all the clauses in C.

For example, consider an instance of 3SAT in which U={u1,u2,u3,u4} and C={(u1^u2^u3),(-u1^-u2^u3),(u2^-u3^u4)}.

One satisfying truth assignment is given by u1=T,u2=F,u3=F and u4=T thus, the decision problem has the answer "yes" this example is called 3SAT.

P~ = {P(C3 = T I uz = F, u~ = T, U 4 = F) = 0 ,
P(C3 = T I u: = T, u 3 = T, U 4 = T) = 1,
P(C 3 =T[u 2 =T, u 3 = T, u 4 = F) = 1,
P(C3 = T I U 2 = T, u 3 = F, U 4 = T) = 1,
P(C 3 = T I u 2 = T, u 3 = F, u 4 = F) = 1 ,
P(C3 = T I//2 = F, U 3 = T, U 4 = T) = 1,
P(C3 =TI u2 = F, u3 =F , u4 =T) = 1,
P(C 3 = T[/'/2 = F, u 3 = F, u 4 = F) = 1}.

V. FAILURE DRIVEN LEARNING

The robot usually follow the Mop theory which uses debugging but usually combined with an entirely different approach to debugging plans schemas , in which the learner which we have a assumed to be a robot here attempts to execute them , and observes how they fail. This method is different from the usual hit and trail method on which most of the robots are programmed.

The plan it is to execute programs that are linear object containing conditionals and loops, rather than a task network. However, the program is still hierarchical: programs are solved by programs whose steps become new problem. Once the program has been completed down to primitives the Robot executes it. If execution is halted by an error, then Robot "corrects" the program that led to it. The next time this program is used, this particular error will not occur. The robot stimulate a lot of work on problem solving but not much on learning. The problem is that it is not exactly clear where its sot of learning come serve in the real world. The attempt to automate the programming as many as possible of the task associate with computer programming but it tends to be unsatisfying model for what goes on when a robot learns about a word like blog, maze etc. In the real world it seems a little implausible that an effector system could diagnose the reasons for its failure. It is easy to imagine not getting message at all just picture back from the augmented reality showing blog or maze in an unexpected place. The right place to file the unexpected experience is in the schema at the point where it occurred. Hence, we expect that the error occurred shall not be happening any time soon.

The reason why this is the right place is that the next time a similar event occurs, the description of the first event would be ready. Since you are once again engage in understanding what is going on the machine schema is active again.

We have used the phrase the failure driven learning to talk about robot in an unknown environment because they learn from failures of expectation about what will happen when different schemas are used for planning or understanding however in the sense all learning failure driven. The reason for the discrepancy is that most of the programmers are relatively uninterested in computational or electronic stimulus response pairs. They focus on hoe rules come to be dominant. They assumed that rules appear by an uninteresting trail an error process and our computational studies show just how inadequate this assumption is.

VI. LOCALIZATION

The problem of robot localization consists of answering the question Where am I? from a robot's point of view. This means the robot has to find out its location relative to the environment. When we talk about location, pose, or position we mean the x and y coordinates and heading direction of a robot in a global coordinate system. The localization problem is an important problem. It is a key component in many successful autonomous robot systems. If a robot does not know where it is relative to the environment, it is difficult to decide what to do. The robot will most likely need to have at least some idea of where it is to be able to operate and act successfully. By some

authors the robot localization problem has been stated as the "most fundamental problem to providing robots truly autonomous capabilities" .The wake-up robot or global positioning problem is more difficult than the position tracking problem, since the robot does not know its initial position. It has to localize itself from scratch. It hereby possibly needs to be able to deal with multiple ideas about its location. Methods that solve this problem are called global techniques [19]. An even harder problem to solve is the kidnapped robot problem. The robot does exactly know where it is localized, but all of a sudden it is transferred, or 'kidnapped', to another location without the robot being aware of this. The problem for the robot is to detect that it has been kidnapped and to find out what its new location is. Techniques that solve this problem can also be used to solve the wake-up robot problem. The wake-up robot problem is a special case of the kidnapped robot problem in which the robot is told that it has been kidnapped [19]. A factor that complicates each of these problems is the dynamics of the environment the robot is driving around in. Most localization research has been focused on performing localization in static environments. This means that the robot is the only moving object in the environment. Obviously this is not the case in the real world. Dynamic environments contain other moving objects and in these environments localization is significantly more difficult, since these other objects might confuse the robot about its location by corrupting the information used for localization.

As far this paper is concern we are only dealing with Bayesian Probabilistic localization the general localization problem can be described as a Bayesian estimation problem. We want to estimate the location of a robot given noisy measurements. If we look at the problem probabilistically, we can say that the robot has a belief about where it is. At any time, it does not consider one possible location, but the whole space of locations. Based on all available information, the robot can believe to be at a certain location to a certain degree. The localization problem consists of estimating the probability density over the space of all locations.

VII. CONCLUSION

The above paper describes different conditions of localization and its autonomous behaviour through different decision makings in the described decision making tree. Failure driven learning is also taken into account for the movement of robot in different environment terrain and blocks orientations etc. We concluded about the 3 SAT that could be used to find possible ways by which the robot could move through a certain environment. Localization which is probabilistic is taken into account and their equations are also put forth in above section.

REFERENCES

Charniak, E. 2006. " Artificial Intelligence" *AAAI*.

H.L. Chin and G.F. Cooper, Bayesian belief network inference using simulation, in: L.N. Kanal, T.S. Levitt and J.F. Lemmer, eds., *Uncertainty in Artificial Intelligence* 3 (North-Holland, Amsterdam, 1989) 129-147

W.F. Rousseau, A method for computing probabilities in complex situations, Rept. 6252-2,

J. Pearl, *Probabilistic Reasoning in Intelligent Systems: Networks of Plausible Inference* (Morgan Kaufmann, San Mateo, CA, 1988). Center for Systems Research, Stanford University,Stanford, CA (1968).

Author's Details:

1. **Yashank Tiwari**: Studying in JSSATEN since 2013 in Instrumentation and Control and has attended many workshops of IEEE Banglore section is an active member of UP section since 2014 and has also written a paper on Smart Grids Power Consumption which went till fourth round of IEEE Australia Section in 2015.Has attended Dayawati Modi Academy, Meerut previously also a recipient of 500 Startup village.

2. **Madhvendra Raj Singh** :An active student of JSSATEN since 2013 of Instrumentation and Control and has an active participation in different activities throughout different domains of the institution.Completed schooling from K R Education Centre ,Kanpur.

SANKALAN: - The Journal of Science, Technology And Humanities I.S.S.N. (Online): 2455-3557

Education, Disaster Management Agencies and Their Role in Society

Sudershan Kumar Pathania
Research Scholar. P. G. Department of Education, University of Jammu, Jammu (J&K)
Email: sudershanpathania8@gmail.com

ABSTRACT
Disasters like earthquake, drought, flood, tropical cyclone, chemical leakage, etc are increasing day by day not in India only but in the world. The United Nations General Assembly declared the decade 1990-2000 as the International Decade for Natural Disaster Reduction, in 1989.The objective of this declaration is to reduce loss of lives and property and also restrict socio-economic damage through concerted international action, especially in developing countries. Gujarat (2001), the super cyclone in Orissa (1999) and Kashmir had earthquakes and the Tsunami hitting the coasts along the Indian Ocean. In addition, North and East India are regularly flooded and large parts of the country are experiencing drought. Environmental degradation and unsustainable use of natural resources climate change, deforestation, industrialization etc changes the nature of disaster. Various government and non government agencies are working in the field of disaster management. In India, The National Disaster Management Authority (NDMA) is the primary government agency responsible for planning, capacity-building, strategic risk management and mitigation, as well as developing policies and planning to deal with diastral situations. The National Disaster Response Force (NDRF) is the government agency primarily responsible for emergency managementduring natural and man-made disasters. The Indian Armed Forces also plays an important role in the rescue/recovery operations after a disaster. Aniruddha's Academy of Disaster Management (AADM) is a non-profit organization in Mumbai, India with 'disaster management' as its principal objective. Countries like United Kingdom**,** Somalia**,** Russia**,** Pakistan**,** and United States…….etc **have their own agencies to deal with disasters. Since 1980, the World Bank has approved more than 500 projects related to disaster management, dealing with both disaster mitigation as well as reconstruction projects, amounting to more than US$40 billion. The objective of this paper is to highlight the increasing role of disaster management agencies in the changing world. It also stressed on the need of education about these agencies.**

Keywords: Disasters, Management, Perspectives, Agencies, Sustainable.

I. INTRODUCTION

Etymologically the word 'Disaster' is derived from French word 'desastre' and Italian word 'disastro' which in turn comes from the Greek pejorative prefix 'dus' (bad) and aster (star).Thus disaster means 'bad star 'that comes from an astrological theme in which it is to refer to the destruction or deconstruction of a star as a disaster.

The Disaster Management Act, 2005 defines disaster as "a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or manmade causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of, property, or damage to, or degradation of environment, and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area".

The United Nations defines disaster as "the occurrence of sudden or major misfortune which disrupts the basic fabric and normal functioning of the society or community".

India is facing variety of challenges like population explosion, environment imbalance, climate change and pollution. In case of a

disaster, poor people, the aged persons, children, persons with disabilities and women suffer greater losses of assets and are therefore in a weaker position to cope and recover in disaster. Disasters involve widespread human, material, economic or environmental impacts, which exceed the ability of the affected community or society to cope using its own resources. Disaster may be of any kind like pandemic emergencies, environmental emergencies, complex emergencies and natural disasters. Disaster can have serious effects on the health, social and economic networks of local communities and countries and have adverse effects on essential services, such as health care, electricity, water, sewage/garbage removal, transportation and communications.

II. CLASSIFICATION OF DISASTER MANAGEMENT

It is very important to understand categories of disaster as this enhance the understanding of disaster and immediate action to be taken.

Disaster is categorized as

2.1Natural Disaster

2.2 Man Made Disaster

2.1 Natural Disasters are the results of natural events but it is possible that human intervention that disturber nature could leads to natural disaster. Some of these are,

- Flood ,cloud-burst
- Droughts
- Earthquakes
- Volcanoes
- Typhoon, Tornadoes, Cyclones
- landslide, soil erosion,
- Hailstorm, , snow avalanche

2.2 Man Made disasters are the result of human activities. These are caused accidently and can be prevented by taking certain precautionary measures. Some of these are

- Chemical leakage
- Fire
- Nuclear leakage
- Terrorist Attacks
- Epidemics
- Structural collapse
- Road, air, rail accidents

Disasters may be sudden in time like floods and earthquakes or they may develop over a period of time like drought, cyclones and tornadoes.

The High Power Committee on Disaster Management, constituted in 1999, has identified 31various disasters, categorized into five major sub-groups which are:

: List of various D

S. No	Sub-Groups	Various Disasters
I	Water and climate related disasters	Floods and drainage management, Cyclones, Tornadoes and hurricanes, Hailstorm, Cloud burst, Heat wave and cold wave, Snow avalanches, Droughts, Sea erosion, Thunder and lightning and Tsunami
II	Geological related disasters	Landslides and mudflows, Earthquakes, Dam failures/ Dam bursts and Minor fires

III	Accident related disasters	Forest fires, Urban fires, Mine flooding, Oil spills, Major building collapse, Serial bomb blasts, Festival related disasters, Electrical disasters and fires, Air, road and rail accidents, Boat capsizing and Village fire
IV	Chemical, industrial and nuclear related disasters	Chemical and industrial disasters, Nuclear disasters
V	Biological related disasters	Biological disasters and epidemics, Pest attacks, cattle epidemic sand Food poisoning

Fig.1. Showing five major sub-groups of Disasters

Source: High Powered Committee Report-1999

III. DISASTER MANAGEMENT AGENCIES

Disaster management agencies are of two types

3.1 Governmental agencies

3.2 Non-governmental agencies

3.1 Governmental agencies: Governmental agencies are organized groups which function under the direct control of Government of India e.g. Central Government, State Government and District Authorities. The Government of India is a member of various international organizations in the field of disaster response and relief. These are

- UN Office for Coordination of Humanitarian Affairs (UN OCHA), which has been made responsible by UN General Assembly mandate for all international disaster response.
- United Nations Development Programme (UNDP), responsible for mitigation and prevention aspects of disaster management.
- UN Disaster Assessment and Coordination (UNDAC) System.

The Government of India has no policy to issue a formal appeal on behalf of the Government, either directly or through any other agency, to attract relief. Reliefs are accepted on voluntary basis and are also acknowledged. The Government of India has no objection to NGO's issuing appeals for relief donations.

3.2 Non-governmental agencies: - Non-governmental agencies are usually non-profit making, voluntary, independent of government and predominantly humanitarian group which are organized on a local, national or international level. NGOs by virtue of their operations work very closely with the masses. There are national level NGOs, state level NGOs, and many Community Based Organizations (CBOs), which are also playing a significant role in disaster management. Disaster Management Agencies are self-motivating agencies for providing assistance in case of disaster situations

These are task-oriented groups and are driven by people with a common interest. NGOs perform a variety of service and humanitarian functions, bring citizen concerns to Governments, advocate and monitor policies and encourage political participation through provision of information. Some NGOs are area specific, such as human rights, environment or health.

IV. ROLE OF GOVERNMENT AGENCIES IN DISASTER MANAGEMENT

Government agencies are playing their role at the following levels:

4.1 Central Level
4.2 State Level
4.3 District and Local Level

4.1 Role at central level (Central Government):-

Central Government provide assistance on the bases of existing policy and keeping in view the factors like the gravity of a natural disaster, the requirements of Central assistance, nature of natural disaster and scale of assistance provided by the State Government.

The Contingency Action Plan (CAP) chalks out the procedures and identifies administrative machinery for launching of relief and rescue operations.

The Ministry responsible for various categories of disasters is as:-

Disaster	Nodal Ministry
Natural Disasters Management (other than Drought)	Ministry of Home Affairs
Drought Relief	Ministry of Agriculture
Air Accidents	Ministry of Civil Aviation
Railway Accidents	Ministry of Railways
Chemical Disasters	Ministry of Environment & Forests
Biological Disasters	Ministry of Health
Nuclear Disasters	Department of Atomic Energy

Source: Report of tenth five year plan: 2002-07, Ch-7 (Disaster Management: The Development Perspective)

Standing bodies that are responsible for disaster management and decision-making are -

Standing bodies	Head
Union Cabinet	The Prime Minister
Empowered Group of Ministers	The Deputy Prime Minister
National Crisis Management Committee (NCMC) .	The chairman of the Cabinet Secretary

Source: Report of tenth five year plan: 2002-07, Ch-7 (Disaster Management: The Development Perspective).

Various organization and departments are also working to provides technical support. It also work to bring coordination. These are

- The Indian Meteorological Department (cyclone/earthquake)
- Bureau of Indian Standards (norms)
- Central Water Commission (floods)
- Defense Research & Development Organization (nuclear/biological)

- Building and Material Promotion Council (construction laws)

4.2 Role at State level (State Government):-

The State Government is responsible to cope with natural disasters and the Central Government will play supplementary role. State Governments have their own relief manuals and the districts have their contingency plans. The Chief Secretary (Head of The State level committee) is

Government of India			
NDMA National Disaster Management Authority	NEC National Executive Committee	MHA Ministry of Home Affairs	
SDMA State Disaster Management Authorities	SEC State Executive Committee	NDRF National Disaster Response Force	NIDM National Institute of Disaster Management
DDMA District Disaster Management Authorities			

responsible for relief operation in the State. The State Relief Commissioner of the State function under the overall direction and control of the state level committee.

4.3 Role at District and Local level:-

The district administration (District Magistrate/Deputy Commissioner) is responsible to implements, monitors and supervises all governmental plans and activities. In some cases district level relief committee consisting of officials and non- officials also function for relief and rehabilitation. Local bodies like Panchayati Raj Institutions are given powers under the 73rd and 74th constitutional amendments can be effectively instrumented in disaster management including rehabilitation, relief Recovery, providing medical assistance, food, water, clothes and shelter to the victims.

The central, state, district and local level governments are functioning in the field of disaster management. Besides these we have various stakeholders who are working in disaster management in the country. These may include the armed and the police forces, civil defense and home-guards, fire services, non-government organizations (NGOs), public and private sector and media who are playing a very important and essential role in disaster management.

V. MECHANISMS FOR DISASTER MANAGEMENT

To improve the effectiveness of Disaster Management in the country, India's institutional mechanisms for disaster management such as National Disaster Management Authority (NDMA), State Disaster Management Authorities (SDMA), District Disaster Management Authorities (DDMA), line Ministries, Departments and Agencies as stipulated in Disaster Management Act, 2005 gives due priority in involving NGOs.

Institutional framework under the Disaster Management Act 2005

Source: Report No. 5 of 2013 (Ministry of Home Affairs)

National Disaster Management Authority (NDMA) headed by the Prime Minister State Disaster Management Authorities (SDMAs) headed by Chief Ministers and District Disaster Management Authorities (DDMAs) headed by district collectors/magistrates.

National Policy on Disaster Management. (2009).The Policy aims at developing an integrated, holistic, multi-disaster oriented and technology driven strategy for disaster management involving prevention, mitigation, preparedness and response. It outlines the institutional, financial and techno-legal arrangements relating to disaster management and details response, relief, rehabilitation, reconstruction and recovery mechanisms.

VI. CONCLUSION

Coordination between Government and Non-government organizations will defiantly help India to achieve the goal of safer and sustainable national development of India .Disaster management occupies an important place in this country's policy framework. Disaster Management Act, 2005 give stress on the involvement of NGOs for improving the effectiveness of Disaster Management in the country. The aim of Disaster Management activities during Preparedness, Prevention, Relief, Recovery, Reconstruction and Rehabilitation is to reduce and prevent natural or manmade hazards. Skills, awareness, informations and Coordination among disaster management agencies are some of the way to reduce the impact of disasters. But recent incident in Gurdaspur district of Punjab State where at least 60 people have lost their eyesight after an operation at an eye camp organized by an NGO and sterilization surgery camp at district Bilaspur: in the state of Chhattisgarh where twelve women died and 49 others were hospitalized during in the month of November 2014rise a question mark against the functions of NGOs.

REFERENCES:

[1] Disaster Management in India- A Status Report, Government of India, Ministry Of Home Affairs, National Disaster Management Division, 2014.

[2] Report of tenth five year plan: Ch-7, Disaster Management: The Development Perspective, 2002-07.

[3] Disaster Management in India Ministry of Home Affairs Government of India.NewDelhi,2011.RetrievedFrom*kashmirdivision.nic.in/disaster_management/role_ngo_disaster_manage*

[4] Joyita, G. PRS Legislative Research, Institute for Policy Research Studies, ,2013. New Delhi – 110002. www.prsindia.org

[5] National Disaster Management Guidelines Role of NGOs in Disaster Management (DRAFT). National Disaster Management Authority, GovernmentofIndia,2013.RetrievedFrom *kashmirdivision.nic.in/disaster_management/role_ngo_disaster_manage*

Cancer Nanotechnology

Rishabh Rai
M. Tech, B.Tech (With Honours / Distinction & Academic Excellence Award)

E-mail:- rishabh.rahul001@gmail.com

ABSTRACT At present there are wide varieties of Technologies, which are vastly being used to analyze biological cells to diagnose diseases and develop methodologies to cure diseases. One such technology is 'Nanotechnology'.

A nanometer is a billionth of a meter. It's difficult to imagine anything so small, but think of something only 1/80,000 the width of a human hair. Ten hydrogen atoms could be laid side-by-side in a single nanometer. Nanotechnology is the creation of useful materials, devices, and systems through the manipulation of matter on this miniscule scale. The emerging field of nanotechnology involves scientists from many different disciplines, including physicists, chemists, engineers, and biologists.

"Nanotechnology will change the very foundations of cancer diagnosis, treatment, prevention."

Nano scale devices used for treatment of Cancer are based on the constant study of cancer cells and nanotechnology. Nano scale devices which are smaller than 50 nanometers can easily enter most cells, while those smaller than 20 nanometers can move out of blood vessels as they circulate through the body.

Because of their small size, Nano scale devices can readily interact with biomolecules on both the surface of cells and inside of cells.

By gaining access to so many areas of the body, they have the potential to detect disease and deliver treatment in ways unimagined before now. Since biological processes that lead to cancer occur at the Nano scale at and inside cells, nanotechnology offers a wealth of tools with new and innovative ways to diagnose and treat cancer.

In this paper, a device that contains sensors, transceivers, motors and a processor, which are made up of biodegradable compound has been designed.

No more destruction of healthy cells due to harmful toxins and radiations generated through chemotherapy and radiation therapy.

I. INTRODUCTION

The paper deals with the eradication of cancer cells by providing an efficient method of destroying and curing the cancer so that healthy cells are not affected in any manner. This technology also focuses on a main idea that the patient is not affected by cancer again. The purpose of using the RF signal is to save normal cells.

II. NANOTECHNOLOGY IN THIS CONTEXT

Nanotechnology refers to the interactions of cellular and molecular components and engineered materials at the most elemental level of biology. This paper emphasizes on the effective utilization of Nanotechnology in the treatment of cancer.

III. WHAT IS CANCER

Cancer cells are different from healthy cells because they divide more rapidly than healthy cells. In addition, when cells divide at an accelerated rate, they form a mass of tissue called a tumor. These cancerous cells that come in

excess amounts cause many problems to the bodies of patients.

In general, the most common methods used for the cancer treatment are -

i. Chemotherapy, a treatment with powerful medicines
ii. Radiation therapy, a treatment given through external high-energy rays.

IV. PROBLEM

Both the treatments mentioned above are harmful. Healthy cells are destroyed in the process. As a result, this leaves the patient very weak, causing him not able to recover quickly to medical treatments. It has been proved that any individual who had cancer can survive on deadly chemotherapy up to a maximum of five years and after that it's anybody's guess.

V. PROPOSED SOLUTION

The Nano devices can be programmed to destroy affected cells and kill only them, thus ending the problem of destroying any normally functioning cells which are essential to one's well-being. Thus the treatment-using nanotechnology will make the affected man perfectly normal.

"Noninvasive access to the interior of a living cell affords the opportunity for unprecedented gains on both clinical and basic research frontiers."

VI. NANOTECHNOLOGY AND DIAGNOSTICS

Nano devices can provide rapid and sensitive detection of cancer-related molecules by enabling scientists to detect molecular changes even when they occur only in a small percentage of cells.

VII. CANTILEVERS

Nano scale cantilevers - microscopic, flexible beams resembling a row of diving boards - are built using semiconductor lithographic techniques. These can be coated with molecules capable of binding specific substrates-DNA complementary to a specific gene sequence, for example. Such micron-sized devices, comprising many nanometer-sized cantilevers, can detect single molecules of DNA or protein.

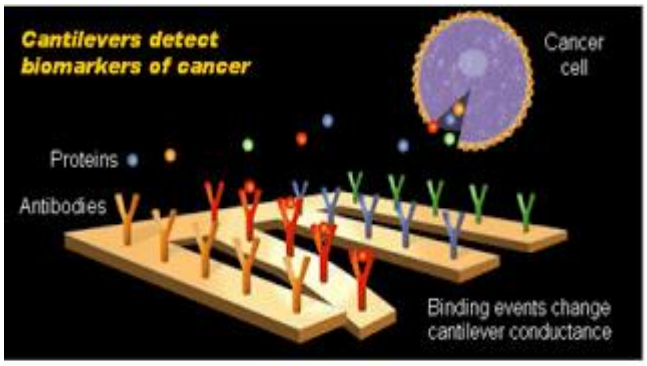


Fig. 1. Diagram showing Binding Events

As a cancer cell secretes its molecular products, the antibodies coated on the cantilever fingers selectively bind to these secreted proteins. These antibodies have been designed to pick up one or more different, specific molecular expressions from a cancer cell.

The physical properties of the cantilevers change as a result of the binding event. This change in real time can provide not only information about the presence and the absence but also the concentration of different molecular expressions. Nano scale cantilevers thus can provide rapid and sensitive detection of cancer-related molecules.

VIII. NANOTECHNOLOGY AND CANCER THERAPY

Nano scale devices have the potential to radically change cancer therapy for the better and to dramatically increase the number of highly effective therapeutic agents. Nano scale constructs, for example, should serve as customizable, targeted drug delivery vehicles capable of ferrying large doses of chemotherapeutic agents or therapeutic genes into malignant cells while sparing healthy cells, which

would greatly reduce or eliminate the often unpalatable side effects that accompany many current cancer therapies.

IX. NANOPARTICLES

Nano scale devices have the potential to radically change cancer therapy for the better and to dramatically increase the number of highly effective therapeutic agents. In this example, nanoparticles are targeted to cancer cells for use in the molecular imaging of a malignant lesion. Large numbers of nanoparticles are safely injected into the body and preferentially bind to the cancer cell, defining the anatomical contour of the lesion and making it visible.

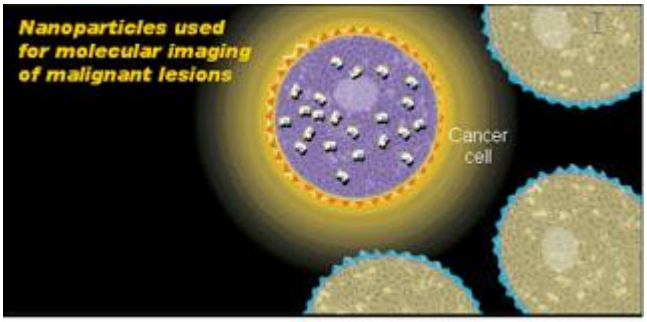


Fig. 2. Cancer Cell Diagram

These nanoparticles give us the ability to see cells and molecules that we otherwise cannot detect through conventional imaging. The ability to pick up what happens in the cell - to monitor therapeutic intervention and to see when a cancer cell is mortally wounded or is actually activated - is critical to the successful diagnosis and treatment of the disease. Nano particulate technology can prove to be very useful in cancer therapy allowing for effective and targeted drug delivery by overcoming the many biological, biophysical and biomedical barriers that the body stages against a standard intervention such as the administration of drugs or contrast agents.

X. WORKING PROCEDURE

The initial step of identifying the cancer and the location can be done by scanning. Once the location has been identified through scanning, the task is to position the Nano device to the exact location. We focus on the positioning of the Nano device into the required location by itself. The Nano device is allowed to be placed into any part of the body (or) the Nano device is injected through the blood vessel. The positioning is done with the help of mathematical calculations. External Control signals could be used to avoid mishap or any other errors.

The Nano device is loaded with a microchip. The device is also provided with the compounds concealed so that it is initiated externally through a computer. The Nano device contains sensors, motor, gene reader, processor, transceiver, camera and power supply. The location of the cancer cells is given as coordinates in a 3-dimensional point of view. This point is considered as the reference and referred as (0, 0, 0).

XI. POSITIONING

The Nano device performs an internal calculation based on the difference between its current position and the reference. Mathematical computations involve such that only one axis is compared between the Nano device and the reference at a time. The motor fan is placed in a particular direction for a particular reference comparison.

After one of the axis is completed and comparison is done, then the next axis is being compared followed by the third. Thus the three co-ordinate comparison of the Nano-device results in any 3-Dimensional orientation of the Nano-device and results in exact positioning.

XII. NAVIGATION

The output of the mathematical operation is given to a driver circuit (motor). The driver helps the device to navigate through the blood with precision in direction and with the required speed. The device thus should sample its new position with the reference at a sampling rate. The

sampling rate is made such that their value is less than the velocity of blood flow.

The cancer killer could thus determine that it was located in (say) the big toe. If the objective were to kill a colon cancer, the cancer killer in the big toe would move to the colon and destroy the cancer cells. Very precise control over location of the cancer killer's activities could thus be achieved. The cancer killer could readily be reprogrammed to attack different targets using acoustic signals while it was in the body.

XIII. ALGORITHM FOR NAVIGATION

Step 1: Marking the co-ordinates.

Step 2: Initialize the start command.

Step 3: Feed the axis.

Step 4: Send command to emit ultrasound.

Step 5: Wait for T seconds.

Step 6: If there is no signal reflected back (or) if the reflected signal is less than the threshold value, then activates the stepper motor to rotate through a certain distance.

(Note: the distance is proportional to one axis)

Step 7: Subtract the axis value by one.

Step 8: Continue from step 4 to step 7 for both co-ordinates.

Step 9: If the signal reflected back is greater than the threshold value then the motor is de-activated.

Step 10: The motor (perpendicular to motor 1) is activated. The motor 2 moves through one step thus making the motor 1 to change the axis.

Step 11: The motor 1 is allowed to travel until next change is required.

Step 12: Once the Nano device reaches the required spot, the motor is deactivated through external command.

Step 13: Receives the RF radiation for T seconds that has been already calculated depending upon the intensity of tumor.

XIV. IMAGING

With the available technology, a camera is inserted which helps us to monitor the internal process. Whenever multiple directions are there in the blood vessel, the device is made to stop through the external control signal and another signal is given to activate in the right direction. Current clinical ultrasound scanners form images by transmitting pulses of ultrasonic energy along various beam lines in a scanning plane and detecting and displaying the subsequent echo signals. Our imaging is based on the absolute scattering properties and in the frequency dependence of scattering in tissues, which will help to differentiate between normal and abnormal cells.

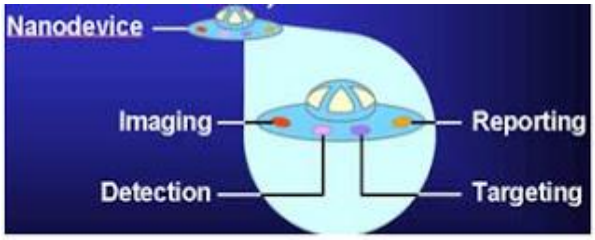


Fig. 3. Diagram showing procedure

XV. IDENTIFICATION

The Nano device identifies the cancer cells using a gene reader. A gene reader is a sensor which contains ten to fifty DNA probes or samples of cancer cells that are complementary. The DNA detection system generates an electronic signal whenever a DNA match occurs or when a virus causing cancer is present. Whenever we get a signal indicating the presence of cancer cells we go for further process. Once the device has been originally located, the next step is the destruction of the cancer cells.

XVI. DESTRUCTION

We can remotely control the behavior of DNA using RF energy. An electronic interface to the biomolecule (DNA) can be created. RF magnetic field should be inductively coupled to Nano crystal antenna linked covalently to a DNA molecule.

The inductive coupling results to the increase in the local temperature of the bound DNA, allowing the change of state to take place, while leaving molecules surrounding the DNA relatively unaffected. The switching is fully reversible, as dissolved molecules dissipate the heat in less time duration. Thus RF signal generated outside the body can destroy the affected DNA.

XVII. RF HEATING

The treatment tip contains the essential technology components that transform RF to a volumetric tissue heating source. The heat delivery surface transmits RF energy to the cells. Tumors that have little or no oxygen content (i.e. hypoxia) also have increased resistance to radiofrequency radiation.

Thus, due to high resistance to radio frequency radiation the affected cells get heated and hence destroyed. The RF carrier frequency is in the biomedical range (174 - 216MHz). A pair of RF pulses is transmitted at a frequency of about 1-2Hz.

XVIII. HOW NANO DEVICE ESCAPES FROM IMMUNE SYSTEM

Generally our immune system attacks all the foreign particles entering any part of our body. The problem has been that such Nano particles are similar in size to viruses and bacteria, and the body has developed very efficient mechanisms to deal with these invaders.

It is known that bacteria with hydrophilic surfaces can avoid being destroyed by immune system and remain circulating in the body for longer periods. To emulate this effect, our Nano device can be coated with a polymer such as *polyethylene glycol (PEG*), which is proved after the research.

XIX. CONCLUSION

As per our aim we have proposed the usage of nanotechnology and the RF signal for the destruction of cancer cells. This method doesn't affect the healthy cells such that the cancer affected person is healthy after the treatment. This treatment doesn't involve critical operations. This treatment will not take longer time as in any other treatments. Surely one day or the other cancer treated patient will be affected again in treatments other than nanotechnology treatment. This can be very well used for other dangerous diseases.

REFERENCES

Websites:

1. www.nano-tech.com
2. www.nature.com
3. www.adsx.com
4. www.ieee.org

Rishabh Rai is Editor – in – Chief of the International Journal, Sankalan: The Journal of Science, Technology & Humanities, (ISSN Online: - 2455 - 3557), from July, 2015 till date.

His areas of interest are Digital System Design, Communication Systems, Embedded System Design & Low Power V.L.S.I. Design. He completed M. Tech (2013-15) from Ajay Kumar Garg Engineering College, Ghaziabad (affiliated to Dr. A.P.J. Abdul Kalam Technical University, Lucknow, Uttar Pradesh) in VLSI Design with Honours in the year 2015 and B.Tech (2009-13) from Vishveshwarya Institute of Engineering & Technology, Gr. Noida (affiliated to Uttar Pradesh Technical University, Lucknow, Uttar Pradesh) in Electronics and Telecommunication Engineering with Honours in the year 2013.

During his career, he has been appreciated and certified for Academic Performance & Excellence in the respective branch for consecutive four years during B.Tech and Amul Vidya Bhushan Award for his academic performance & excellence in A.I.S.S.C.E. - 2009, at the District Level. During his graduation, he has also been awarded with the Best Paper Presentation in the I.E.E.E. Sponsored National Conference, 'E.T.E.A.T. – 2013'. He was selected for the successful completion of his project "Face Detection Using MATLAB – (An Image Processing Based)"in the 6th Science Conclave at Indian Institute of Information Technology, (I.I.I.T.), Allahabad, Uttar Pradesh in the year 2013.

He has authored & co-authored 20 research / technical / review / study papers in several recognized & referred Journals, National & International Conferenced till date. Further, he is the Editor - in Chief of the International Journal "SANKALAN: - The Journal of Science, Technology and Humanities" (ISSN Online: - 2455-3557) since July, 2015. He is the member of I.E.E.E. (Membership Number: - 92416730). He has been appreciated with the Government of Bihar, Government of India & ISSN for the effective publication of the Journal.

BIG Data- An Overview of Security Challenge, Goal, Model and Security Architecture

Awanish Kr Kaushik[1] Shishir Mehrotra[2], Dr.(Prof) R.K.Mishra[3,] Dr. S. K. Garg [4]

[1]*A P, Electronics and Communication Engineering (AS)*

[2] *AP, Electrical Engineering (AS)*

[3] *Professor, Mathematics.* [4] *Associate Prof, Mathematics.*

[1, 2, 3. 4] *G. L. Bajaj Institute of Tech & Management Greater Noida,*

[1] awanishkkaushik@gmail.com, [2] mehrotra.shishir@gmail.com, [3] rkmsit@rediffmail.com, [4] sudeshdsitm@gmail.com

Abstract- The aim of this report is to revise the most important facets in how computing infrastructures should be configured and intelligently managed to satisfy the most notably security aspects required by Big Data applications. One of them is privacy. It is a pertinent aspect to be addressed because users share more and more personal data and content through their devices and computers to social networks and public clouds. So, a secure framework to social networks is a very hot topic research.

This report also provides the concept of security trends, security models, and security goals of large data. Specifically, it investigates how various inherent characteristics of big data are linked to security trends, security models, and security goals. The relation between characteristics of large data and security courses, security models, and security goals, issues are tested from the standpoints of data collection, storing, sharing and accessibility.

Keywords –Big Data, security courses, security models, and security goals, Privacy, Challenges.

I. INTRODUCTION

Advancements in telecommunications and computer technologies and the related reductions in monetary values have led to an exponential development and accessibility of information, both in structured and unstructured forms. The related phenomenon known as big data involves various costs, benefits and externalities. Before continuing, a clarifying definition is provided. Conforming to the research company Gartner, big data are defined as "high-intensity, high-speed and high-variety information assets that demand cost-effective, modern forms of data processing for enhanced insight and decision making". Owing to the increasing usage of big data, it is understandable that there has been a high level of interest on this subject. It is argued that 2011 marks the year when big data gained widespread interest

Big data have some intrinsic features that are tightly linked to a bit of privacy, protection and benefit concerns. Moreover, these fears are linked to the collection and storing of data as easily as

information sharing and accessed by third parties and various user types. Overall firms' uses of big data raise a broad scope of ethical issues because they may contribute to potential exploitation of consumers and disregard their interests and sometimes firms even engage in deceptive practices. While consumers' decisions withhold information may hinder the ability of the company to profit from big data, consumers are also rightly concerned about potential abuses and abuses of their data. Considering the privacy issues, consumers are often uncomfortable and humiliated when they experience that companies or organization know more about them than they are willing to voluntarily offer. Big data is likely to regard the welfare of unsophisticated, vulnerable and technologically consumers more negatively. A number of uses of big data currently fall into a regulatory gray area. Referable to the underdeveloped regulatory institutions, there is a demand to have a firm-level big data policy, which must bring into account the level of sensitivity of data used in predictive modeling (1-3).

A great number of applications, such as large scale sensors, data monitoring, web exploring, data from social networks like Twitter and Facebook, surveillance data analysis, and financial data analysis, deal with a large flow of data input, and therefore need an alternate ideal model of real-time information processing. As a consequence, a new computing paradigm based on Stream Processing Engines (SPEs) has appeared [4-6].

In this way, security and privacy issues can be potentially boosted by the volume, variety, and wide area deployment of the system infrastructure to support Big Data applications. Here in this paper sheds some light along a BIG data concept, in segment II, What is Big Data Security, in part III, explain some Big Data Security And Privacy Challenges, in section IV explain the Types Of Attacks, in section V define the Security Goals, in section VI discuss the Security Models, in section VII, explain the OSI Security Architecture and in section VIII discuss the Security Methods For Big Data

II- WHAT IS BIG DATA SECURITY?

Protection and privacy issues are magnified by velocity, intensity and diversity of big data, such as large scale cloud infrastructures, diversity of data sources and formats, streaming nature of data acquisition, and high volume inter-cloud migration.

i. Privacy and Security- With a variety of personal data such as buying preference healthcare records, and localization-based information being accumulated by big data applications and transported over networks, the public's concerns about information privacy and security naturally arise. On the other hand, big data techniques can also be applied to address the security challenges in networked organizations.

ii. Security a Big Question of Big Data- Big data implies performing computation and database operations for massive sums of data, remotely from the data owner's enterprise. Since a central value proposition of big, data is access to data from multiple and diverse areas, security and privacy will play a really important role in big data research and applied science.

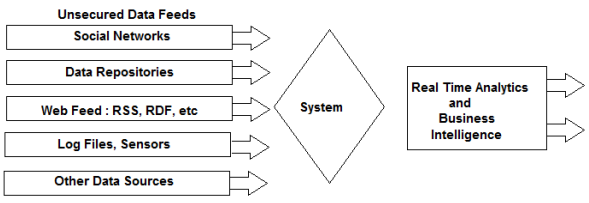


Fig 1 unstructured or semi structured data is at risk

ii. Is Your Unstructured, Semi- or Structured Data at Risk? With great power of data comes great responsibility! A big data initiative should not just focus on the volume, velocity or variability of the data, but also on the best way to protect it. Security is commonly an afterthought, but Elemental provides the right technology framework to obtain you the deep visibility and multilayer security any big data project requires.

III. BIG DATA SECURITY AND PRIVACY CHALLENGES

i. Secure Computations in Distributed Programming Framework- Distributed programming framework utilize parallelism in computations and memory to process massive amounts of the data. A popular example is map reduces framework, which breaks an input file into multiple chunks in the inaugural phase of map reduce, a mapper for each chunk reads the information, perform some computation, and outputs a list of key/value pairs. In the next stage, a reducer combines the values belonging to each distinct key and outputs the result.

ii. Secure Data Storage and Transaction Logs- Data and transaction logs are stacked away in multi-tiered storage media manually moving data between tiers gives the it manager direct control over precisely what data is moved and when. Nevertheless as the size of data set has been and continues to be, growing exponentially, scalability and availability necessities auto train for large data storage management.

iii. Scalable and Compos able Privacy-Preserving Data Mining And Analytics- Big data can be considered as a disturbing manifestation of big brother by potentially enabling invasions of privacy, invasion marketing, decreased civil freedoms, and increase state and corporate dominance.

iv. Cryptographically Enforced Access Control And Secure Communication- To ascertain that the most sensitive individual data is close to end secure and only accessible to the authorized entities, information has to be encrypted based on admission control policies.

v. Granular Access Control- The security Property that matters from the perspective of access control is secrecy-preventing access to data by people that should not deliver access.

vi- Granular Audits With real time security monitoring - we prove to be notified at the moment an attack takes place. In reality, this will not invariably be the case (e.g., new attacks, and missed true positives). In parliamentary law to go to the rush of the missed attack, we call for audit information.

vii. Data Provenance metadata will grow in complexity due to large provenance graphs generated from provenance-enabled programming environments in heavy data applications. Analysis of such large provenance graphs to detect metadata dependencies for security/confidentiality applications is computationally intensive.

IV. TYPES OF ATTACKS

Attacks are classified as passive and dynamic. A passive attack is an attempt to learn or make use of information from the organization without affecting system resources; whereas an active approach is an endeavor to modify system resources or affect their operation.

i- Passive Attacks-Passive assaults are in the way of spying on, or checking of, transmissions. The objective of the rival is to acquire data that is being transmitted.

Two sorts of inactive assaults are arrival of message substance and movement examination. The arrival of message substance is effectively comprehended (Figure 2 a). A phone discussion, an electronic mail message, and an exchanged record may contain touchy or private data. We might want to keep a rival from taking in the substance of these transmissions.

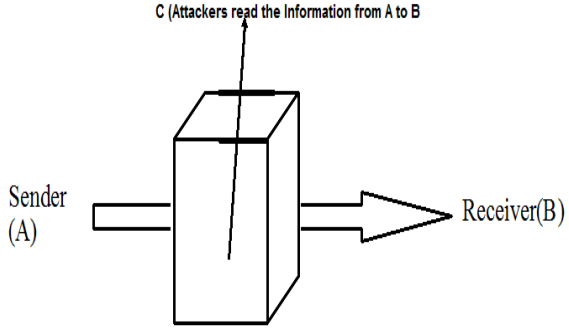


Fig 2 a: Release of message

Fig 2 a: Release of message

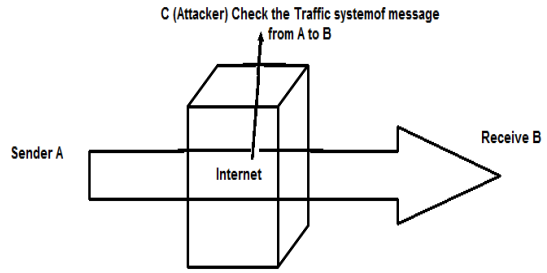


Fig 2 b: Traffic examination

A moment sort of latent assault, activity examination, is subtler (Figure 2 b). Assume that we had a method for veiling the substance of messages or other data activity so that rivals, regardless of the possibility that they caught the message, couldn't extricate the data from the message. The regular method for veiling substance is encryption. On the off chance that we had encryption insurance set up, a rival may at present have the capacity to watch the example of these messages. The adversary could decide the area and character of imparting hosts and could watch the recurrence and length of messages being traded. This data may be valuable in speculating the way of the correspondence that was occurring. Detached assaults are exceptionally hard to distinguish in light of the fact that they don't include any change of the information. Ordinarily, the messages are sent and got in apparently ordinary mold.

ii- Active Attacks-Active assaults include some alteration of the information stream or the formation of a false stream and can be subdivided into four classes: replay, disguise, adjustment of messages, and refusal of administration.

a- Replay-includes the detached catch of an information unit and its resulting retransmission to create an unapproved impact (Figure 3 a).

b- A disguise happens when one substance claims to be an alternate element (Figure 3 b). A disguise assault for the most part incorporates one of alternate types of dynamic assault.

c- Modification of messages-basically implies that some segment of a true blue message is changed, or that messages are deferred or reordered, to deliver an unapproved impact (Figure 3 c).

d- The dissent of administration counteracts or hinders the ordinary utilize or administration of correspondences offices. This assault may have a particular target.

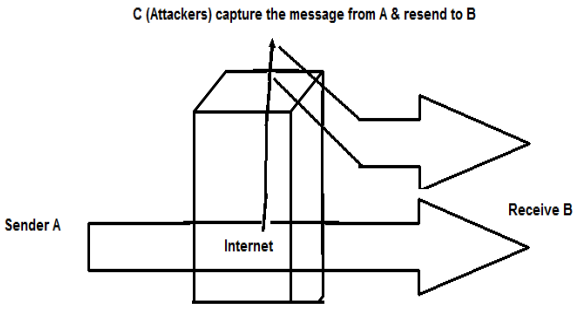


Fig 3 a: Replay

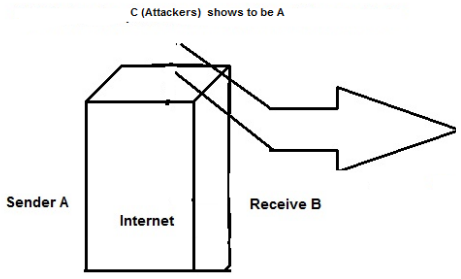


Fig 3 b: Masquerade

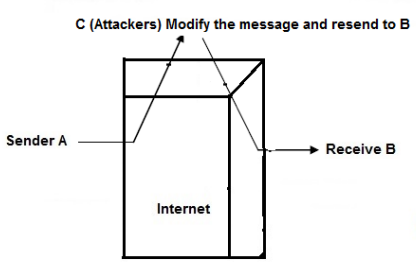


Fig 3 c: Modification of message

Dynamic strike introduces the inverse aspects of latent strike. While indifferent strike need aid was troublesome with detect, measures need aid accessible will keep their victory. On the different hand, it may be exactly was troublesome on prevent animated strike absolutely, due to those totally mixture for possibility physical, software, and organize vulnerabilities.

V. SECURITY OBJECTIVES

There are three grade objectives in at whatever security administration. These are confidentially, integument Also accessibility.

i- Confidentiality- that standard of secrecy may be that best those sender and the expected beneficiary ought to have the ability to get those substance of a message. Secrecy gets compromised Assuming that an unapproved individual has the ability will get that message.

ii- Integrity- when those substance of a message need aid transformed then afterward those sender sends it, Be that as in front of it achieves the exceptional recipient, we say that those integument of the message will be lost. This sort about ambush is known as change.

iii- Availability- the standard from claiming accessibility may be that assets ought to make accessible should sanctioned gatherings whatsoever times. Such a strike is known as interference.

VI. SECURITY MODELS

An association cam wood take a few methodologies on actualize the entire security model.

i-**No Security:** in this simplest case, the methodology Might a chance to be a choice on actualize all the no security whatsoever.

ii- Security through obscurity: In this model, an arrangement will be secure essentially on account of no one knows regarding its presence Furthermore substance. This approach can't worth of effort for a really long, similarly as there need aid numerous routes an assailant could arrive at think regarding it.

iii- Heated Security: in this scheme, those security for every group will be authorized separately. This will be a safe approach, yet the issue will be that it can't scale great. That multifaceted nature also assorted qualities from claiming cutting edge sites/organizations makes that assignment actually harder.

iv- System Security: host security is intense will accomplish Likewise associations develop what's more ended up additional different. In this technique, those keep tabs is should control organize right will Different hosts and their services, instead of distinct group security. This is a productive furthermore versatile model.

VII. OSI SECURITY ARCHITECTURE

Those OSI security construction modeling keeps tabs once security attacks,

mechanisms, What's more benefits. These cam wood make characterized quickly as takes after:

i- Security attack- security ambush will be any activity that bargains the security from claiming data claimed toward an association.

ii- security mechanism- An transform (or a gadget incorporating such a process) that is intended on detect, prevent, alternately recoup from a security assault.

iii- security service- a preparing or correspondence administration that enhances those security of the information transforming frameworks and the data transfers of an association. Those administrations would expect will counter security attacks; Furthermore they make utilization of you quit offering on that one alternately All the more security components to gatherings give the administration.

iv- Threat- risk may be An possibility to violation for security, which exists At there will be An circumstance, capability, action, alternately off chance that Might rupture security Furthermore result in mischief. That is, a danger is a conceivable risk that could misuse defenselessness.

V- Attack- assault may be a strike ahead framework security that infers from an shrewdly threat; that is, an canny act that is An planned endeavor will avoid security administrations What's more violates the security strategy of a framework.

VIII. SECURITY METHODS FOR BIG DATA

1. Type Based Keyword Search for Security of Big Data.

(a) Enormous information gatherings give significant number benefits of the business chances of the data innovation organization industry. Expansive scale requisitions for sensor networks, electronic wellbeing record systems, messages and also social networks produce enormous information every day. Those volumes for majority of the data gathered furthermore saved need blasted. Information encryption innovation will be utilized for support data security insurance. However, universal encryption primitives (such as symmetric magic encryption Furthermore government funded magic encryption) would not skilled to guarantee that usability.

b) System Model- We will outline a secure enormous information stockpiling framework that backs various clients. In this system, sanctioned clients have the capacity will store encrypted information Also do Pivotal word queries looking into encrypted information without decrypting every last one of files. Moreover, information managers Might agent certain sort about files to different clients. Information administration supplier will be answerable should produce worldwide parameter for the entirety framework. Its principle obligation is with store user's encrypted data, react will user's recover appeal What's more exchange comparing files.

c) Security Analysis- in this subsection, we examine our kind built Pivotal word hunt to encrypted information starting with those accompanying security requirements: information confidentiality, inquiry security and inquiry unforgeability. We accept that users' private keys are kept mystery. Information confidentiality: the implications for data secrecy on our plan need aid three fold. Both those 1st level also second level writings if make secured from both information administration supplier What's more pernicious meddler. Inquiry privacy: the implying of inquiry protection here demonstrates that the insurance about particular data about clients Furthermore majority of the data which might a chance to be recouped toward pernicious get-together starting with those Pivotal word recover period.

2. Accomplishing huge information protection by means of Hybrid cloud-

a) E**lectronic and correspondence technology-** the measure for information generated Eventually Tom's perusing medicinal systems, observation frameworks or social networks need been developed exponentially, which makes it tricky for some associations with cost-effectively store Also wrist bindings these enormous information. Cloud computing, another benefits of the business model, may be attractive, gives those playing point for decreased cosset through offering of registering What's more capacity assets. However, worries for expression of the security about information saved openly cloud need postponed the reception about cloud registering for huge information. On the different hand, cloud administration suppliers (CSPs), who identity or the infrastructures ahead which clients‟ information are stored, bring full control of the put away information. Therefore, those information put away openly cloud might a chance to be scanned Toward CSPs to promotion alternately other purposes. Furthermore, attackers might have the ability will right information put away previously,

b) System and Threat Model- the unique information hail starting with private cloud, Furthermore are transformed for servers inside private cloud. If there would no touchy data, that first information might be sent to state funded cloud specifically. Otherwise, those unique information will make transformed on aggravate no touchy information spilled out. After being processed, the greater part information need aid sent on open cloud What's more an little sum from claiming delicate information may be kept in private cloud. When a client queries the data, both private cloud and open cloud will be contacted on provide the finish inquiry result.

c) Design Goals- we need on protect picture information protection put away openly cloud by means of mixture cloud. Specifically, we need to uproot touchy information Also store them Previously, trusted private cloud, and store those transformed information (without touchy information) clinched alongside un-trusted general population cloud. It might oblige a lot of capacity in private cloud if we essentially store that whole picture with touchy data in private cloud. Therefore, our plan objective may be to attain picture information protection through mixture cloud Furthermore In the same time decrease those Emulating overheads:

(1) The measure from claiming information put away in private cloud,

(2) Those correspondence overhead between private and general population cloud, Also.

(3) Those delay presented by correspondences the middle of private What's more state funded cloud.

On Push the cloud registering similarly as an answer to huge data, we suggested a productive plan on address the expanding concern from claiming information protection done cloud to picture information. Our plan partitions a picture under pieces and shuffles those obstructs with irregular start position What's more irregular stride.

REFERENCES

[1] Abbott,R.(2013).Bigdataandpharmacovigilance:Usinghealthinformationexchangestorevolutionizedrugsafety. Iowa Law Review, 99(1), 225–292. Abrams, B. A.,& Kenneth, A. L.(1987).Amedian-

[2] Voter model of economic regulation. Public Choice, 52, 125–142. Allen, A.L. (2013).Privacy law: Positive theory and nor mative

practice. Howard Law Journal, 56(3), 241–251. Arthur,C.(2008,March6).

[3] Phorm fires privacy row for ISPs. Retrieved from ⟨http://www.theguardian.com/technology/2008/mar/06/internet.privacy⟩.

A. Arasu, B. Babcock, S. Babu, M. Datar, K. Ito, I. Nishizawa, J. Rosenstein, J. Widom, STREAM: the stanford stream data manager (demonstration description), in: Proceedings of the 2003 ACM SIGMOD International Conference on Management of Data, 2003, p.665.

[4] D. Carney, U. Çetintemel, M. Cherniack, C. Convey, S. Lee, G. Seidman, M. Stonebraker, N. Tatbul, S. Zdonik, Monitoring streams: a new class of data management applications, in: Proceedings of the International Conference on Very Large Data Bases, 2002, pp.215–226.

[5] D.J. Abadi, D. Carney, U. Çetintemel, M. Cherniack, C. Convey, S. Lee, M. Stonebraker, N. Tatbul, S. Zdonik, Aurora: a new model and architecture for data stream management, VLDB J. 12(2) (2003) 120–139.

[6] Atul Kahate, Cryptography and Network Security, Tata MCGrawHill

[7] Behrouz A Forouzan, Cryptography and Network security, McGraw Hill

[8] Charlie Kauffman, Radia Perlman, Mike Spciner, Network Security, Pearson Education

[9] Wade Trappe, Lawrence Washington, Introduction to Cryptography with Coding Theory, Pearson International

[10] William Stallings, Cryptography and Network Security, Pearson

[11] "Cloud Security Alliance Top Ten Big Data Security And Privacy Challenges "by CSA Big Data Working Group

[12] Yang Yang,Xianghan Zheng"Type Based Keyword Search For Securing Big Data" in 2013 International Conference On Cloud Computing And Big Data.

[13] Xueli Huang and Xiaojiang Du"Achieving Big Data Privacy Via Hybrid Cloud" in 2014 IEEE INFOCOM workshops:2014 IEEE INFOCOM workshop on security and privacy in Big Data

[14] Min-Sheng Lin,Chien-Yi Chiu,Yuh-Jye Lee and Hsing-Kuo Pao"Malicious URL Filtering-A Big Data Application" in 2013 IEEE International Conference on Big Data.

[15] Roger Schell"Security –" A Big Question for Big Data"in 2013 IEEE International Conference on Big Data

[16] Katina Michael, Keith W. **Miller "**Big Data: New Opportunities and New Challenges," Published by the IEEE Computer Society 0018-9162/13/$31.00 © 2013 IEEE

[17] Advantech. (2013). Enhancing Big Data Security. Retrieved from http://www.advantech.com.tw/nc/newsletter/whitepaper/big_data/big_data.pdf

[18] Agrawal, D., Das, S., & El Abbadi, A. (2011). Big data and cloud computing. In Proceedings of the 14th International Conference on Extending Database Technology - EDBT/ICDT '11 (p. 530). New

York, New York, USA: ACM Press. doi:10.1145/1951365.1951432

[19] Carlos Serrão, Neves, D., Trevor Barker, & Massimo Balestri. (2003). Open SDRM -- An Open and Secure Digital Rights Management Solution. In Proceedings of the IADIS International Conference e-Society.

[20] Chen, P., Jorgen, B., & Yuan, Y. (2011). Software behavior based trusted attestation. In Proceedings - 3rd International Conference on Measuring Technology and Mechatronics Automation, ICMTMA 2011 (Vol. 3, pp. 298–301). doi:10.1109/ICMTMA.2011.645

[21] Chen, X., & Shi, S. (2009). A literature review of privacy research on social network sites. In Multimedia Information Networking and Security, 2009. MINES'09. International Conference on (Vol. 1, pp. 93–97).

[22] DARPA. (2014). MINING AND UNDERSTANDING SOFTWARE ENCLAVES (MUSE). Retrieved August 03, 2014, from http://www.darpa.mil/Our_Work/I2O/Programs/Mining_and_Understanding_Software_Enclaves_(MUSE).aspx.

Authors Details-

1. **Awanish Kr Kaushik -** is working as Assistant Professor in ECE Department at GLBITM Greater Noida, Uttar Pradesh. He has graduated (B.Tech) from UPTU Lucknow in 2005, post graduated (M.Tech) from UPTU Lucknow in 2010 in area of Image Processing and PhD (pursuing) from I.I.T. (I.S.M.) Dhanbad. He has teaching experience of 11 years and 2 years of industrial experience.

2. **Shishir Mehrotra -** is working as Assistant Professor in EEE Department at GLBITM Greater Noida, Uttar Pradesh. He has graduated (B.Tech) from UPTU Lucknow in 2004 and post graduated (M. Tech) from UPTU Lucknow in 2010 in VLSI. He has teaching experience of 13 years,

3. **Dr. (Prof) R. K. Mishra -** is working as Professor & HOD in Applied Science Department at GLBITM Greater Noida, Uttar Pradesh. He has graduated from Rohilkhand University, Bareilly in 1991, post graduated from Rohilkhand University, Bareilly in 1993 and Ph.D. from Rohilkhand University, Bareilly in 1998 in the area of Mathematics. He has teaching experience of 18+ years.

4. **Dr S. K. Garg -** is working as Associate Professor in Applied Science Department at GLBITM Greater Noida, Uttar Pradesh. He has graduated from CCS University in 1994, post graduated from CCS University in 1996, M. Phil from CCS University in 2007 and PhD from CCS University in 2013 in area of Mathematics. He has teaching experience of 17+ years.

UPCOMING ISSUE & CALL FOR MANUSCRIPTS

Invitation for Manuscripts concerning Science, Technology and Humanities subjects for publication in the "SANKALAN:-The Journal of Science, Technology and Humanities".

We commenced the publication of a Science, Technology & Humanities Journal to provide a forum for publishing new, emerging and the innovative findings / theoretical / research / case study / review analysis on Science, Technology and Humanities.

SANKALAN has a periodicity of six months and will be distributed among top-level colleges / universities and Science / Technology / Humanities institutions worldwide, so that it may encourage further development in the related fields.

The idea behind this task is to provide platform that encourages innovations in the field of engineering as well as management and make exchange of the same among other institutions of repute abroad. This effort would certainly help the growth of research and its subsequent expeditious progress in the world.

Scientific/Technical/Humanities articles are invited from faculty members / research scholars / students / professionals and scientists related to engineering branches namely, Electronics and communication / Telecommunication Engineering, Electrical Engineering / Electrical & Electronics Engineering, Information Technology, Computers, Mechanical Engineering, Robotics and allied disciplines including the interdisciplinary branches or courses, Applied Sciences as well as the Humanities background including Sales / Finance / Human resources including the Managerial & Arts Domain.

Soft copies of the 6000 words articles composed in Word 2007 / 10-format are invited round the year. I.E.E.E. style of preparation of the manuscript will be followed. Equations should be composed using 'Equations Editor'. Figure-captions should not form part of the figures: they should be composed separately. Tables should be serially-numbered and put together at the end.

"The Volume – IV, Issue – I (January - June, 2018) is the upcoming issue and is supposed to be released in the first week of July / August, 2017".

The benefits of publishing articles in the "SANKALAN: - The Journal of Science, Technology and Humanities" include:

- **No charges for the publication and each issue include quality oriented articles with proper quality and plagiarism check policies.**
- **Fast publication times: your paper will appear online as soon as it is ready.**
- **All the papers must follow the standard I.E.E.E. double column format.**
- **Excellent advisory editorial and reviewer standards.**
- **A rigorous, fast and constructive peer review process.**
- **All abstracts and full text available free on-line for encouraging the research and development.**
- **Journal with global and proper indexing and citations.**
- **You can e-access your publication lifetime everywhere, as it is an open access Journal**
- **Contributions may please be e-mailed to: sankalan.editor@gmail.com.**

ANNOUNCEMENT

Editorial Board of Sankalan - The Journal of Science, Technology and Humanities deeply appreciates the time and effort involved in preparation, submission, blind peer review and publication of knowledgeable articles. Since last year, we have taken a landmark lead in this frontier that requires passionate dedication to achieve audacious goals.

Since its inception, the Journal has published 23 articles in five respective issues, contributed by authors from several domains in India and abroad. Accolades received from professional fraternity reinforce our resolve to forge further in this task.

We wish to celebrate our Third Anniversary of this effort via an epochal announcement.

To recognize the invaluable Intellectual contribution made by professionals in advancing the noble cause of dissemination of scientific, technological and humanities background knowledge, the Best Paper Publication Certificate will be provided to the particular author, whose paper contains unique information which follows the complete domain, in each and every Issue of the Journal.

The PG Scholars, Research Scholars, Academicians, Industry Delegates will be given special preference regarding the presentation of their articles in the respective issues of the Journal.

The unique specialty of the Journal provides the quality oriented, Plagiarism free articles which are Free of Cost, Open - Access throughout the world to serve the people of our nation and abroad.

SUGGESTIONS AND FEEDBACK

Please take a moment to evaluate the articles you have read in this issue of **"SANKALAN: - The Journal of Science, Technology and Humanities", Volume - III, Issue - II, (July - December, 2017).** Your valuable comments will help us to shape the future issues better. Thank you!

FEEDBACK FORM

Highly Appreciable / Somewhat / Did Not Read /Appreciable /Not Appreciable (Tick any one).
Comments/Suggestions (if-any) _____
_____ (please attach separate sheet if necessary).
Name: Mr/Ms/Dr/Prof_____
Organization / Institution / University _____
Designation _____
Address_____
_____
Phone / Mobile: _____
E-mail:_____

SUBSCRIPTION FORM

I wish to subscribe **"SANKALAN: - The Journal of Science, Technology and Humanities",** for 1 / 2 / 3 year (s). A Bank Draft / Cheque no. / NEFT Transaction Details _____dt._____for Rs. / US $_____ drawn in favour of Rishabh Rai, S.B.I. Main Road, Buxar, Bihar, India, Pin:- 802101, Account No. – 35258441986, I.F.S.C.:- SBIN0001227, Branch Code: - 1227, Payable at Buxar towards the subscription for ____ year (s) is enclosed.

Name_____
Org. / Inst._____
Address_____
_____
_____
Country_____Pin_____
Phone: _____
Fax: _____E-mail: _____
Signature with Date: _____

Subscription Rates

Category	**1 yr.**	**2 yrs.**	**3 yrs.**
Indian (in Rs.)			
1 Institution	2200	4200	6000
2 Individuals	1200	2200	3200
3 Alumni/Students	1000	2000	3000
Foreign (in US $)			
4 Air-Mail	800	1000	1200
5 SAARC countries	200	400	600

* Please add Rs.70 towards bank charges, in case of outstation cheques.
* Overseas Payments must be through bank drafts only.
* Please, prefer NEFT Transfer for the Payment Purpose.

To:

Rishabh Rai
Editor - in - Chief
"SANKALAN: - The Journal of Science, Technology and Humanities",
I.S.S.N. (Online): - 2455 - 3557

Permanent Address: - S / O, Shri J.P.N. Rai,
Opposite Ambassador Hotel, Vishnupuri,
Syndicate, Buxar
Bihar, Pin: - 802101, India
Email: sankalan.editor@gmail.com

AIM & SCOPE

"SANKALAN :- The Journal of Science, Technology and Humanities", aims to provide platform to researchers, academicians, developers, industry experts, and authors interested in state-of-the art and state-of-the-practice activities via publishing their research-based papers, articles, and case studies on topics of current concern in the areas of engineering branches, namely, Electrical Engineering, Electronics, Communication Technology, Instrumentation and Measurement, Information Technology, Computers, Mechanical Engineering, Robotics and allied disciplines, Applied Sciences as well as the Humanities background including Sales/Finance/Human resources including the Managerial & Arts Domain.

CALL FOR PAPERS

We invite unpublished, theoretical, or empirical research papers, review papers, case studies for publication in the **"SANKALAN: - The Journal of Science, Technology and Humanities",** in I.E.E.E. format round the year. Soft copies of the articles limited to 6000 words in Word format may be e-mailed to: sankalan.editor@gmail.com.

NOTE TO AUTHORS

The papers are accepted for review with the understanding that the same work has neither been submitted nor published elsewhere. Articles received for the journal will be blind peer-reviewed and reviewer's comments expeditiously communicated to authors for revision, if any. The review process typically takes two - three months. The author is responsible for obtaining copyright release and corporate and security clearances prior to submitting material for consideration. Publisher assumes that authors have gone through the process of clearance when a paper is submitted.

The soft-copy of the journal will be available at the Journal website: www.sankalan.org.

GALLERY OF THE LAUNCHING FUNCTION OF SANKALAN

[A]. Shri Awadhesh Narayan Singh, Honourable Chairman, Bihar Vidhan Parishad, launching the First Volume & Issue of the Journal on 16.01.2016 in Seminar Hall at V.I.T.M., Buxar

[B]. Launching Poster of SANKALAN in Seminar Hall, V.I.T.M., Buxar

[C]. Chief Guest, Guest of Honour, Chairman – (V.I.T.M.), Director - (V.I.T.M.), Editor - in – Chief (SANKALAN) and others in Lightening of the Lamp

[D]. Dignitaries on the Dias in the Launching Function

Please, write to us at:-

To:

Rishabh Rai
Editor - in - Chief
"SANKALAN: - The Journal of Science, Technology and Humanities",
I.S.S.N. (Online):- 2455 - 3557

Permanent Address: - S / O, Shri J.P.N. Rai,
Opposite Ambassador Hotel, Vishnupuri,
Syndicate, Buxar
Bihar, Pin: - 802101, India
Email: sankalan.editor@gmail.com

