ICRCSCT-18

INTERNATIONAL CONFERENCE ON RECENT ADVANCEMENT IN COMPUTER SCIENCE AND COMMUNICATION TECHNOLOGY

Vijayawada, Andhra Pradesh

06th & 07th April, 2018

Organized by:

Dhanekula Institute of Engineering & Technology

and

Institute For Engineering Research and Publication

From Director's Desk ….

Rudra Bhanu Satpathy.,
Director,
Institute For Engineering Research and Publication.

On behalf of ***Institute For Engineering Research and Publications (IFERP)*** and in association with ***Dhanekula Institute of Engineering & Technology,*** Vijayawada, Andhra Pradesh. I am delighted to welcome all the delegates and participants around the globe to ***Dhanekula Institute of Engineering & Technology*** for the ***"International Conference on Recent advancement in Computer Science and Communication Technology (ICRCSCT-18)"*** Which will take place from ***6th - 7th April '18***

Transforming the importance of Engineering, the theme of this conference is ***"International Conference on Recent advancement in Computer Science and Communication Technology (ICRCSCT-18)"***

It will be a great pleasure to join with Engineers, Research Scholars, academicians and students all around the globe. You are invited to be stimulated and enriched by the latest in engineering research and development while delving into presentations surrounding transformative advances provided by a variety of disciplines.

I congratulate the reviewing committee, coordinator **(IFERP & DIET)** and all the people involved for their efforts in organizing the event and successfully conducting the International Conference and wish all the delegates and participants a very pleasant stay at ***Vijayawada, Andhra Pradesh.***

Sincerely,

Rudra Bhanu Satpathy,

Preface

The ***"International Conference on Recent advancement in Computer Science and Communication Technology"*** is being organized by Dhanekula Institute of Engineering & Technology (DIET), Vijayawada in association with *IFERP-Institute For Engineering Research and Publications on the 06th- 07th April' 2018*.

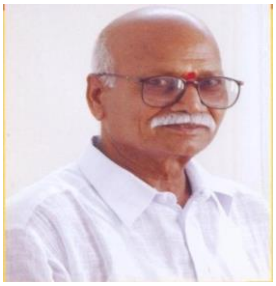
Dhanekula Institute of Engineering & Technology has a sprawling student –friendly campus with modern infrastructure and facilities which complements the sanctity and serenity of the Metropolis city of Vijayawada in Andhra Pradesh.

The ***"International Conference on Recent advancement in Computer Science and Communication Technology"*** was a notable event which brings academia, researchers, engineers, industry experts and students together.

The purpose of this conference is to discuss applications and development in area of *"Computer Science Engineering, Information Technology and Electronic Communication Engineering "* which were given international values by ***Institute For Engineering Research and Publication (IFERP).***

The International Conference attracted over 64 submissions. Through rigorous peer reviews 35 high quality papers were recommended by the Committee. The Conference aptly focuses on the tools and techniques for the developments on current technology.

We are indebted to the efforts of all the reviewers who undoubtedly have raised the quality of the proceedings. We are earnestly thankful to all the authors who have contributed their research works to the conference. We thank our Management for their wholehearted support and encouragement. We thank our Principal for his continuous guidance. We are also thankful for the cooperative advice from our advisory Chairs and Co-Chairs. We thank all the members of our local organizing Committee, National and International Advisory Committees.



Hon. Shri. Dhanekula Ravindranath Tagore
The Chairman
Dhanekula Institute of Engineering and Technology
Ganguru- 521139, Andhra Pradesh, India.

Chairman's Message

It is a great pleasure for me to congratulate all the participants in the **International Conference on Recent Advancements in Computer Science and Communication Engineering (ICRCSCT-18)** in association with the Institute for Engineering Research and Publication (IFERP) at Dhanekula Institute of Engineering and Technology, Ganguru and to welcome the participants who have to exchange experience.

Computer Science Engineering and Information Technology plays vital role in the modern life, profoundly influencing the course of human civilization. All the great scientific discoveries and Information technological achievements in our country have improved the Indian economic status and have created many new ways to the new generations to grow in the technologically advanced environment.

The main goal of the conference is to educate and motivate the participants to develop skill dynamics which must be the high priority of Indian technical education for the computer science engineering and communication technology development in our country in extraordinary manner. We will Endeavour to provide the best through lectures, paper presentation and students activities which will be a part of this conference. Speakers and prominent figures in various technical fields have been invited for sharing their latest insights of academic and research in Science, Engineering and Information Technology.

I feel very much delighted to inform you that our first International Conference on “Recent Advancements in Computer Science and Communication Technology" will provide innovative outcome to face the emerging challenges in computer Science & Communication Technology. I congratulate all the staff members of the Departments of Computer Science who have been working hard for the success of the conference. My hearty congratulations to Prof. B Srinivasa Rao, H.O.D. of the department who enthusiastically took these efforts. I whole heartly appreciate the sincere efforts of the entire team of this great event. I wish them all a grand success!

(**Hon. Shri. Dhanekula Ravindranath Tagore**)

Hon. Shri. Bhavani Prasad
The Secretary,
Dhanekula Institute of Engineering and Technology,
Ganguru, Andhra Pradesh , INDIA- 521139.

Secretary's Message

It gives me immense pleasure to know that the Department of Computer Science and engineering of Dhanekula Institute of Engineering and Technology has taken up the great challenge of organizing an **Conference on Recent Advancements in Computer Science and Communication Engineering (ICRCSCT-18)** in association with **Institute for Engineering Research and Publication (IFERP)**. I congratulate the department for their maiden attempt for holding the conference and I am happy with the revered publication of articles.

The facets of Computer Science and Communication Technology are changing very fast. Hence Science and Technology has to be infused with new variety to play a decisive and beneficial role in advancing the well being of all sections of our society. The **ICRCSCT-18** will play a humble role in bring together researchers, young scientists and students in an informal environment for discussing the latest advances in the field of Computer Science and Communication Technology.

Visit of various researches under the roof of Dhanekula Institute of Engineering and Technology is a matter of pride and immense pleasure to all of us. I hope that this volume which has been brought out by **ICRCSCT-18** will be of great academic value for common scholars and common readers. I convey my blessings and good wishes to all members of the **ICRCSCT-18** family, for their dedicated involvement in this great event.

Since its inception Dhanekula Institute of Engineering and Technology is moving towards the heights of education and serving the society with quality education.

(**Hon. Shri. Bhavani Prasad**)

Dr. Ravi Kadiyala
Principal,
Dhanekula Institute of Engineering & Technology,
Ganguru. A.P. INDIA-521139

Principal Message

Greetings from Dhanekula Institute of Engineering & Technology, Ganguru

On behalf of the management and staff, I would like to invite all of you to the International Conference.

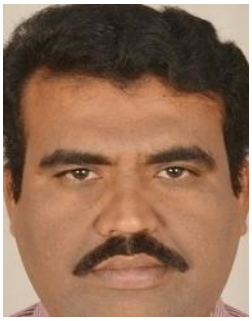
I am glad to inform you that the Department of Computer Science and Engineering is organizing an **International Conference on Recent Advancements in Computer Science and Communication Technology** at Dhanekula Institute of Engineering & Technology in association with the institute for Engineering Research and Publication (IFERP).

The International Conference (ICRCSCT-18) aims to focus on applications and will be of interest to students, academicians, industrialists and others. The conference has an array of sessions dedicated to various application themes and several invited talks by experts from India and abroad. The papers contributed will be comprehensively administered to appear in IFERP journal.

I wish all the best to the participants and the organizing committee of the said conference, who have put lots of efforts for successful organization of this International Conference.

I wish you all the best.

(**Dr. Ravi Kadiyala**)



Dr. B. Srinivasa Rao
Professor & Head, Dept. of CSE
Dhanekula Institute of Engineering & Technology,
Ganguru. A.P. INDIA-521139

HOD Message

It gives me immense pleasure to pen that Dhanekula Institute of Engineering & Technology is organizing an **International Conference on Recent Advancements in Computer Science and Communication Technology** in association with the Institute for engineering research and publication (IFERP) on 6th and 7th April 2018. The applications of any advances science and engineering is to facilitate the nation for its development. Computer science Engineers in the present day scenario have a challenge to provide reliable data transmission by good programming sources interconnected with the efficient operation.

The conference is aimed to serve as a premier venue for the dissemination of leading edge research in **advancement in computer science and communication Technology.**

I hope that this conference would certainly light up innovative ideas by paving way to new inventions and integrate new technologies in the Computer Science sector and the deliberations in the conference will help researchers from academia, industry and the conference will provide a platform for initiating collaborative research projects.

All the best.

(**B. Srinivasa Rao**)

ICRCSCT-18

International Conference on Recent advancement in Computer Science and Communication Technology

Keynote Speakers

Dr. Ande Murali Varaprasad
Professor & Director CIGS
Email: directorcigs@cigssacet.in

Lett No.: CIGS/2018/ICRCSCT

Date: 31 March 2018

MESSAGE

It is indeed great pleasure for me to participate in the "International conference on recent advancement in computer science and communication"(ICRCSCT) on 6-7 April, 2018 being organized jointly by IFERP and Dhanekula Institute of Engineering and Technology, Vijayawada . My greetings to Director IFERP and the Management / Governing body of DIET, the Chair person Sri D. Ravindranath Tagore, Principal, all the HODs, Faculty Members and participants. I congratulate the IFERP for shaping the young minds by organizing world class conferences in the Institutions in India and abroad.

21 century is a century of knowledge management. The amount of information available through research is enormous and it exceeds the capacity of individuals. We must learn how to manage knowledge collectively to enable creativity and innovation in high technology areas like 4th and 5th Industrial revolution, Internet of Things based Healthcare and custom designed Apps for the convenience of individuals, disabled people and fault free governance. The Missile man of India and the creator of dreams Dr A.P.J.Abdul Kalam often emphasized that our students and faculty should have the capacity to use high technologies.

Present day Technology advancements can be utilized to auto-check financial irregularities spontaneously, leaving no room for errands'. When young engineers work and perform with dedication, this Nation will become a developed Nation by 2020.

I wish you the event a grand success.

AMVaraprasad

ICRCSCT-18

International Conference on Recent advancement in Computer Science and Communication Technology

Vijayawada, Andhra Pradesh 06th & 07th April 2018

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CONTENTS

CONTENTS

CONTENTS

CONTENTS

ICRCSCT-18

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ABSTRACTS

ICRCSCT-18

Organized by

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International Conference on Recent advancement in Computer Science and Communication Technology
(ICRCSCT-18)

06th - 07th April 2018

Smart Agriculture Monitoring System using WSN Technology

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***Abstract*:-- The advancement in the Wireless sensor networks (WSN) technology and the applications of Internet of Things (IoT) has driven a great attention in industry as well as in our daily life. This paper focuses on the use of WSN in monitoring agriculture. It includes various features like water management monitoring, GPS based remote controlled monitoring, moisture, temperature sensing, and proper irrigation facilities. WSN technology enables the continuous monitoring of soil properties and environmental factors. Various sensor nodes are deployed at different locations in the farm. Monitoring of different agricultural parameters can be done by any remote device or internet services through interfacing of sensors, Wi-Fi, camera with microcontroller. Smart farming is an emerging concept, as IoT sensors are capable of developing data base about agriculture parameters. This paper aims in making use of evolving technology i.e. IoT and smart agriculture using automation. Monitoring environmental factors is the major aspect to improve the crop yield efficiently.**

Keywords: Agricultural environment monitoring, IoT, Wi-Fi, Wireless sensor networks.

I. INTRODUCTION

During recent days, with the migration of farmers from countryside to the towns and the rising of human costs put more emphasize on the intelligent system. The exploring of using wireless sensor system to keep an eye on the field is hot, during these years the complexity and the accuracy of the system have made great improvement. The technology of Internet of Things (IoT) continues the development of agricultural facilities. Mobile embedded systems such as the Internet of Things technology in modern agriculture are gradually widened. Using of wireless sensor networks can reduce the impact of human intervention and the farmland environment. Extensive use of automation, intelligent remote-controlled production equipment can obtain crop information. Through these, people who stay at home can monitor a variety of field information. This can achieve the scientific cultivation, scientific monitoring and production management and promote modern agriculture development pattern [1].

The Internet of Things (IoT) technology has been playing an important role in the modern Information technology. With the help of internet, local physical data can be uploaded to a specific website. People who get permission can visit it. With these functions, people can easily make monitoring and manage the things remotely. When specific to this system, a network can be designed, shows the data collected by the sensors system. It can technically be divided into two parts, one is monitoring, and the other is to control. In the monitoring part, upload the physical index in the field (such as temperature, moisture and sun light intensity etc.) to the internet [2]. Fig.1 shows the overall architecture diagram of the smart agriculture system using IoT.

The Design of Agriculture using Internet of Things (IoT)

The agricultural system based on the Internet of Things technology is divided into three layers:
1.perception layer,
2.transport layer and
3.application layer.

Perception layer is mainly responsible for data-aware acquisition;

Transport layer is mainly responsible for the perception of data transmission;

Application layer is mainly responsible for sensing data analysis, statistics, and early warning, automatic control and scientific decision-making

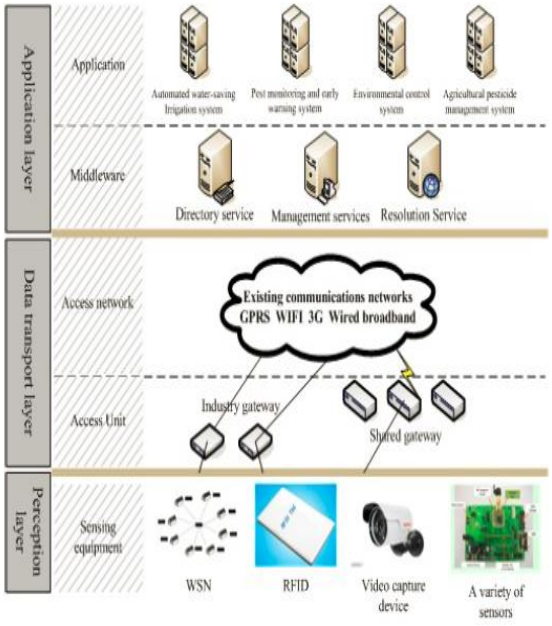

Fig. 1 The architecture diagram of smart agriculture system using IoT

Wireless Sensor Networks

Wireless sensor networks include wireless sensor nodes, sink nodes, the routing node, the central base station, network data server and remote access node. Sensor node is responsible for the collection, a variety of soil and environmental parameters of the storage location. These parameters include air temperature, humidity, sun shine intensity, soil temperature, moisture, pH value. Sensor node sends data to the sink node through a variety of means of communication. Aggregation node is responsible for data collection, filtering and storage in wireless sensor clusters, and to communicate with the wireless routing nodes forward data timely.

Implementation of the IoT system for Agriculture Project

On the basis of the research of facility agricultural structure and key technologies, sensing technology, infinite communication technology, computer network technology, agricultural resources, database technology, Internet of Things technology were used to build management technology platform for agriculture. It develops intelligent, accurate scientific production management for the majority of cooperatives, growers, facilities and agricultural enterprises and other users. Developed science intelligent precision operation scheme can make reasonable use of resources; improves product yield and efficiency; and improve the quality of agricultural products so as to enhance the market competitiveness of industry standards and product.

Proposed IoT based remote monitoring system

The remote monitoring systems are promoting IoT solution working on WSN embedded with RFID technology. The system communicates with hardware and software automatically to send data in the farm. The solution is proven and can therefore be implemented from planting to harvest as a tool for appropriate irrigation tactic to improve crop yields. Besides, the WSN nodes can effectively collect data as well. Remote monitoring for irrigation and fertilising using WSN and RFID can ensure a good quality crop yield. In spite of the stressful environmental conditions, it increases the application efficiency of irrigation systems by 50%. The collaboration has been made with local farmer company that runs the herbaceous plants on a farm located in Ipoh, Perak. This collaboration facilitates research and development of this project, while helping the company to increase productivity and reduce operating costs. [3]

In this system, automatic irrigation systems are developed in the farm to collect the data from moisture sensors placed in the field. The farm will be monitored through the wireless sensor network that is integrated with the active RFID at the field. WSN will sense and monitor the environment like soil moisture and temperature. The nodes will be ready, immediately after their deployment in the required field. The systems proposed are very intelligent where the node always sleeps in standby mode. If the sensor senses soil in dry, the node will be activated to work in the mesh network between the other nodes to send ID to the reader. The end device of active RFID shown in Figure 2 is embedded with the sensor that represents wireless network sensor ID that works on Zigbee 2.4 GHz platform. The ID sent to the reader at the base station is used to recognise and allocate which nodes are sending data to the irrigation process automatically.

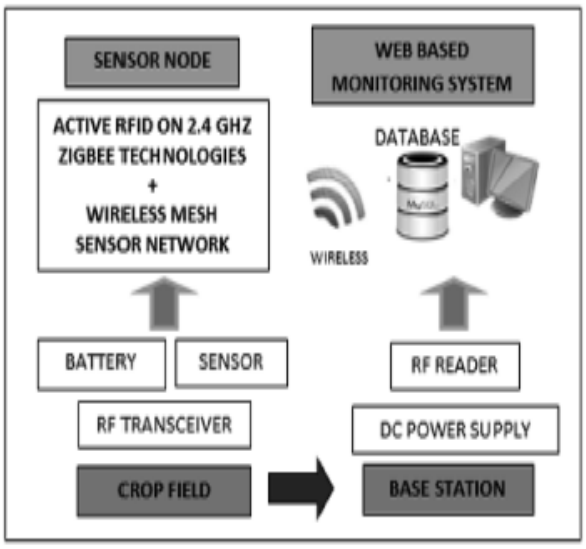

Fig. 2 An ID is received from the sensor node at the base station

From the data collected, it can be concluded that using the proposed system on the farm has its benefits. Water usage can be reduced approximately up to 50% when the embedded technology is used compared to the conventional method. In this system, the sprinkler will supply water when the moisture sensors give a signal with the right amount. Sensor in range 0-30% makes the sprinkler supply a large volume of water because the soil is in a dry state. Therefore, it needs a 100% amount of water. Meanwhile, when the sensor is in the range of 30-70%, the sprinkler will reduce water intake by 50% and supply an average volume of water to the soil. This range saves a whole sum of water. The sprinkler will stop the water supply when the moisture sensor sends data of about 85-95%. In this condition, the soil is wet so there is no need for water to be supplied. Thus, farmers can reduce water consumption. The conventional method uses the same amount of water when it needs to irrigate every day. Over irrigation can cause the death of plants and production of farm to be affected badly. In particular, this can affect the revenue of farmers as well since water is wasted and over irrigation may cause damages to the plants. Besides that, the irrigation processes need a number of workers for the conventional method, as it is time consuming.

Major Applications of choosing WSNs:
The salient features of WSNs that have enabled as a potential tool for automation in the agricultural domain are highlighted as follows. [4]

(i) Intelligent decision making capability: WSNs are multi-hop in nature. In a large area, this feature enhances the energy efficiency of the overall network, and hence, the network lifetime increases. Using this feature, multiple sensor nodes collaborate among themselves, and collectively take the final decision.

(ii) Dynamic topology configuration:
To conserve the in-node battery power, a sensor node keeps itself in the 'sleep mode' most of the time. Using topology management techniques, the sensor nodes can collaboratively take these decisions. To maximize the network lifetime, the network topology is configured such that the minimum number of nodes remain in the active mode.

(iii) Fault-tolerance: One common challenge in deploying the WSNs is that the sensor nodes are fault-prone. Under such circumstances, unplanned deployment of nodes may lead to network partitioning, and in turn, the overall performance of the network is affected. However, in countermeasure, the sensor nodes can 'self-organize' by dynamically configuring the network topology

(iv)Context-awareness: Based on the sensed information about the physical and environmental parameters, the sensor nodes gain knowledge about the surrounding context. The decisions that the sensor nodes take thereafter are context-aware.

(v) Scalability: Generally, the WSN protocols are designed to be implemented in any network irrespective of its size and node count. This feature undoubtedly widens the potential of WSNs for numerous applications.

(vi)Node heterogeneity: WSNs are often assumed to be comprised of homogeneous sensor attached devices. However, in many realistic scenarios, the devices are heterogeneous in respect of processing and computation power, memory, sensing capability, transceiver unit, and movement capability.

(vii) Tolerance against communication failures in harsh environmental conditions: Due to the wide range of applications in open agricultural environments, WSNs suffer the effects of harsh environmental conditions The WSN protocol stack includes techniques to withstand the effect of communication failures in the network arising due to environmental effects.

(viii) Autonomous operating mode: An important feature of WSNs is their autonomous operating mode and adaptiveness. In agricultural applications, this feature certainly plays an important role, and enables an easy as well as advanced mode of operation.

(ix) Information security: The WSNs carry raw information about on-field parameters. To ensure the security of sensed information, WSNs provides access control mechanisms and anomaly detection to restrict unauthenticated users.

Potential applications in agriculture field:

Following are the possible agricultural applications which are implemented using WSNs.

1. Irrigation management system: Modern day agriculture requires an improved irrigation management system to optimize the water usage in farming. The alarming reduction of ground water level is another motivation for the requirement of an advanced system. In this context, micro-irrigation techniques are cost-effective and water-usage efficient. However, micro-irrigation efficiency can be further improved based on the environmental and soil information. In this regard, WSNs are applied as the coordinating technology.
2. Farming systems monitoring: Currently, various improved systems and devices are used in farming. Thus this improved system manages the devices and eases the

overall operation, and enable automation in faming. Also, such remote monitoring systems help towards enabling improved management in large agricultural fields. Further, with the input of additional information such as satellite images and weather forecasts, the system performance can be improved.

3. Pest and disease control: Controlled usage of pesticides and fertilizers helps increasing the crop quality as well as minimizing the farming cost. However, for controlling the usage of pesticides, we need to monitor the probability and occurrence of pests in crops. To predict this, we also need the surrounding climate information such as temperature, humidity, and wind speed. A WSN can autonomously monitor and predict these events over a field of interest.

4. Controlling the usage of fertilizers: Plant growth and crop quality directly depend on the use of fertilizers. However, optimal supply of fertilizers to proper places in fields is a challenging task. The use of fertilizers for farming may be controlled by monitoring the variation in soil nutrients such as Nitrogen (N), Phosphorous (P), Potassium (K), and pH. Consequently, soil nutrition balance may also be achieved, and hence, crop production quality is also maintained. Studied the effectiveness of mobile nodes to improve agricultural productivity in a smart system with a precision sprays.[6]

5. Cattle movement monitoring: A herd of cattle grazing a field can be monitored using WSN technology or Radio Frequency Identifier (RFID). Thus, real-time monitoring of any cattle is also achieved. This technology can be implemented further to monitor whether any cattle is moving near the vegetation fields or not.

6. Ground water quality monitoring: The increased use of fertilizers and pesticides lead to decrease in the quality of ground water. Placing sensor nodes empowered with wireless communication help in monitoring the water quality.

7. Greenhouse gases monitoring: Greenhouse gases and agriculture are closely related to each other. Green house gases are responsible for increasing the climate temperature, and have direct impact on agriculture. On the other hand, greenhouse gas emission comes from various agricultural sources.

8.Smart farming: Smart farming is targeted to generate greater productivity with reduced costs. Wireless ad-hoc and sensor networks are utilized in precision farming to gather field data which can then be analyzed to find the best farming conditions.

IoT Cloud

IoT makes it possible as the ability to transfer data over a network without requiring any human interaction To-human or human-to-machine. The architecture of the Internet of the objects relies mainly on 4 processes allowing to collect, to store, to transmit and to treat data from the physical world. The role of the different processes presented is described as follows:

• Collection of data: refers to the action of transforming an analog physical magnitude into a digital signal.

• Interconnect: allow you to interface a specialized object network with a standard IP network (e.g. Wi-Fi) or consumer devices.

• Store: qualifies the aggregation of raw data, produced in real time, meta tagged, arriving in an unpredictable way.

• Finally, presenting indicates the ability to restore information in a way that is understandable to humans, while offering a means of acting and / or interacting

SUMMARY

It is a trend to use information technology to lead the development of modern agriculture. It has an important meaning for overcoming the bottleneck of resources and the environment of the agricultural development, transforming agricultural development, and enhancing the competitiveness of agriculture. As a comprehensive application of technology in different disciplines, facility agricultural based on Internet of Things technology integrates a variety of technologies such as sensor, automation, communications, computer and plant sciences. It can be predicted that facility agricultural will have a rapid development in the promotion of agricultural machinery, sensors, information and communications and cloud computing technologies. It will play a major role to improve the overall efficiency of agriculture, promote the upgrade of modern agricultural transformation [7]. This concept is created as a product and given to the farmer's welfare.

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Performance Analysis of BER in OFDM System Using Comparison of FFT and DWT Transforms

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***Abstract*:-- In wireless communication system, there exists a main demand for enhancing the data rates and to improve the system reliability. OFDM systems are widely used as modem of multicarrier transmission systems where the system has higher reliability and better bandwidth efficiency. In OFDM system, it is necessary to assess the performance of the system and Bit Error Rate provides the idle way in which the entire performance of a system including the transmitter, receiver and the medium between the two are assessed. In this way, BER enables the actual performance of the system operation to be tested instead of testing the component parts. In this paper, comparison of BER performance is carried out with two different transforms such ac FFT and DWT in which the DWT transform is performed with two different filters such as deubechies filter and Haar filter. Simulation are carried out to ensure the performance of the system and to obtain the optimum values of BER.**

I . INTRODUCTION

OFDM has become the modem of choice in many Wireless applications which merely satisfies main demands such as high spectral efficiency, robustness against frequency selective fading Ability to cope with severe channel without complex equalization filters. More over OFDM is widely implemented in applications such as LTE 4G Mobile Broadband, IEEE 802.11 Wi-Max, IEEE 802.20 MBWA Mobile Broadband Wireless Access, Digital Audio Broadcast (DAB), Digital Video Broadcasting Terrestrial TV (DVB-T) systems, Wireless Local Area Networks (WLAN), ultra- wideband systems, Cognitive Radios (CR) and so on. In the OFDM system, to ensure the BER performance, two different types of Transform are considered. The transforms such as DWT and FFT are selected here to ensure the BER performance. This paper focuses upon the comparison of BER performance with DWT and FFT and ensuring the better performance of the OFDM system. The remaining part of the paper is organised as follows. SECTION II presents a brief introduction of the OFDM system. SECTION III gives the knowledge about the Transforms such as DWT and FFT. SECTION IV provides the Simulation Output of the comparison results and SECTION V provides the conclusion of the paper.

II . ORTHOGONAL FREQUENCY DIVISION MULTIPLEXING:

Orthogonal Frequency Division Multiplexing is a multichannel transmission system that employs multiple subcarriers by which it combines a large number of low data rate carriers to construct a composite high data rate communication system. The OFDM system is mostly attracted because the system has the capability of handling the Multipath Interference at the receiver side. The main two effects that are generated by Multipath are frequency selective fading and Inter Symbol Interference (ISI). The narrowband channel perceived with flatness along with the use of powerful error correction codes together with time and frequency interleaving overcome the frequency selective fading. The insertion of an extra guard interval between consecutive OFDM symbols can reduces the ISI. The signal representation of the system is given as follows
Consider an OFDM consisting of N subcarriers.

$$X = \{X_{K,=0,1,..,}N-1\}$$

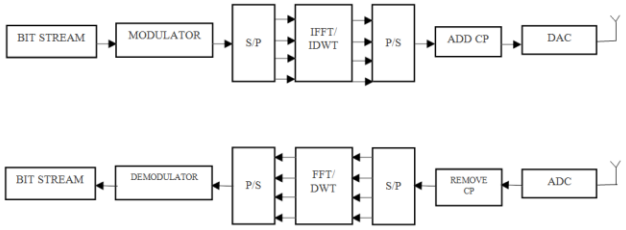
Let N symbol block is formed with each symbol modulating one set of subcarriers that is chosen to be orthogonal.
The complex baseband OFDM signal x(t) can be written as

$$x(t)\frac{1}{\sqrt{N}}\sum_{k=0}^{N-1} X_k e^{j\pi f k t}, 0 \le t \le NT$$

The orthogonality requires that the sub-carrier spacing which is given by Δf

$$\Delta f = \frac{\kappa}{T_U} \quad \underline{\text{Hertz}}$$

where, TU seconds is the useful symbol duration k is a positive integer, typically equal to 1



BLOCK DIAGRAM OF CONVENTIONAL OFDM SYSTEM

III. FFT BASED OFDM:

The Fast Fourier Transform (FFT) is a Discrete Fourier Transform (DFT) algorithm that speed up the calculation by reducing the number of computation needed for N point subcarriers from 2N to 2NlogN. The input bit streams are modulated with modulation techniques such as BPSK, QPSK, QAM etc. The use of IFFT transform in OFDM system requires the addition of cyclic prefix at the transmitter side in order to diminish the effect of Inter Symbol Interference (ISI). At the receiver reverse process is done where the cyclic prefix is removed, FFT is applied and the data are demodulated to obtain the original bit stream.

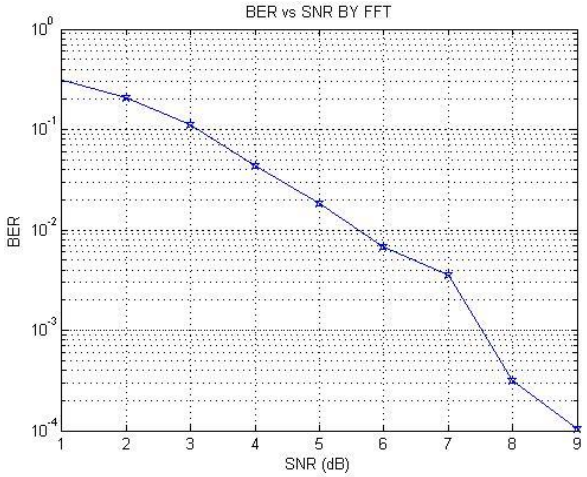
DWT BASED OFDM:

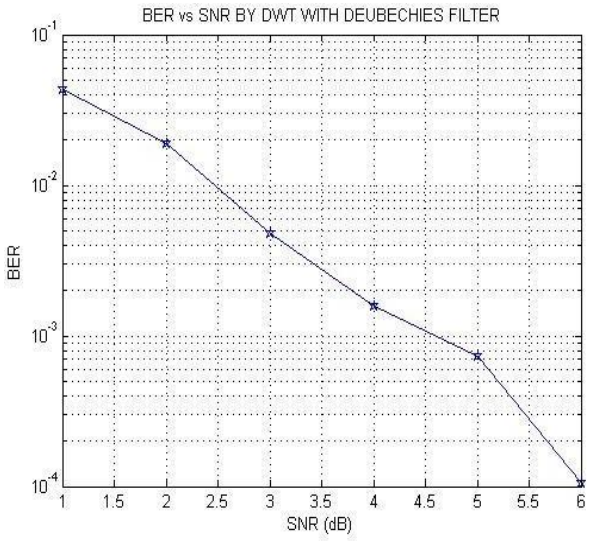
Discrete Wavelet Transforms (DWT) are most popularly used in OFDM systems that produces discrete outputs by mapping the time domain data into wavelet domain data. The wavelet scheme satisfies the condition of orthogonality and has high power spectral density as compared to FFT- OFDM. More over the use of DWT doesn't require any cyclic prefix addition so that the BER performance of the system is improved. The wavelet-based signals are well localised both in time and frequency domain. In DWT there are some different types of filtering schemes such as Deubechies, Symlets, Coiflets and Haar filter. Here in the BER performance analysis, Deubechies and Haar filter are used in which Haar is one of the simplest wavelet filter where the deubechies filter are most properly used in DWT.

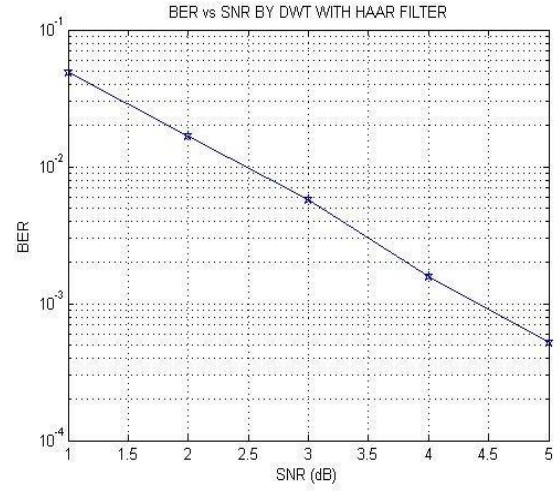
IV. SIMULATION AND RESULTS

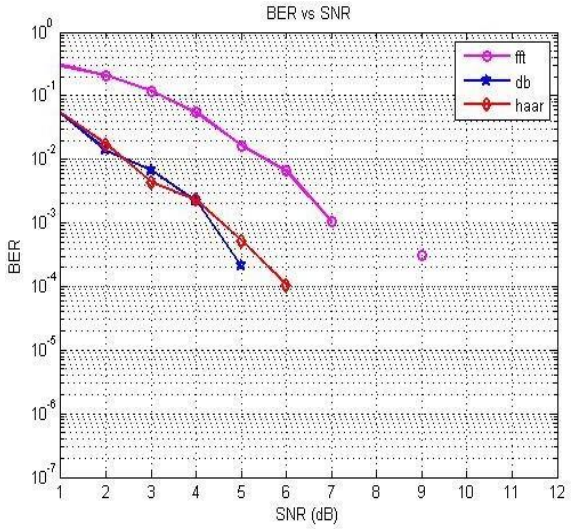
In this section two transform methods such as the FFT based OFDM system and DWT based OFDM systems are implemented using MATLAB and graphical results are found showing the Bit Error Rate (BER) probabilities of the systems Vs Signal to Noise Ratio (SNR). While using DWT transform, the BER Vs SNR plot is implemented for the filters such as Deubechies filter and Haar filter. The parameters which are used to simulate the both FFT and DWT based systems are mentioned in the following table.

PARAMETER	FFT BASED OFDM	DWT BASED OFDM
No of subcarriers	64	64
Cyclic Prefix	¼ of data subcarriers	Not required
FFT size	64	-
Wavelet filter	-	Haar, db2
Modulation method	QAM	QAM
Channel	AWGN	AWGN
Pilot Insertion	4	-









The graphical results from MATLAB simulations shows the performance analysis of BER by the variation of the BER with SNR for both FFT based OFDM system and DWT based OFDM system with deubechies an Haar filter while considering the AWGN channel. From these results, it is clear that the DWT transform provides better BER performance with various filters than FFT transform while ensuring the higher data rates of the OFDM system.

V. CONCLUSION:

In this paper, it can be concluded that DWT based OFDM provides better spectrum efficiency than the FFT based OFDM based system and also DWT doesn't require the cyclic prefix addition for diminishing the ISI and ICI effects. More over the

BER performance is less effected by SNR in DWT based OFDM whereas it is highly affected by SNR in FFT based OFDM system. Thus it is obvious that DWT based OFDM system provides better performance of BER by increasing the overall data rates and DWT outperforms FFT based OFDM system.

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Design of High-Speed Multiplier Architecture Based on Vedic Mathematics

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***Abstract*:-- High speed and efficient multipliers are essential components in today's computational circuits like digital signal processing, algorithms for cryptography and high performance processors. Invariably, almost all processing units will contain hardware multipliers based on some algorithm that fits the application requirement. Tremendous advances in VLSI technology over the past several years resulted in an increased need for high speed multipliers and compelled the designers to go for trade-offs among speed, power consumption and area. Amongst various methods of multiplication, Vedic multipliers are gaining ground due to their expected improvement in performance. A novel multiplier design for high speed VLSI applications using Urdhva-Tiryagbhyamsutra of Vedic Multiplication has been presented in this paper. The multiplier architecture is implemented using Verilog coding and synthesise during Cadence RTL Compiler. Physical design is implemented using Cadence Encounter RTL-to-GDSII System using standard 180nm technology. The proposed multiplier architecture is compared with the conventional multiplier and the results show significant improvement in speed and power dissipation.**

Keywords: Binary Multiplication, Multiplier Architecture, Vedic Multiplier.

1 . INTRODUCTION

One of the most important classes of integrated circuits is processors. Over the years, the density of integration has grown tremendously and hence, today, it is possible to have large number of functionalities packed in an IC. As the number of functions increases, the need for computation also grows. Also, with the advent of new process technologies, shrinking of feature size coupled with the availability of modern CAD tools we could develop complex integrated circuits for various applications such as digital signal processing, mobile computations and communications, multimedia applications and processing required for scientific computing and applications. One of the main functional blocks in such circuits is arithmetic unit - the most important part of the processors- whose speed and efficiency are very crucial for meeting the requirements of the applications they have to support [1].

Multipliers have become an integral part of modern processors and computation systems. Especially, in digital signal processors speed of the computation is extremely important in addition to low power dissipation. Therefore, there is growing demand for low power and high performance multipliers [2]. As multiplication is a crucial arithmetic operation in processors and digital computer systems, multipliers are the core building block for many algorithms in a wide variety of computing applications [3, 4]. Although multipliers are main arithmetic components used for processing scientific data, the excessive power consumption and delay attracts attention from the research community. The current trends in architectures have been shifting towards multiple arithmetic cores working in parallel so that they can process large amounts of data with relatively low power and delay. Unfortunately, traditional arithmetic units dissipate large amounts of power [5].Thus there is a need to look at special multiplier architectures to be designed and implemented in appropriate circuit design styles[6-10] to achieve computation at low power, besides providing high performance. As the complexity of arithmetic core increases, the need for low power multipliers with adequate performance also grows.

In order to address the low power computation along with high performance, a new approach to multiplier design based on ancient Vedic Mathematics has been explored. The mathematical operations using Vedic mathematics are very fast and require less hardware. This aspect of Vedic mathematics can be utilised to increase the computational speed of multipliers. This paper describes the design and implementation of an 8 bit Vedic multiplier based on Urdhva-Tiryagbhyam Sutra. The number of steps required to perform a multiplication operation by using UrdhvaTiryagbhyam Sutra are considerably less compared to the conventional multiplication techniques [11]. In this paper, we have further explored a novel method to enhance the speed of a Vedic multiplier by replacing the existing full adders and half adders with multiplexers. The implementation of pre-computation logic using multiplexer based adder and XOR logic resulted in reduction of delay. Moreover, in this paper, we also propose modifications to

the conventional architecture of multiplier so as to reduce the power-delay product.

The structure of the paper is divided as follows: The methodology and the architecture of the proposed Vedic multiplier is given in section 2 and section 3 respectively. Results are presented in section 4. Finally, conclusion and future research is given in section 5.

2. METHODOLOGY OF PROPOSED VEDIC MULTIPLIER

The stepwise flow of the proposed Vedic Multiplier has been shown in Figure 1. The 8 bit binary inputs A[7:0] and B[7:0] are sent to the Vedic_4_bit_mul (4×4 bit Vedic multiplier) in pairs of 4 bits. The 8 bit outputs from each 4 bit Vedic multiplier are arranged as shown in the first block of the flow diagram. The carries obtained from each column are calculated and also the partial products of each column are XORed column wise side by side. As shown I the second block in the flow diagram the pre-calculated carries and the XORed partial products are XORed column wise to obtain the 8×8 product P[15:0]

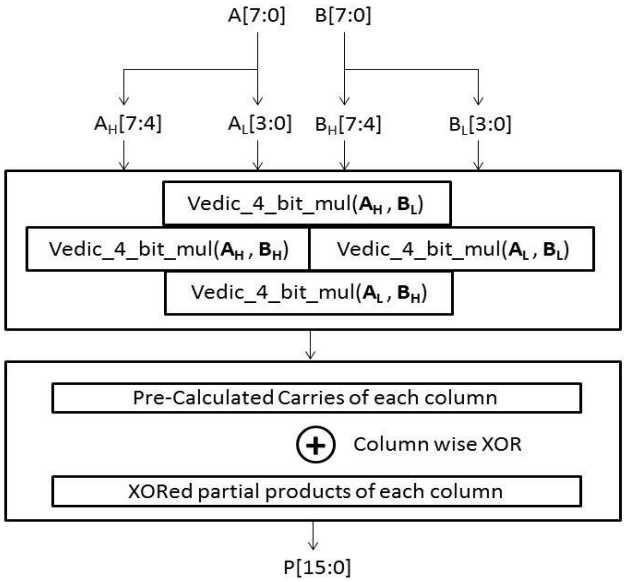

Figure 1: Bitwise flow diagram of 8×8 Vedic Multiplier

3. ARCHITECTURE OF PROPOSED VEDIC MULTIPLIER

In our proposed Vedic multiplier an 8 bit Binary Vedic multiplication is realized using 4-bit Vedic multiplication, Figure 2 shows 4 bit Vedic multiplication where A3,A2,A1,A0 & B3,B2,B1,B0 are 4 bit binary inputs and P7,P6,P5,P4,P3,P2,P1,P0 are the binary output bits.

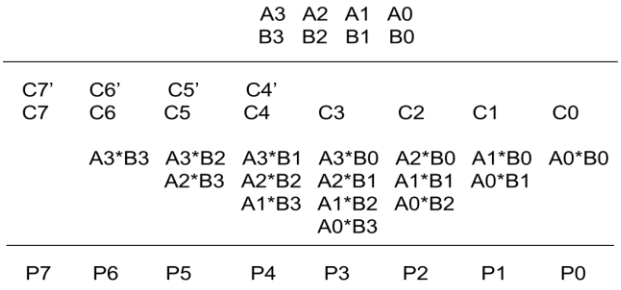

Figure 2: 4 bit Vedic Multiplication

Figure 3 shows a block where two 4 bits binary inputs are given to Vedic_4_bit_mul which produces 8 bit binary product. Pre-computation is used in this method, while calculating the product the column wise carries are obtained first by using MUX addition also the product values are obtained during this process. Finally, the column wise P [15:0] values are obtained by XORing the values in each column.

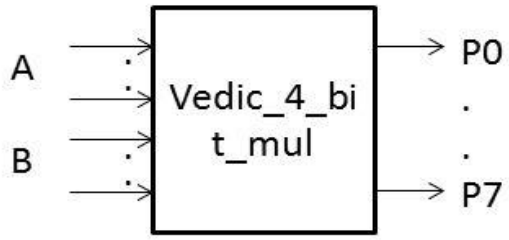

Figure 3: Block Diagram of a 4 bit Vedic Multiplication

This unit of 4 bit multiplier was used to perform the 8 bit multiplication as shown in the Figure6 where AH is A7 A6 A5 A4, AL is A3 A2 A1 A0, BH is B7 B6 B5 B4 & BL is B3 B2 B1 B0. The outputs from Vedic_4_bit_mul are positioned as shown in the Figure 4 [13] for addition and the carries are generated using MUX based addition. After the pre-computation, the calculated carries from each column and the outputs of 4 bit Vedic modules are placed as shown in Figure 5 and XORed to obtain the final product P [15:0].The output gives the final 16 bit product which is obtained in a parallel mechanism instead of sequential mechanism.

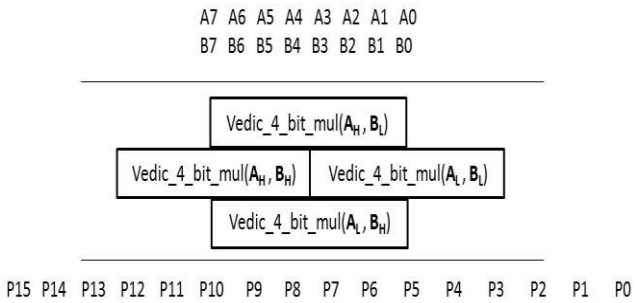

Figure 4: 8 bit Vedic Multiplication

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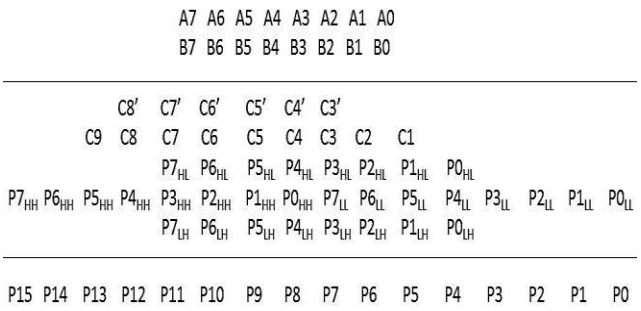

Figure 5: 8 bit Vedic Multiplier with expanded 4 bit module

4. RESULTS

The synthesis of conventional & Vedic multiplier digital circuits was implemented using Verilog coding with the help of Cadence Encounter RTL Compiler in 180nm technology. The physical Design for the multipliers was obtained using Cadence Encounter RTL-to-GDSII System. The input to the tool was the netlist file generated from the Cadence Encounter RTL Compiler. The remaining parameters and specifications used were standard values already specified within the tool. While inputting the Import Design Browser in the Physical Design, the MMMC File is set with both the best and worst case libraries. Delay, Power & Area was estimated from the Physical Designs.

The results obtained from the proposed multiplier are given in the table 1 and 2. Cadence Design Compiler was made use of while synthesis and Cadence Encounter RTL-to-GDSII System for obtaining the Physical Layout using standard 180nm technology. The Physical layout of the proposed multiplier has been shown in Figure 6.

The Power-Delay Product obtained from the Vedic Multiplier is 29.62 % less than the conventional Multiplier. But, the area is 11.54 % more than the conventional design. The delay was 20.94 % less than the Conventional Multiplier delay which is within the target specification i.e., 10 to 30%. The high speed multiplication is achieved with the overhead in area and power.

5. CONCLUSION

In this paper, a high speed and low power architecture for multiplier was proposed using algorithm based on Vedic mathematics. An 8 bit Vedic Multiplier using Urdhva-Tiryagbhyam Sutra has been designed and implemented. The conventional architecture has been integrated with pre-computation logic in which adders were replaced by multiplexers.

The results show that the architecture is 20.94% faster, dissipates 10.99% less power and 29.62 % improvement in terms of power delay product when simulated in 180nm technology. This clearly demonstrates that the primary objective of design of an efficient multiplier and reduction of power-delay product in comparison with conventional multiplier and divider has been achieved. This will surely help increasethe computation speed of MAC and other Arithmetic units in processors, leading to faster execution of instructions.

Table 1: Summary of Post Synthesis Layout Results for Multiplier using Cadence

FACTORS	VEDIC MULTIPLIER	CONVENTIONAL MULTIPLIER	PERCENTAGE CHANGE
DELAY(ns)	4.029	5.967	32.48%
LEAKAGE POWER(μW)	6.79	7.43	8.66%
DYNAMIC POWER(μW)	95.20	86.59	- 9.94%
TOTAL POWER(μW)	101.99	94.02	- 8.47%
TOTAL AREA	1667	1516	- 9.96%
POWER DELAY PRODUCT	410.92	561.04	26.75 %

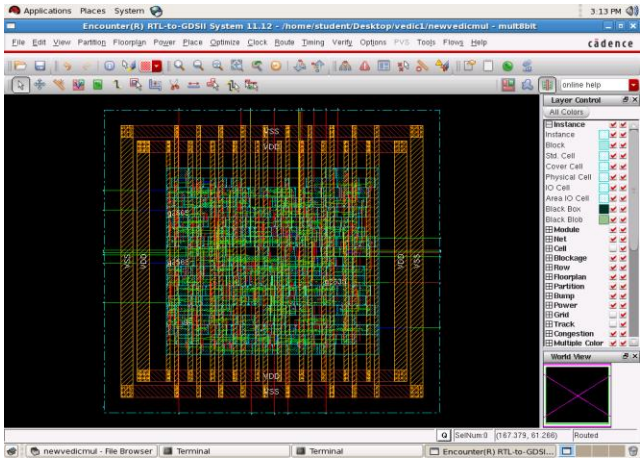

Figure 6: Physical Design Layout of Vedic Multiplier

Table 2: Summary of Post Physical Design Results for Multiplier using Cadence

FACTORS	VEDIC MULTIPLIER	CONVENTIONAL MULTIPLIER	PERCENTAGE CHANGE
DELAY(ns)	7.578	9.585	20.94 %
LEAKAGE POWER(μW)	0.2678	0.4075	34.28 %
SWITCHING POWER(μW)	233.8	188.4	- 24.10 %
INTERNAL POWER(μW)	292.7	402.9	27.35 %
TOTAL POWER(μW)	526.7	591.7	10.99 %
TOTAL AREA(μm^2)	25,642.5	22,989.69	- 11.54 %
POWER DELAY PRODUCT	3,991.33	5,671.44	29.62 %

The power dissipation can be further reduced by employing existing low power techniques like Dynamic Voltage Scaling, operand isolation, use of Multiple Vth devices etc., in the design of multiplier. Reduction of delay can be further improved by designing the pre-computation logic using Quine McCluskey solver in such a way that the number of carries generated in each column will be reduced.

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Attribute Based Encryption for Securing Personal Health Record on Cloud

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Abstract:-- **Personal health record (PHR) has emerged as a patient-centric model of health information exchange. A PHR service allows a patient to create, manage, and control her personal health data in one place through the web, which has made the storage, retrieval, and sharing of the medical information more efficient. Especially, each patient is promised the full control of her medical records and can share her health data with a wide range of users, including healthcare providers, family members or friends. The main aim of this research work is to propose a novel framework of secure sharing of personal health records in cloud computing. Considering partially trustworthy cloud servers, we argue that to fully realize the patient-centric concept, patients shall have complete control of their own privacy through encrypting their PHR files to allow fine-grained access.**

INTRODUCTION

As we know personal health record are very sensitive information which we share with doctor that time it has to securely share and get used by authorized user. For that purpose our system is working which share the attribute of personal health record based on principal of attribute based encryption. Due to this technique the required fields are get assign to authorized party without giving whole information. Advantage of this is the information get secure and second the authorized user concentrate on required data rather than other things. For data we using encryption techniques which are changed based on attribute type .In our system we storing the personal health record on the cloud while it is in encrypted format so it is more secure from outside unauthorized user. Here while taking the input of personal health record it cover almost all field so that this database of personal health is more complete. All field are encrypted based on the type for example frequently used field get encrypted using RSA e.g. name, age. The image format data like x-ray report are get encrypted using DES. And remaining field are get encrypted using AES .e.g. address, pin code no etc.
Personal health record (PHR) is an emerging patient-centric model of health information exchange, which is often outsourced to be stored at a third party, such as cloud providers. However, there have been wide privacy concerns as personal health information could be exposed to those third party servers and to unauthorized parties. To assure the patient's control over access to their own PHRs, it is a promising method to encrypt the PHRs before outsourcing.

Yet, issues such as risks of privacy exposure, flexible access and efficient user revocation have remained the most important challenges toward achieving fine-grained, cryptographically enforced data access control. In this paper, we propose a novel patient-centric framework and a suite of mechanisms for data access control to PHRs stored in semi- trusted servers. To achieve fine-grained and scalable data access control for PHRs, we leverage attribute based encryption (ABE) techniques to encrypt each patient's PHR file. Different from previous works in secure data outsourcing, we focus on the multiple data owner scenario, and divide the users in the PHR system into multiple security domains. A high degree of patient privacy is guaranteed simultaneously by exploiting multi-authority ABE. Our scheme also enables dynamic modification of access policies or file attributes, supports efficient on-demand user/attribute revocation and break-glass access under emergency scenarios.
Personal health record (PHR) is very sensitive information which get share. So to secure from unauthorized user the information stored in encrypted format on cloud. Due to cloud you can use your information from anywhere and on anytime. The data store on cloud database is up to date and easily scalable. In case of medical field the history of the patient health is play major role while deciding current treatment. That's why PHR helps in keeping record at high efficiency. At backend record are stored in encrypted format so it is highly secure. For encrypting the major encryption technique are used which are change based on field demand.

OUR APPROACH

System provides the interface for taking personal health record field store it in encrypted format. It provide interface for storing the Doctor database, other authorities database. When admin and central authority decides the patient assigned to which doctor based requirement. Then

only the doctor can access the patient data. When the patient ,and doctor database get created at that time the auto generated password get send to particular via mail so valid email address should be there further the that password change is depend on that user. Due this system user securely get login to the system. The doctor get patient data only when the central authority and admin approve it. If doctor need more attribute of patient he can make request of that attribute.

Cryptography is method by which we protect sensitive information. Due to this the storage and transmission get secure.
The process of encryption and decryption include few important terms
1. Plane text=the normal English words convening the sensitive information. Which we want to hide.
2. Cipher text=conversion of plain text to some unreadable text which is combination of symbol, character, number. In this we achieve that hide part. No one can get actual meaning of original data.
3. Encryption=In this by using encryption algorithm, key we can convert the plane text to cipher text.
4. Decryption=It's a reverse process in which we can convert cipher text to plain text using decryption algorithm and key.
5. Key=Is combination of symbol, number, character. Plays very important role at process of encryption and decryption.

In the proposed work going to concentrate on tree technique of cryptography 1.RSA, 2.DES, 3.AES.

Following Processes will be involved in Project

• Data Encryption Before Insert Into Cloud

A PHR service allows a patient to create, manage and control her personal health data in one place through the web, which has made the storage, re- trivial and sharing of the medical information more efficient.
A feasible and promising approach would be to en- crypt the data before outsourcing. Basically, the PHR owner herself should decide how to encrypt her files and to allow which set of users to obtain access to each file. A PHR file should only be available to the users who are given the corresponding decryption key, while remain confidential to the rest of users. Furthermore, the patient shall always retain the right to not only grant, but also revoke access privileges when they feel it is necessary.

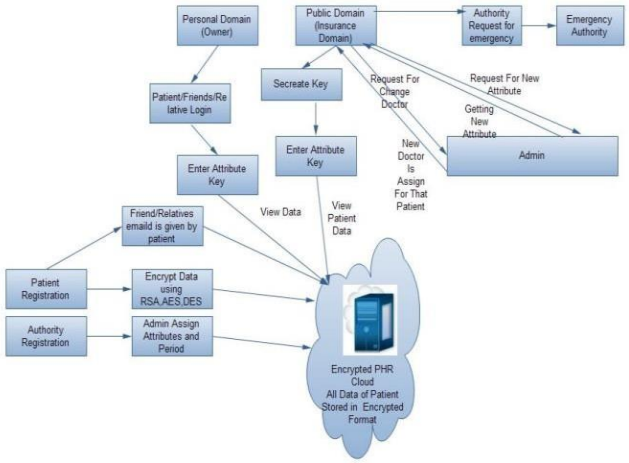
• Grouping of personal and Public Users (Personal and Public Domains)

Each patient is owner of his/her PHR. During registration he/she can gives his/her friend or relative email id that can access his/her data. Patient and email id of friends or relative are present in personal domain while during registration we are assign doctor, nurse to that patient that authorities are present in public domain.

• Deal with Break-glass Access

For certain parts of the PHR data, medical staffs need to have temporary access complete data of patients. The medical staffs will need some temporary authorization (e.g., emergency key) to decrypt those all data. Under our framework, this can be naturally achieved by letting each patient delegate her emergency key to an emergency department (ED).

SYSTEM OVERVIEW



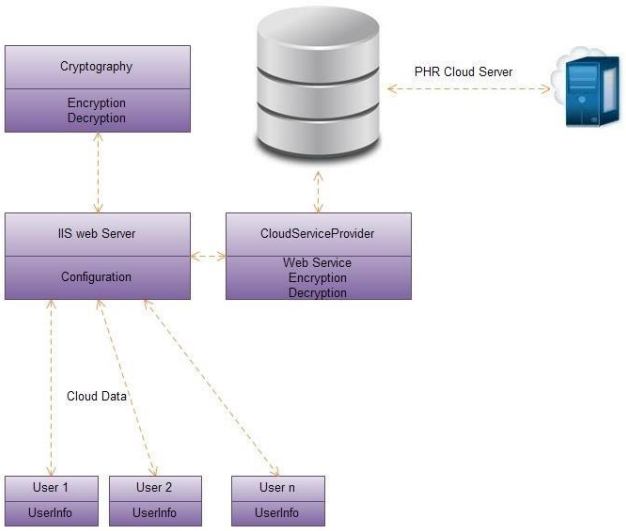
DETAIL SPECIFICATION

Personal health record (PHR) has emerged as a patient-centric model of health information exchange. A PHR service allows a patient to create, manage, and control her personal health data in one place through the web, which has made the storage, retrieval, and sharing of the medical information more efficient. Especially, each patient is promised the full control of her medical records and can share her health data with a wide range of users, including healthcare providers, family members or friends.
PHR system is deal patient information .It update the information based on updates. For deciding new treatment this previous information play very important role .
First is login page where we can perform four operation 1>create new user account for doctor , nurse, health care providers
2>create patient account 3> forgot password
Once the account for new user get created it get approved by two authority 1.central authority 2.admin
After this approval only that new user can login to system to view the required data such login have to choose role as general

There are three category in role 1>General 2>Central authority 3>Admin
We have to select the role and give the appropriate user name, and password to enter into the system .While creating new user account that user decides the username and system generated password get mail to that user email address given while creating the account.
New user account creation form having following fields

User name, First name, last name, email address, phone number, age, address ,country here our system give two option India, America ,Hospital name according to country the list of hospital get change.
Our system cover few hospital in each country in given list , This new user while creating account have to decide the role there few option as Doctor, Nurse, researcher, visitor, therapist, medical lab technologist, dietitian, accountant, emergency authority, police

DETAIL WORKING



MATHEMATICAL MODEL

Encryption
1. Input: Attribute Value (Attr).
2. Get Byte [](B1) of that Attr.
3. Generate Public Key(Pk).
4. Perform Encryption on B1.
5. Convert B1 into string(EAttr).

Decryption
1. Input: Encrypted attribute value(EAttr)
2. Convert EAttr into byte [](B2).
3. Generate Private Key.
4. Perform Decryption on B2.
5. Convert B2 into string(DAttr).

Secrete Key
1. Input : Private Key (see Decryption-3) and No. of Authority (NAuth) =10.
2. Get Length of private key :
Length = PrivateKey.Length.
3. To become private key multiple of NAuth
(i.e.10) padd it by zero (0).
4. M = Length / NAuth Each authority having 'M' no. of bytes.

```
For ( int I = 0 ; I <M.Length ; i++)
                {
        Square = M[i] * M[i] ;
    Hexvalue = Hex ( Square ) ;
    Hexvalue = Hexvalue+ "&"
Fullhexvalue = Fullhexvalue +
            Hexvalue;
                }
```

5. Add this Hex value into database as a secret key.

Attribute Key Generation

1. List = List of Attribute assign to the user(Authorities).
2. For each (string Attribute in List)

```
{
For each(char in Attribute )
{
Value = Value + ch;
    }
        }
```

3. In the Value we get ASCII value of that character.
4. ASCII values save into database

RESULT

1) Client Application with Login System :-
Here User of system Enter The user name and password and see the record in the account. The password is highly secure. While creation of new account the password get mail to particular user.

2) Patient Registration with encryption in PHR Cloud Server:-
When the patient information get imported in system database it is in encrypted format. So that it is more secure. Based on attribute type the encryption techniques get change. Encryption techniques used are 1.RSA,2.DES, 3.AES.

3) Revoke Attributes :-
When any new user registration is done. At that time it get approved from admin and central authority. Then the user

can access the attribute which are assign to them .If they require more attribute he can put request.

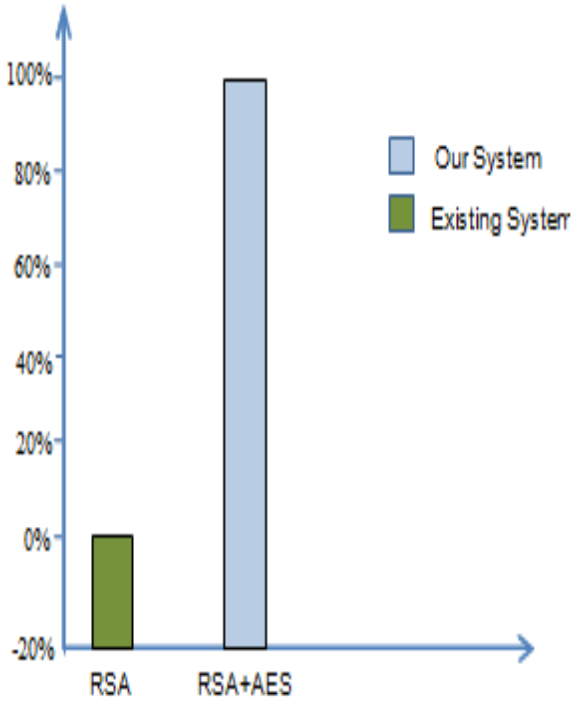
4) Break Glass System :-

In case of emergency the all attribute get to the doctor based on condition which are get assigned by emergency authority.

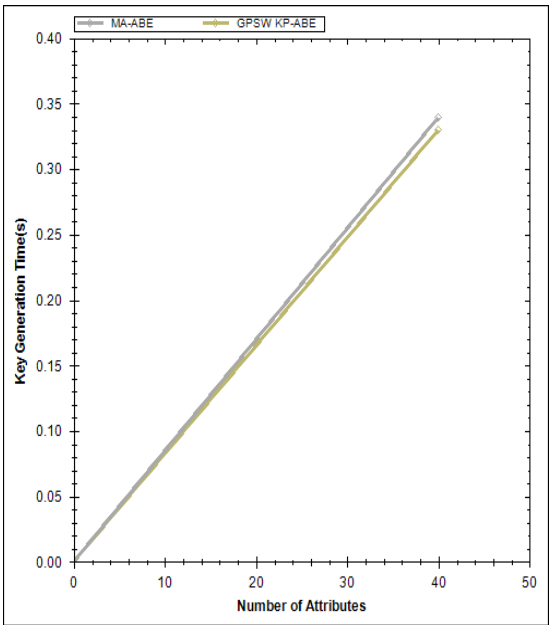
Comparative Study

RSA+AES:-RSA algorithm is inefficient for searching due to encryption of same input produces different output. So when we search, it does not produce exact result. It just prompts "Match not found". Although there is a record in database. So the best solution is AES algorithm which has good searching efficiency. It creates same result for same input. Apart from this there are more innovative changes in other module than existing system

Performance Graph



The existing system uses the RSA (Rivest Shamir Aldeman) encryption technique for searching. But result was poor because RSA for searching is not a good solution. It gives each time encryption result different. That's why though patient's record present in database then also it gives 'not available' as a result. So our system uses AES (Advanced Encryption Standard) algorithm for searching which is very efficient and give exact result. So searching is fast and accurate



Key Generation Time

In the encryption and decryption key generation is playing very important role. The security of algorithm is based on key generation factor. While generating key, the key generation time and number of attribute play role to decide efficiency.

In KP-ABE(Key Policy –Attribute based encryption), during registration of each authorities key is generated and that is too long so it takes more time. While in MA-ABE(Multi authority attribute based encryption) for each authority having different key and it is shorter than KP-ABE so it takes less time than KP-ABE. In KP-ABE key is generated by considering all authorities while in MA-ABE key is generated by considering only registering authority not all authorities.

Algorithm	Key length
RSA(Rivest Shamir Aldeman)	>1024 bits
AES(Advanced Encryption Standard)	56 bit
DES(Data Encryption Standard)	138, 192, 256 bits

Encryption Time:

In encryption time there is consideration of only RSA. RSA generate key which is too long and after generating key, it will encrypt requested data. But when we use RSA+AES+DES , AES and DES use symmetric key cryptography so it will take less time for encryption than RSA Asymmetric Key.

Decryption Time:

In decryption time, RSA needs both keys public and private. Therefore for each request it need to generate both keys so it takes times for decryption but when we use

RSA+AES+DES algorithm AES and DES are symmetric key cryptography algorithm then need only one key for encryption and decryption so it takes less time than only using RSA.

CONCLUSION

In this way research is helpful for efficient and secure access of sensitive Personal Health Record(PHR). In database the personal information get store using encryption techniques that is why it is more secure and other advantage is based on attribute type the encryption technique get change so that it get more secure and efficient. The break glass is other more powerful feature of this system. The system a provide the simple interface which cover all the important attributes of Personal Health Record (PHR). This system is helpful for all the user which are in different role

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DSP Accelerator Architecture Using Carry-Save Arithmetic

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***Abstract*:-- A high performance data path to implement DSP kernels is introduced in this paper .Hardware acceleration has been proved an extremely promising implementation DSP domain. We present a novel accelerator architecture comprising flexible computational units for the execution of a large set of operation templates in DSP kernels. Carry Save method has been implemented to improve the performance of the accelerator while computing more bits. Advanced arithmetic design concepts, i.e., recoding techniques, are utilized enabling CS optimizations to be performed in a larger scope than in previous approaches. Accelerator architecture delivers average gain compared with the state-of-art flexible datapaths.**

***Index Terms*— Arithmetic optimizations, carry-save (CS) form, datapath synthesis, flexible accelerator, flexible datapath operation chaining,recoding techniques.**

I. INTRODUCTION

Latest embedded systems aim at high speed performance and solving the complexity of digital signal processing (DSP) functions through specialized hardware accelerators [1]. Though application-specific integrated circuits (ASICs) are ideal acceleration solution for performance and power, they also leads to increased silicon complexity, as complex ASICs are needed to accelerate various kernels. Many researchers had found to increase ASICs' flexibility without significantly compromising their performance.

Flexible datapaths [2], [4], [6], [7], [10] are used to flow graph (DFG) of a kernel. Design decisions have high impact its efficiency. Existing works mainly exploit architecture-level optimizations, e.g., increased instruction-level parallelism (ILP) [2]–[5], [7] and operation chaining. The domain-specific architecture of [5] and [9] efficiently map primitive or chained operations in the initial data-vary the type and number of computation units for a customized design structure. Recently, aggressive operation chaining have been implemented for the computation of entire subexpressions using multiple ALUs with various arithmetic features.

The above described architectures exclude arithmetic optimizations during the architectural synthesis and consider them only at the internal circuit structure of primitive components, e.g., adders, during the logic synthesis [11].The [12]–[14] arithmetic optimizations at higher abstraction levels than the structural circuit have significant impact on the datapath performance. In [12], timing-driven optimizations based on carry-save (CS) arithmetic were performed at the post-Register Transfer Level (RTL) design stage.Verma et al. [14] developed modifications on DFG to maximize the use of CS arithmetic. The aforementioned CS optimization approaches target inflexible datapath, i.e., ASIC, implementations. Recently, Xydis et al. [6], [7] proposed a flexible architecture combining the ILP and pipelining techniques with the CS-aware operation chaining. However, all the above solutions feature a strong drawback, i.e., CS optimization is bounded to merge only additions/subtractions. A CS to binary conversion is inserted before each operation which differ from addition/subtraction, e.g., allocating multiple CS to binary conversions heavily degrades performance due to time-consumptions in carry propagations.

In this paper, we propose a high-performance architectural scheme for the generation of flexible DSP accelerators by grouping optimization techniques from both the architecture and arithmetic levels of abstraction. We propose a flexible datapath architecture that exploits CS optimized templates of chained operations that comprises of flexible computational units (FCUs). It delivers average gain up to 61.91% in area-delay product and 54.43% in energy consumption compared to state-of-art flexible datapaths [4], [7], managing efficiency toward scaled technologies.

II. CARRY-SAVE ARITHMETIC : MOTIVATIONA LOBSE RVAT I ONS AND DRAWBACKS

CS concepts [15] has been widely used to construct arithmetic circuits having high performance and to eliminate carry-propagation chains. They have multiple input additive operations (i.e., chained additions in the

initial DFG), mapping onto CS compressors. The goal is to widen the CS computation within the DFG. A multiplication node is inserted in the DFG, either from CS to binary conversion [12] or the DFG is transformed using the distributive property [14]. CS optimization have limited impact on DFGs e.g., filtering DSP applications.

In this brief, we solve the limitation by making use of the CS to modified Booth (MB) [15] and recoding each time a multiplication within a CS-optimized datapath. Thus, the

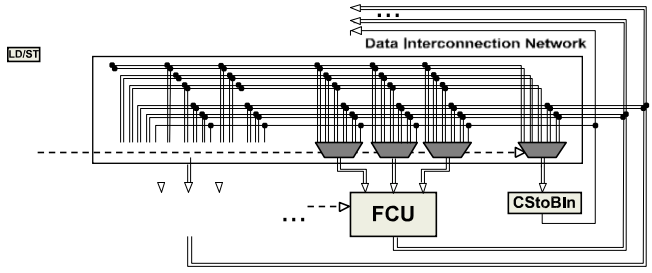


Fig. 1. Abstract form of the flexible datapath.

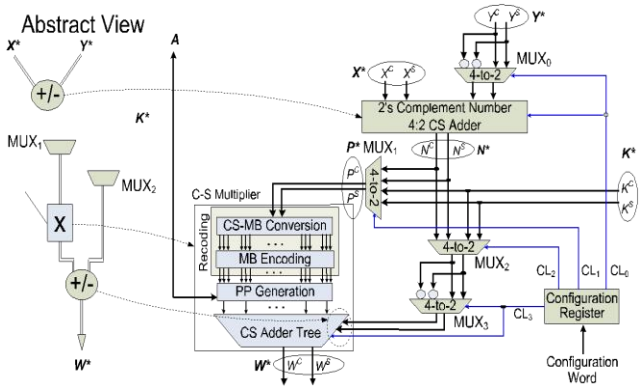


Fig. 2. FCU.

computations are processed using CS arithmetic. Without using any intermediate carry-propagate adder the operation in the targeted datapath are carried in CS to binary conversion,for enhancing the performance.

III. PROPOSE DFLEXIBLE ACCELERATOR

The flexible accelerator architecture is shown in Fig. 1. Each FCU operates 16 bit operand directly on CS operands and produces output in the same form1 for reuse of results obtained. Such a bit-length is adequate for the most DSP datapaths [16]. But the architectural concept of the FCU are also adapted for smaller or larger bit-lengths. The number of FCUs arebased on the ILP and area constraints. The CStoBin module is a ripple-carry adder and converts the CS form to the two's complement one. The register bank consists of scratch registers, used for storing intermediate results and sharing operands among the FCUs. Different DSP kernels (i.e., different register allocation and data communication patterns per kernel) can be mapped onto the proposed architecture using post-RTL datapath interconnection sharing techniques [9], [17], [18]. The control unit drives the overall architecture (i.e., communication between the data port and the register bank, configuration words of the FCUs and selection signals for the multiplexers) in each clock cycle.

A. Structure of the Proposed Flexible Computational Unit

The structure of the FCU (Fig. 2) designed are used for high-performance flexible operation chaining based [4], [7]. Each FCU can be configured to any of the T1–T5 operation templates shown in Fig. 3. The FCU also enables intratemplate operation chaining by fusing the additions

1 The FCU operates on either CS or two's complement formatted operands

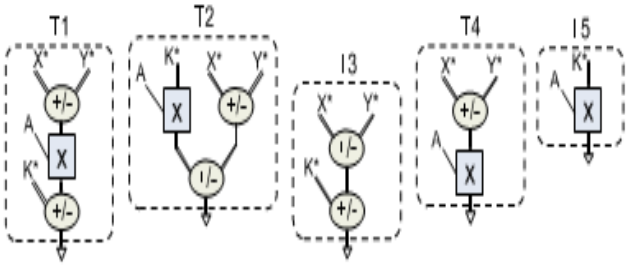


Fig. 3. FCU template library.

performed before/after the multiplication and performs any partial operation template of the following complex operations:

$W^* = A \times (X^* + Y^*) + K^*$ (1)	
$W^* = A \times K^* + (X^* + Y^*)$. (2)	

The following relation holds good for all CS data:

$$X^* = \{X^C, X^S\} = X^C + X^S.$$

The operand A is a two's complement number. The control signals of the multiplexers MUX1 and MUX2 (Fig. 2) are set for the alternative execution paths in each FCU. The output of

MUX_0 Y^*

when $\text{CL}_0 = 0$ (i.e., $X^* + Y^*$ is carried out) or Y^*

when $X^* - Y^*$ is required and $\text{CL}_0 = 1$.

The two's complement 4:2 CS adder produces the output $N^* = X^* + Y^*$ when the input carry equals 0 or the $N^* = X^* - Y^*$ when the input carry equals 1.

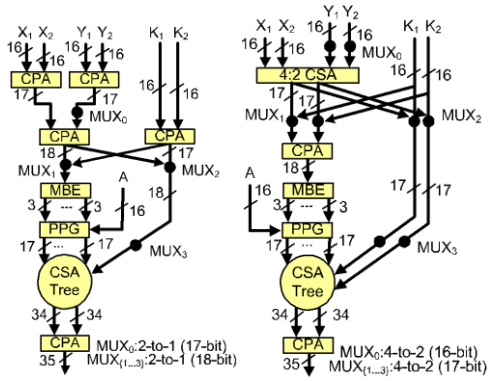
The MUX_1 specifies if $N*$ (1) or $K*$ (2) is multiplied with A.

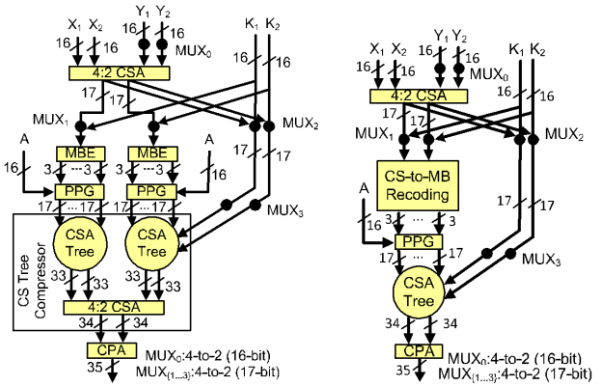
The MUX_2 specifies if $K*$ (1) or $N*$ (2)
is added with the product. The multiplexer MUX3 consists of the output from MUX2 and its 1's complement and outputs the former one when an addition with the multiplication product is
required (i.e., CL3 = 0) or the later one when a subtraction is carried out (i.e., CL3 = 1). The 1-bit ace for the subtraction is added in the
CS adder tree.
The multiplier consists of CS-to-MB module, [19] to recode the 17-bit P ∗ in its MB digits with minimal carry propagation. The product consists of 17 bits. The compensation method is included to eliminate the error during truncation [20].

B. DFG Mapping Onto the Proposed FCU-Based Architecture

In order to map DSP kernels onto the proposed FCU-based accelerator, the semiautomatic synthesis methodology [7] has been adapted. Firstly, a CS operation is performed onto the original DFG, merging nodes of multiple chained additions/subtractions to 4:2 compressors to form FCU template operations (Fig. 3). The designer opt for the FCU operations having the DFG with minimized delay.
Number of FCUs is fixed, a resource-constrained scheduling is considered with the available FCUs and CStoBin modules determine the resource constraint set. The clustered DFG is assigned to a specific control step. A list-based scheduler [21] has been adopted considering the mobility2 of FCU operations according to descending mobility. These operations are bound onto FCU instances and proper bits are generated. After completing register allocation, a FSM is generated to implement the control unit of the overall architecture

2 Mobility: The ALAP-ASAP difference of the FCU operations.





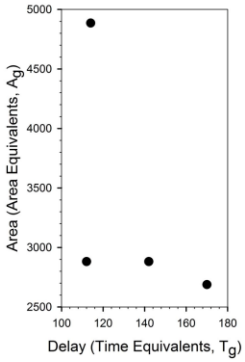


Fig. 4. Typical chaining of addition–multiplication–addition operations reflecting T1 template of Fig. 3. Its design is based on (a) two's complement arithmetic, (b) CS optimizations of [12], (c) CS optimizations with multiplication distribution [14], and (d) incorporating the CS-to-MB recoding concept. (e) Positioning of the proposed approach with respect to the two's complement one and the CS optimizations based on [12] and [14].

IV. THEORETICAL ANALYSIS

Based on the unit gate model, we provide the theoretical analysis of the proposed approach. Fig. 4(a) shows the AMADFG when all operands are in two's complement form. Fig. 4(b) shows CS optimizations of [12] . Fig. 4(c) illustrates how [14] distributes the multiplication operation over the CS formatted data. The Fig. 4(d) incorporates the CS-to-MB recoding unit. We assume 16-bit input operands for all the designs and, without loss of generality, we do not consider any truncation concept during the multiplications. Fig. 4(e) shows the positioning of the proposed approach based on [12] and [14].The proposed design solution is the most effective among all the design alternatives.

V. EXPERIMENTAL EVALUATION

A .Proposed FCUs circuit level exploration

A circuit-level comparative study was conducted among the proposed FCU, the flexible computational component (FCC) of [4] and the reconfigurable arithmetic unit (RAU)4 of [7] in scaled technology nodes.bits of the respective two's complement form in scaled .The scaling impact on the performance does not eliminate the benefits of using CS arithmetic. The three units considered were described in RTL using Verilog code .The CSA tree and the adders and multipliers of the FCC were imported from the Synopsys Design Ware library [11]. We used Synopsys Design Compiler [11] to synthesize the examined units and the TSMC 130, 90, and 65nm standard cell libraries.5 Each unit is synthesized with the highest optimization degree at its critical clock period and 20 higher ones with a step interval of 0.10 ns. Fig. 5 reports the area complexity of the evaluated units

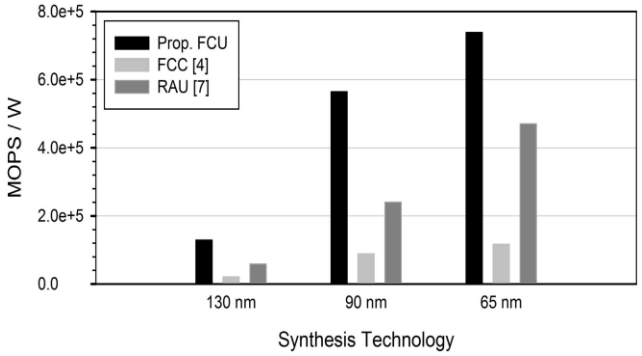


Fig. 6. MOPS/W values of FCUs at the lowest achievable clock periods with respect to the synthesis technology.

FCC, and the RAU operate without timing violations starting at 2.98, 4.83, and 1.99 ns, respectively. At 90 nm, the proposed FCU, the FCC, and the RAU are timing functional starting at 1.66, 2.46, and 1.01 ns, respectively .At 65 nm, the proposed FCU, the FCC, and the RAU start operating without timing violations at 1.13, 1.68, and 0.67 ns, respectively .Fig. 5 shows that the proposed FCU outperforms the FCC in terms of critical delay and area complexity, but presents larger values for these metrics than the RAU in all the technology nodes. However, RAU's flexible pipeline stage (FPS) [7] features limited ability in carrying out heavy arithmetic operations as shown from the mega operations per second/watt (MOPS/W)6 evaluation in Fig. 6.

Fig.6 shows the MOPS/W values for the proposed FCU, the FCC, and the RAU at their critical clock periods with respect to the synthesis technology. For each unit, we consider the templates

VI. CONCLUSION

In this detailed description, we have proposed a flexible accelerator architecture that the incorporates CS arithmetic operations for fast switching of addition and multiplication operations. Thus the flexible accelerator is able to operate on both conventional two's complement and CS-formatted data, enabling high degree of computation. Theoretical and practical analyses have shown that the above solution provides an effective design tradeoff point with optimized latency/area and energy implementations. This accelerator enhances the performance than anyother,providing better reliability.

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A Low Power and Area Efficient Symmetric Stacking Counter

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***Abstract*:-- A very high speed, power and area efficient counter is required in many applications viz. digital memories, ADCs, DACs, microcontroller circuits, frequency dividers, frequency synthesizer etc. Less area, high speed and low power consumption may be met by reducing the size of hardware. Hence, as the applications are increasing, demand for smaller size and longer life batteries increases. This project derives area, power and speed efficient structure counter based on a VLSI design. It uses multiplexer based full adder circuit, which group all of the "1" bits together. In the proposed structure, one XOR block in the conventional full adder is replaced by a multiplexer block so that the critical path delay is minimized. Proposed system is coded in Verilog and simulated using Xilinx 12.1.**

***Keywords*— Xor Block; Critical path;Multiplxer.**

I. INTRODUCTION

Very-Large-Scale Integration (VLSI) is the process of creating an Integrated Circuit (IC) by combining thousands of transistors into a single chip. VLSI began in the 1970s when complex semiconductor and communication technologies were being developed. The microprocessor is a VLSI device. Before the introduction of VLSI technology, most ICs had a limited set of functions they could perform. An electronic circuit might consist of a CPU, ROM, RAM and other glue logic. VLSI lets IC designers add all of these into one chip.The electronics industry has achieved a phenomenal growth over the last few decades, mainly due to the rapid advances in large scale integration technologies and system design applications. With the advent of very large scale integration (VLSI) designs, the number of applications of integrated circuits (ICs) in high-performance computing, controls, telecommunications, image and video processing, and consumer electronics has been rising at a very fast pace.

II. LITERATURE SURVEY

A. Design Of 8-4 And 9-4 Compressors Forhigh Speed Multiplication

Marimuthu, R., Dhruv Bansal, S. Balamurugan and P.S. Mallick presents higher order compressors which can be effectively used for high speed multiplications. The proposed compressors offer less delay and area. But the Energy Delay Product (EDP) is slightly higher than lower order compressors. The performance of 8×8, 16×16 and 24×24 multipliers using the proposed higher order compressors has been compared with the same multipliers using lower order compressors and found that the new structures can be used for high speed multiplications.

B. Low-Voltage Low-Power Cmos Full Adder

D.Radhakrishnan presents a Low-voltage low-power CMOS full adder. Low power design of VLSI circuits has been identified as a critical technological need in recent years due to the high demand for portable consumer electronics products. In this regard many innovative designs for basic logic functions using pass transistors and transmission gates have appeared in the literature recently. These designs relied on the intuition and cleverness of the designers, without involving formal design procedures. Hence, a formal design procedure for realizing a minimal transistor CMOS pass network XOR-XNOR cell. That is fully compensated for threshold voltage drop in MOS transistors, is presented. This new cell can reliably operate within certain bounds when the power supply voltage is scaled down, as long as due consideration is given to the sizing of the MOS transistors during the initial design step. A low transistor count full adder cell using the new XOR-XNOR cell is also presented.

III. EXISTING SYSTEM

FAST BINARY COUNTERS BASED ON SYMMETRIC STACKING

Christopher Fritz and Adly T. Fam presents a binary counter design is proposed. It uses 3-bit stacking circuits, which group all of the "1" bits together, followed by a novel symmetric method to combine pairs of 3-bit stacks into 6-bit stacks. The bit stacks are then converted to binary counts, producing 6:3 counter circuits with no xor gates on the critical path. This avoidance of xor gates

results in faster designs with efficient power and area utilization. In VLSI simulations, the proposed counters are faster than existing parallel counters and also consume less power than other higher order counters. Additionally, using the proposed counters in existing counter-based Wallace tree multiplier architectures reduces latency and power consumption

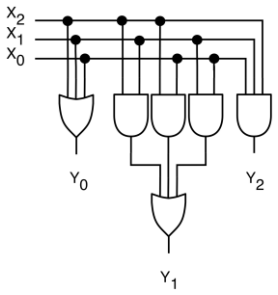


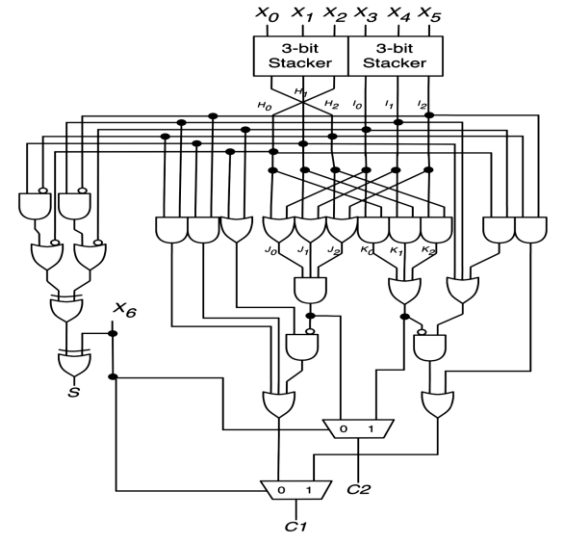
Figure : Three-Bit Stacker Circuits

Given inputs X0, X1, and X2, a 3-bit stacker circuit will have three outputs Y0, Y1, and Y2 such that the number of "1" bits in the outputs is the same as the number of "1" bits in the inputs, but the "1" bits are grouped together to the left followed by the "0" bits. It is clear that the outputs are then formed by

Y0 = X0 + X1 + X2
Y1 = X0X1 + X0X2 + X1X2
Y2 = X0X1X2.

Namely, the first output will be "1" if any of the inputs is one, the second output will be "1" if any two of the inputs are one, and the last output will be one if all three of the inputs are "1." The Y1 output is a majority function and can be implemented using one complex CMOS gate. The 3-bit stacking circuit is shown in Figure.

Figure Counter Based On Symmetric Stacking



The symmetric stacking method can be used to create a 7:3 counter as well. The 7:3 counters are desirable as they provide a higher compression ratio. The design of the 7:3 counter involves computing outputs for C1 and C2 assuming both X6 = 0 (which matches the 6:3 counter) and assuming X6 = 1. We compute the S output by adding one additional XOR gate.

If $X6 = 1$, then $C1 = 1$ if the count of $X0, \ldots, X5$ is at least 1 but less than 3 or 5, which can be computed as

$$C1 = (H0 + I0)J0\,\overline{J1}\,J2 + H2\,I1 + H1\,I2.$$

Also, $C2 = 1$ if the count of $X0, \ldots, X5$ is at least 3

$$C2 = J0\,J1\,J2. .$$

Both versions of C1 and C2 are computed and a mux is used to select the correct version based on X6. Note that this design therefore has muxes on the critical path. The 7:3 counter design is shown in Figure.

IV PROPSED SYSTEM

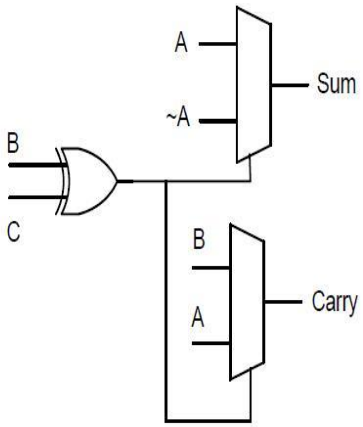


Figure: Proposed Full Adder

This can be implemented by using second MUX with XOR output as selection line. Since XOR employs most of the power consumption in the adder circuit, by reducing number of XOR gates, power consumption of the full adder can be reduced. The proposed full adder is applied into array multiplier reduction stage to validate the effectiveness. In array structure the partial products is divided into certain levels. In each level, whenever there are three bits, full adder has to be used.

Out of the three inputs, one input and its complement is provided as inputs to the first multiplexer. The other two inputs are given to XOR gate, the output of which will act

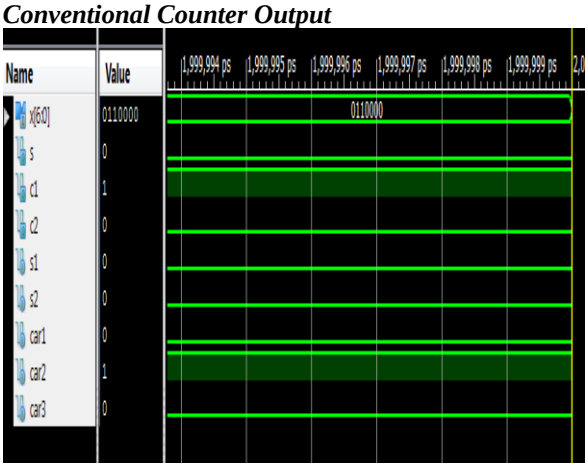
as a select line to both the multiplexers. The inputs of the second multiplexer are, the bits other than the carry bit.
This unique way of designing leads to the reduction of the switching activity, which in turn reduces the power. In addition to this, the critical path delay is also reduced compared to the existing designs discussed in literature, which leads to reduction in delay and thus increasing the speed. Operation of the proposed full adder can be explained as follows:

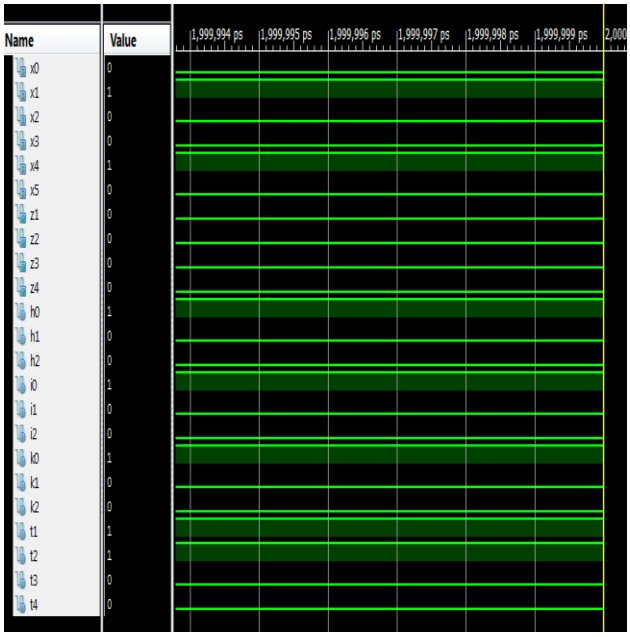
a) When both B and C are zero or one, sum = A;
b) When either of B or C is one and another is zero, sum=A;
c) When both B and C are zero or one, carry= B;

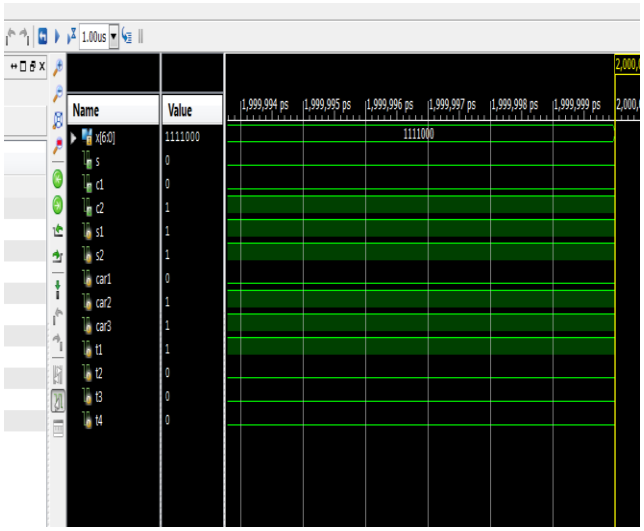
When either of B or C is one and another is zero, carry=A;l

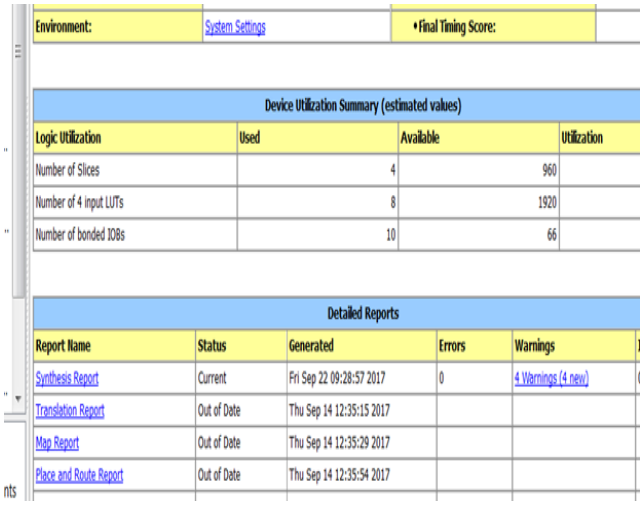
V SIMULATION RESULTS

1. Conventional Counter Output









VI CONCLUSION

In this brief, a design method for area effective and speed efficient counter is designed and simulated. A binary counter based on a novel symmetric bit Sum and carry calculation approach is proposed. We showed that this counting method can be used to implement 6:3 and 7:3 counters, which can be used in any binary multiplier circuit to add the partial products. We demonstrated that 6:3 counters implemented with this NFA technique achieve higher speed than other higher order counter designs while reducing power consumption. Lower area, high speed and low power consumption may met by reducing size of hardware. Hence as the applications are increasing, demand for smaller size and longer life batteries increases. This project derives area, power and speed efficient structure counter for VLSI designing as the size of chip is reducing day by day. It uses mux based full adder circuit, which group all of the "1" bits together In the proposed structure, one XOR block in the conventional full adder is replaced by a multiplexer block so that the critical path

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Tainted Seed Test Using Digital Image Processing

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***Abstract*:-- Today's farmers face a major problem in detecting tainted seeds with the naked eye. The proposed project detects the percentage of both pure and impure seeds by using digital image processing technique. As India is an agriculture based country, a thought came up as to what a Computer Science undergraduate could do for the farmers. Due to the increased amount of counterfeit seeds, there are huge losses faced by the farmers who eventually are committing suicides. In order to eradicate this, a project has been developed that helps detect different seed varieties apart from the required ones in a sample of seeds. This requires a web camera to capture the images of the seeds and the results are generated immediately stating what percentage of the seeds from the seed lot belong to which variety and also if there are any unwanted ODVs. This project can be extended in future to develop a mobile application where a user can capture an image of a seed sample from a mobile device and the application generates the report regarding the purity and impure percentages.**

Keywords: **Tainted, Digital Image Processing, ODVs**

I. INTRODUCTION

In our work, we study the purity of a sample of seeds. Till date purity detection of seeds has been restricted to be in the hands of technicians. They perform testing at various levels at their laboratories. This process is performed manually and hence takes a minimum time of two weeks to generate results. These are undertaken by government run organization by the name A.P.Seeds within the state of Andhra Pradesh. Such organizations are all over India. The primary focus of them is to test the purity of the seed, whether it is useful for cultivation and procurement by the farmers. They receive processed seeds, which means that the seeds are separated from the nodal roots. These are taken as samples and observed under few circumstances.

The testing process is a four step process that takes two weeks of time to generate results. It is a complete manual process done taking in the physical properties of the seed into consideration. There is no technical involvement in the training and testing of the seeds. So this process is time taking and strenuous. In this paper, testing the purity of a seed sample is achieved using digital image processing technique through which an image captured of a seed sample detects what varieties of the seeds are mixed. The seed samples are first trained by taking into consideration the length to breadth ratios. By using edge detection the edges of the seed are detected and the type of the seed is detected. As India is an agriculture based country and the farmers have been facing many troubles due to fake and impure seeds, this project helps them a lot in easily detecting the fake seeds.

2.LITERATURE SURVEY

Antonio Dell'Aquila"[2009][1] .New Perspectives for Seed Germination Testing Through Digital Imaging Technology", Computer image analysis technology enables a plant seed to be viewed as a digital image that can be regarded as a two-dimensional object which can be measured in size, shape and color density. Seed changes its biological structure passing from a quiescent stage to a proliferating one, and any morphological variation can be associated with the corresponding variation of seed geometry and color space components. Future perspectives are addressed to design comprehensive biological models that may contribute to studying seed quality patterns possibly integrated with those proposed for other biological systems. This process is not effective in detecting the purity of the seeds. Hence this is not suitable for identifying the pureseeds.

FranciscoGuilhien Gomes Junior, Helena Maria Carmignani Pescarin Chamma and Silvio Moure Cicero,[2014][2] "Automated image analysis of seedlings for vigor evaluation of common bean seeds", 2014 [2]. The objective of this experiment was to determine the number of days necessary to calculate the vigor index of common bean seeds using an automated system of seedling images, and compare its results with the traditional tests of seed vigor. Samples of five seed lots of the IAC Carioca cultivar were submitted to germination, accelerated aging, seedling emergence in sand and electrical conductivity tests. The parameters measured by the Seed Vigor Imaging System were mean seedling length, growth (ratio of the actual seedling growth to the maximum possible growth), uniformity of growth and the vigor indexes based on different growth/uniformity ratios are computed from

scanned images of three- and four-day-old seedlings. Results of SVIS® analyses were consistent with the physiological potential evaluations provided by the traditional tests of seed vigor. This process is not effective in detecting the purity of the seeds. Hence this is not suitable for identifying the pure seeds.

S.Khunkhett,T.Remsungnen[2014][3] "Non-destructive identification of pure breeding Rice seed using digital image analysis". In this paper, digital image analysis is applied for non-destructive identification of pure breeding Rice seed. The shape and color of rice are the important features in agricultural breeding and quality testing. The similar surface color of the seeds makes it difficult for farmer to identify rice seeds. Based on segment images and RGB color features, an automatic classification method is presented in this paper. Scanner is used to capture images. The ratio between segment images and varieties of different shades RGB histogram are then calculated. The rule of classification "Khao Dawk Mali 105" between pure breeding Rice seed and impure breeding Rice seed are created. The correct classification rates for two steps are: good rice seeds 98% and pure breeding rice seeds 82%. This information could be used as a signal to farmer decided to switch to a new generation seeds. This process is not effective in detecting the purity of the seeds. Hence this is not suitable for identifying the pure seeds.

José Luís de Marchi1, Silvio Moure Cicero1,[2016][4]."Use of the software Seed Vigor Imaging System (SVIS®) for assessing vigor of carrot seeds". Seed vigor has traditionally been evaluated by physiological, biochemical and stress tolerance tests. The aim of this study was to verify the efficiency of computerized seedling image analysis by Seed Vigor Imaging System (SVIS®) to detect differences in vigor between carrot seed lots as compared to those provided by traditional vigor tests. Seeds from seven lots from the Brasilia cultivar were subjected to a germination test, first count of germination, speed of germination, accelerated aging with saline solution and seedling emergence; furthermore, a vigor index, growth index and uniformity index were determined by the Seed Vigor Imaging System (SVIS®) during four evaluation periods. The results obtained by the computerized seedling analysis (vigor index and growth index) show that SVIS® is efficient in assessing carrot seed vigor. This process is not effective in detecting the purity of the seeds. Hence this is not suitable for identifying the pure seeds.

Ms. Mrinal Sawarkar1 , Dr. S.V.Rode2[2017][5],"Digital Image Processing Applied to Seed Purity Test", The paper used digital image processing techniques for purity test of various seeds. Physical purity analysis tells us the proportion of pure seed component in the seed lot. The computer software to predict seed image from seed is developed. People can take pictures from mobile phone and easily transform and process by using a computer system. Thus, this project employs a digital camera to capture the image. This paper studies various digital image processing techniques which reduces the labor input required to evaluate seedling growth rate and increases the accuracy of these measurements. This process is not effective in detecting the purity of the seeds. Hence this is not suitable for identifying the pure seeds.

3. RELATED WORK

Till date, the process for testing the purity of seeds is by performing few steps manually by the laboratory technicians who are erudite about the seed structure and its properties. They get processed seeds which means that the seeds are separated from their nodal roots and stored in dry places. The testing takes place on these seeds in the following procedure.

a) Germination: Germination is a process where few seeds of one variety are picked randomly and spread over a sheet that acts like soil and then kept in a germinator which is a device that lets the seed grow into a sapling in two weeks time. It can be checked after one week and after two weeks the percentage of success can be derived.

b) Moisture: Moisture in a sample of seeds can be detected using a device that measures the moisture which should be less than 13.

c) Purity: Purity of a seed sample is tested manually by separating seeds of different varieties according to their length to breadth ratio and color, shape and size.

d) ODVs: ODVs is an abbreviated form for Other Distinctive Varieties which means the seeds are tested if they are mixed with other varieties of seeds or sand, stone and other unwanted properties.

4. PROPOSED SYSTEM

The proposed application detects the percentage of pure seeds by using digital image processing technique. The picture taken is passed through Guassian filter that reduces noise which means that the image is passed through few filters to sharpen the details. Then the image is converted into gray scale and feature extraction is done which detects the length to breadth ratio. Using edge detection technique, the borders of the seeds are detected and compared with those samples stored in the database. Based on the purity percentage, a report is generated that tells what percentage of the seeds in the sample belong to which variety.

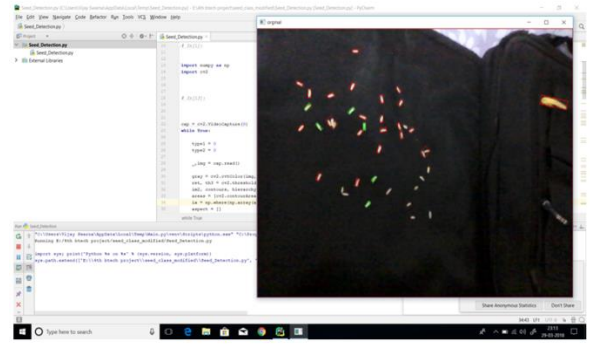
Advantages in Proposed System

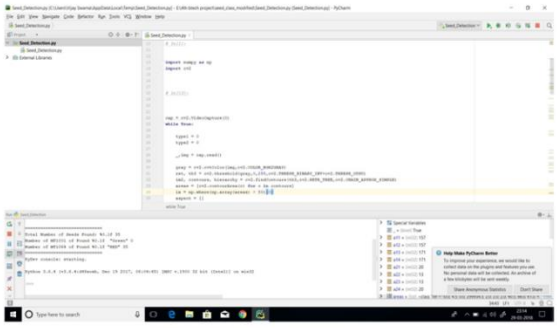
• Fast retrieval of the report which is time saving.
• Money saving as no technician or labour is required.
• Energy saving as no physical work is required.
• Accurate or precise diagnosis.
• This is not only restricted to India but also has a large scope to extend its hands to other agriculture based countries as well.

5. ALGORITHM

1. capture (image)//using a web camera
2.convert Grey Scale (capturedImage)//covert the captured image to greyscale
3.extract Feature (capturedImg)//Extract the features of seeds such as Length and Breadth
4.calculate LB Ratio(seeds)//calculate length and breadth ratio
5. Generate Report

6. EXPERIMENTAL RESULTS





7. CONCLUSION

The new Digital Image Processing platform constructed for detecting the tainted seeds lets easy detection of any ODVs mixed in the seed sample. The report generated gives accurate results by which the percentage of the different seed varieties in the sample are detected easily and within no time. Hence the required seeds can be identified accurately. Thus this saves a lot time in identifying the purity percentage of a sample of seeds. All we need is a webcam and python running on our desktop and the results are in front of us in no time.

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Image Distortion in Restricted Places Using Matlab and Arduino

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***Abstract*:-- Digital cameras, Smart phones, Tablets, Laptops, etc. are commonly used all around the universe. These gadgets use charge coupled device (CCD) sensor which is called as the heart of a camera. It is responsible for converting the light falling on it into equivalent electric charge and then process it into an electronic signal for capturing image. Places such as banks, courts, theatres, museums, military forces, etc where people are prohibited to capture the images of the sites which are illegal (i. e) interfering with the privacy or security of the proprietor. Our paper aims at a solution for the above which will detect these cameras at that time of capturing images. After detection of the camera, a strong light source (i. e) LASER will be focused onto that particular camera's lens, so that the high lightened image will be distorted due to over exposure of given LASER light. Experiment show that our proposed approach can achieve the state of distorting the image captured in prohibited places where the uniqueness of the pro rietor is taken away by unauthorized person.**

***Keywords*- LASER, CCDSensors, CCTV Camera, Distortion, Neutralize.**

I. INTRODUCTION

It is Supreme Court justices themselves who have been the most vocal opponents of allowing cameras into courtroom. The no-photography policy is not limited just to India. But it is a worldwide phenomenon. Photography is banned at places such as museums, court rooms, shopping malls, industries, defence areas, jewellery stores etc. Eliminating use of cameras in such places improves visitor experience. Preventing photography ensures the gift shop maintains a monopoly on selling images. Banning photography is believes to boost security by preventing thieves or terrorists from visually capturing and pinpointing weakness in alarm systems and surveillance. Also, taking photographs after violates copyright protection. Film industry also suffers 1/3 loss due to movie piracy. Hence, there arises a need to prevent this undesired photography, to avoid this heavy loss. This paper presents solution for this undesired photography to prevent security and privacy of the site. Our solution is based on detecting the camera's that are capturing pictures of the site. After detection of camera's a strong light is focused onto detected camera, which degrades the quality of the captured image, thus rendering the captured photograph useless

We like to propose our system mainly based on the prohibition of capturing unauthorized images. CCTV cameras are almost widely used in many areas like schools, colleges, hospitals, banks etc., for propose of security. But various places like museums, temples, army, navy and air-force. The main role of CCTV is to prohibit people from taking images of unique identities of their own concern. Apart from various restrictions, some people tend to take unauthorized photos without the knowledge of higher authorities which is considered as an offence. So, in this paper, we would like to propose solution for the above case:

All CCTV have IR transmitter module which surrounds a lens of a camera will continuously transmits the IR rays in the field of view. When these IR rays strike on any other camera lens, a white circular speckle is seen in the image seen by our CCTV camera. This white circular speckle can be seen due to the retro reflection [1] this author proposed an idea for the detection of the object & color using image processing algorithms.and Using theory of image acquisition the object is detected. our paper further calculate the axis position of the detected image.[2] this paper explains about image denoishing which helps in removing noise in the captured image. For this purpose our system involves two sections

• Camera lens detection section :
In this section a camera of resolution 1080*720 pixels and IR transmitter module with 36 IR LEDS (850nm) is considered which is at a view range of 90 degree. This camera is interfaced with a laptop or computer using image acquisition tool box called matrices laboratory (MAT LAB).

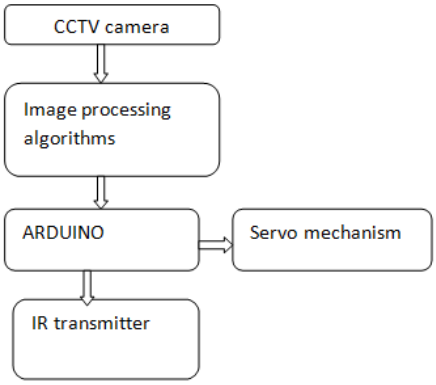
First to check the proper function a video feed is taken from the CCTV. This video will be converted in to a no of

frame using imaqhwinfo command [1] of MATLAB which will further undergo image processing. Now the CCTV camera which is surrounded by a IR transmitter module will emit IR rays in all direction, when these rays strike on any other camera lens a white speckle, will be formed in . This web camera will be interfaced with computer via image acquisition toolbox in MATLAB. The obtained data will be in the image capture by the CCTV. This white color speckle is seen due to retro reflections. It is nothing but returning light with minimum scattering which will be detected by thresholding. The luminance thresholding is also done by MATLAB. Thus after locating the white speckle the centroid and the axis position of the camera lens calculated.

• Neutralising unit :

The next step of the process is neutralizing. The neutralizing unit which consists of strong light source e.g LASER with the controller (arduino) . The serial communication receives axis position through arduino. Arduino will give this control signal to servomechanism. Now, strong light source will mount on servomechanism. When this camera lens is detected by camera detection section, the control signal will be sent to the arduino and servomechanism will rotate in that direction and focus a strong light onto the camera's lens.

Block diagram consists of following parts:



A. CCTV CAMERA

The first stage of any vision system is an image acquisition device. CCTV camera will be used as an image acquisition device for capturing images in photography prohibited areas the form of video. The video will be divided into frames for further processing.

B.IMAGE PROCESSING ALGORITHMS

After acquisition of images from the CCTV cam, position of lens can be detected by identifying the distinct features of the camera lens. This can be done by using different image processing algorithms

C. ARDUINO

Image processing algorithms identifies the camera lens and generates control signal. The control signal will be sent to the Arduino to control the servomechanism movement. The mode of communication between the MATLAB and Arduino will be serial communication [1] via COM Port.

D. SERVOMECHANISM

Servomechanism will operate as per the control signal received by the Arduino board. Servomechanism controls the direction of IR transmitter. It includes the servomotors interfaced with the Arduino board so that IR transmitter can point in each and every direction.

E. IR- TRANSMITTER OR STRONG LIGHT SOURCE

R transmitter or IR LED plays an important role in the camera disabling part. With the control of servomechanism IR transmitter point to the direction of camera and it will reduce the quality of captured image.

The entire algorithm for object detection based on image processing .The first step involved is the

METHODOLOGY:

The process of detecting the presence of camera [1], where used as an acquisition device .The MATLAB command' imaqhwinfo' can be used to get the detail of hardware interface. Thus the whole procedure can be divided into several parts:

A.IMAGE ACQUISITION TOOL

The first task is to get the video feed from the CCTV camera present in that location. The video which is captured by CCTV camera will have continuous resolution of 720*1280 pixels. Now this video will be converted into a number of frames. For that 'getsnapshot' command [1] is used. This converted' n' number of frames will further undergo image processing algorithm. if there is some noise in image From the frames a particular sequence is taken and it is considered for the processing. For consideration if the third frame is chosen, it sequence is taken for processing.

B.DETECTION OF CAMERA

Here the detection of circular shape objects is required for analysis. This circular object detection method is used for the detection of camera lens which is circular in shape. The image processing software such as MATLAB can be used for camera lens detection. Apart from detection of the circularly shaped camera lens the algorithm defines the position of the detected lens.

C. LOCATING CAMERA

When the camera lens is detected from the environment the exact position of lens will be calculated. For locating the centroid of the detected camera lens we have to calculate the value of X-Y axis. According to this value the control signal is given to aurdino for operating servomechanism.

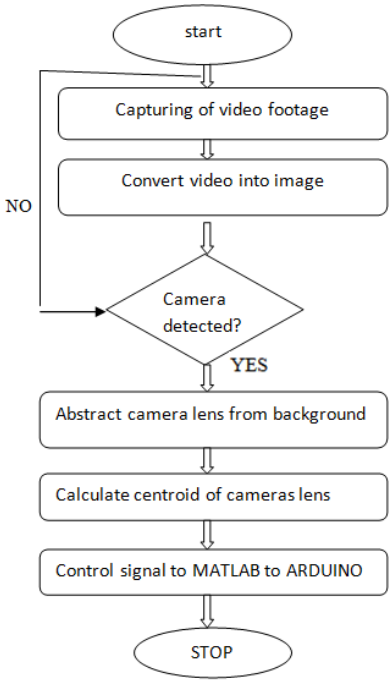
In this section[1] of algorithm, the video converted into image further which is divided into sections.

D.DETERMINING THE AXIS OF THE IMAGE

Using its parameter such as length and width. These parameters can be determined using size command in MATLAB .

E . NEUTRALIZING CAMERA

Servomechanism is important role in neutralizing the detected camera. The first step is to interface the servomechanism with arduino board. In servomechanism a strong point laser is mounted to operate as per the control signal send from the arduino. The laser light have alternative components such as IR transmitters or any other strong light sources. With the help of over exposure property of light, the laser will destroy the quality of image or fine details of image.the requirement of strong laser of any other strong light source is that the intensity of strong light source must be greater than the background light.



CONCLUSION:

The main objective of our paper, is to detect and disable the use of cameras in photography prohibited area using certain algorithm and servo mechanism. The image processing technique will locate the position of various number of cameras in prohibited areas. The axis value of the camera received by the controller. After this, the control signal received from the controller rotates. Now strong light source laser will be focused on the centroid of the camera. So the person gets a distorted image. This is essential in places such as theatre as a reason for prevention piracy. Other than this it includes many applications such as maintaining security at various defence areas, courts, industries, museum, historical and religious monuments, research and development sector etc

FUTURE WORK:

Aim of this work is to prevent unauthorized capture images and videos in restricted areas. The demerit of this paper is that is cannot distinguish between unauthorized and authorized camera. Hence for the work shall involve to capture images from authorized camera. One solution is it can be achieved by attaching a glyph sticker to authorized cameras. The glyph sticker can be placed at some points of focus just near the lens of the authorized camera

For this purpose, first the pattern of the register glyph sticker must be reconigised already using a suitable image processing algorithm.

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Run Time Investigation of Android Application

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Abstract:-- **Since Modern computing systems are adopted with Android operating systems there always a Need for runtime analysis in android, to reduce the gap of suitability with the real-time environments of android. It uses an agreement-based security model to prevent malware from accessing private data and prerogatives. Android universe dominates the many solutions that bear no resemblance. Underlying operating systems requires the analysis of the software platform, with the virtual machines. This paper also presents Android, a variation of Android that aims to provide real-time capabilities to Android as a whole system and the design AppAudit, an efficient analysis framework that can deliver high detection accuracy with significantly less time and memory. This paper presents a new architecture for scheduling and managing time and accuracy.**

Keywords: **Android, real-time environment, mobile applications, embedded systems.**

I. INTRODUCTION

The Android OS Oh et.al,[4] is an operating system designed for mobile platforms by Google. Android Cláudio Maia et.al, 2010[1] was made available publicly during the fall of 2008. Android is gaining strength both in the mobile industry and in other industries with different hardware architectures. The increasing interest from the industry arises from two core aspects, one is its open source nature another one is its Architectural model. Its Linux kernel-based architecture model also adds the use of Linux to the mobile industry, because of its architecture nature the knowledge and features offered by Linux are gained by android. Another important aspect is Android's own Virtual Machine (VM) environment. Android applications are Java-based. It also supports multiple real-time applications.

First analyze the real-time capabilities of Android and identify limitation, then propose and implement redesigns of several internal components of Android to provide real-time support. Finally, recognize Android components, and its difficulties to evaluate every aspect of Android. Thus, the goal for this paper is to identify and redesign core components central to Android, in order to support the single real-time application.

As a result of this paper discusses the potential of Android and the implementation directions to make it possible to be used in Open Real-Time environments. Wolfgang Mauerer et.al [2] said that the combined real-time Android system is able to provide remedies for both, users and programmers of embedded real-time systems.

II: ANDROID ARCHIETECTURE

Android Wolfgang et.al,[3] is an open-source software architecture. The Android platform includes an operating system, middleware and applications. Regarding the Android Runtime, besides the internal core libraries, Android provides its own VM, as previously stated, named Dalvik. Dalvik was designed from scratch and it is specifically targeted for memory-constrained and CPU constrained devices. It runs Java applications on top of it and unlike the standard Java VMs, which are stack-based, Dalvik is an infinite register-based machine. Being a register machine, it presents two advantages when compared to stack-based machines.

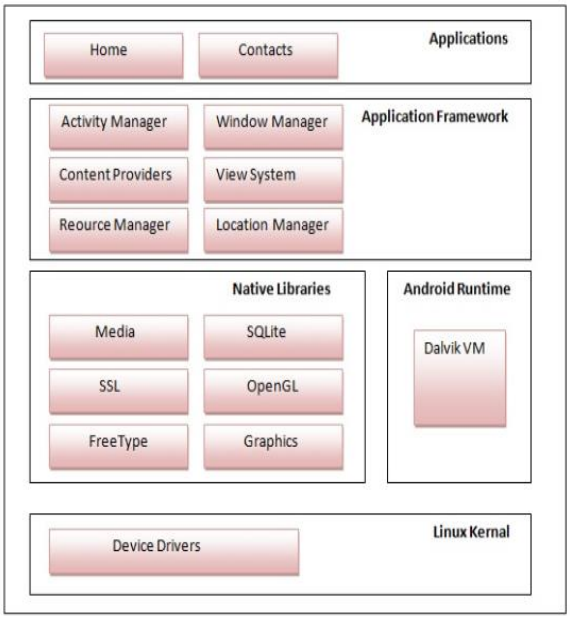


Figure 1. Android Architecture Namely, it requires 30% less computation time to perform instruction, which is also derived from the elimination of common expressions from the instructions. Nevertheless, Dalvik presents 35% more bytes in the instruction stream than a typical stack machine. Dalvik uses its own byte-code format name Dalvik Executable (.dex), with the ability to include multiple classes in a single file. The bottommost layer and is also a Hardware abstraction layer that enables the interaction of the upper layers with the hardware layer via device drivers. Furthermore, it also provides the most fundamental system services such as security, memory management, process management and network stack.

III: METHODILOGIES

In sections contains láudio Maia et.al, 2010[1] four possible directions to incorporate the desired real-time behavior into the android architecture. The first approach considers the system replacement of the Linux operating by one that provides real-time features and, at the same time, it considers the inclusion of a real-time VM. The second approach respects the Android standard architecture by proposing the extension of Dalvik as well as the substitution of the standard operating system by a real-time Linux-based operating system. The third approach simply replaces the Linux operating system for a Linux real-time version and real-time applications use the kernel directly. Finally, the fourth approach proposes the addition of a real-time hypervisor that supports the parallel execution of the Android platform in one partition while the other partition is dedicated to the real-time applications. Regarding the first approach, depicted in Figure 4, this approach replaces the standard Linux kernel with a real-time operating system. This modification introduces predictability and determinism in the Android architecture. Therefore, it is possible to introduce new dynamic real-time scheduling policies through the use of scheduling classes; predict priority inversion and to have better resource management strategies. However, this modification entails that all the device drivers supported natively need to be implemented in the operating system with predictability in mind. This task can be painful, especially during the integration phase. Nevertheless, this approach also leaves space for the implementation of the required real-time features in the Linux kernel. Implementing the features in the standard Linux kernel requires time, but it has the advantage of providing a more seamless integration with the remaining components belonging to the architectures involved. The second modification proposed, within the first approach, is the inclusion of a real- time Java VM. This modification is considered advantageous as, with it, it is possible to have bounded memory management. Real-time scheduling within the VM, depending on the adopted solution for better synchronization mechanisms and finally to avoid priority inversion. These improvements are considered the most influential in achieving the intended deterministic behavior at the VM level. It is important to note that the real-time VM interacts directly with the operating system's kernel for features such as task scheduling or bounded memory management. Advantages: Most of the operations provided by real-time Java VMs are limited to the integration between the VM's supported features and the supported operating system's features. Other advantage from this approach is that it is not necessary to keep up with the release cycles of Android, although some integration issues may arise between the VM and the kernel. Disadvantages: The impact of introducing a new VM is related to the fact that all the Android specificities must be implemented as well as decks support in the interpreter. Besides this is advantage, other challenges may pose such as the integration between both VMs. This integration possibly entails the formulation of new algorithms to optimize scheduling and memory management in order to be possible to have an optimal integrated system as a whole and also to treat real-time applications in the correct manner. The second proposed approach, presented in Figure 5, also introduces modifications in the architecture both in the operating system and virtual machine environments. As for the operating system layer, the advantages and disadvantages presented in the first approach are considered equal, as the principle behind it is the same. The major difference lies on the extension of Dalvik with real-time capabilities based on the Real-Time Specification for Java (RTSJ). By extending Dalvik with RTSJ features we are referring to the addition of the following API classes: RealTimeThread, NoHeapRealTimeThread, as well as the implementation of generic objects related to real-time scheduling and memory management such as Scheduler and Memory Areas. All of these objects will enable the implementation of real-time garbage collection algorithms, synchronization algorithms and finally, asynchronous event handling algorithms. However, its implementation only depends on the extent one wishes to have, meaning that a full compliant implementation may be achieved if the necessary implementation effort is applied in the VM extensions and the operating system's supported features. This extension is beneficial for the system as with it, it is possible to incorporate a more deterministic behavior at the VM level without the need of concerning about the particularities of Dalvik. Disadvantage: Having to keep up with the release cycles of the Android, especially the VM itself, if one wants Figure 5. Android Extended to add these extensions to all the available versions of the platform. Two examples of this direction are the work in states that the implementation of a resource management framework is possible in the Android

Platform with some modifications in the platform. Although the results presented in this work are based on the CFS scheduler, work is being done to update the

scheduler to a slightly modified version of EDF that incorporates reservation based scheduling algorithms. The third proposed approach, depicted in Figure 6, is also based in Linux real-time. This approach takes advantage of the native environment, where it is possible to deploy real-time applications directly over the operating system. This can be advantageous for applications that do not need the VM environment, which means that a minimal effort will be needed for integration, while having the same intended behavior. On the other hand, applications that need a VM environment will not benefit from the real-time capabilities of the underlying operating system. Finally, the fourth approach, employs a real-time hypervisor that is capable of running Android as a guest operating system in one of the partitions and real-time applications in another partition, in a parallel manner. This approach is similar to the approach taken by the majority of the current real-time Linux solutions, such as RTLinux or RTAI. These systems are able to run real-time applications in parallel to the Linux kernel, where the real-time tasks have higher priority than the Linux kernel tasks, which means that hard real-time can be used. On the other hand, the Linux partition tasks are scheduled using the spare time remaining from the CPU allocation. Disadvantage: The main drawback from this approach is that real-time applications are limited to the features offered by the real-time hypervisor, meaning that they cannot use Dalvik or even most of the Linux services. Other limitation known lies on the fact that if a real-time application hangs, all the system may also hang.

IV: RTDroid ARCHIETECTURE

In Yin et.al,[4] order to provide real-time support in all three layers depicted in, we advocate a clean-slate redesign of Android in Figure.2 Our redesign starts from the ground up, leveraging an established RTOS (e.g., RT Linux or RTEMS) and an RT JVM (e.g., Fiji VM). Upon this foundation we build Android compatibility. In other words, our design provides a faithful illusion to an existing Android application running on our platform that it is executing on Android.

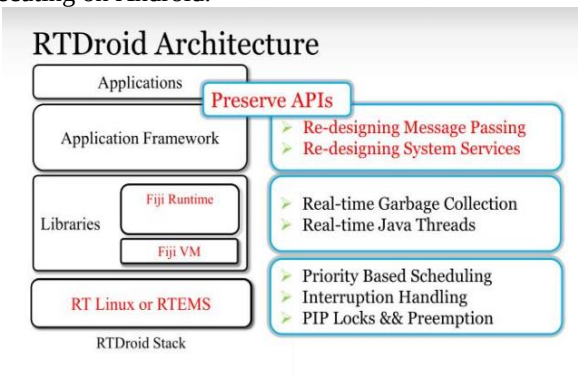
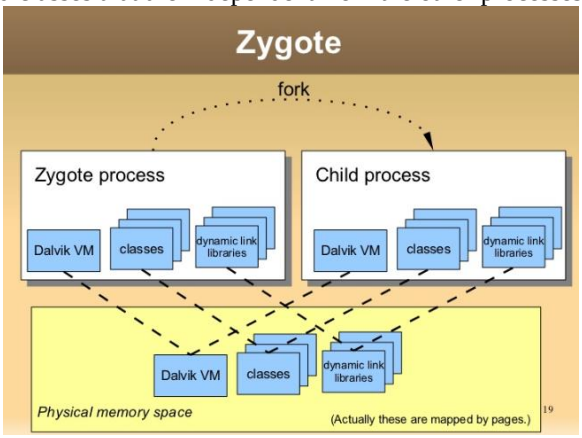


Figure 2. RTDroid Architecture This entails providing the same set of Android APIs as well as preserving their semantics for both regular Android applications and real-time applications. For real-time applications, Android compatibility means that developers can use standard Android APIs in addition to a small number of additional APIs our platform provides to support real-time features. These additional APIs provide limited Real-Time Specification for Java (RTSJ) Claudio Maia et.al,2010[1] support without scoped memory. This goal of providing Android compatibility makes our architecture unique and different from potential architecture.

V: SUSTAINABILITY:

This section discusses the suitability of Android for open embedded real-time systems, Cláudio Maia et.al, 2010[1] analyses its architecture internals and points out its current limitations. Android was evaluated considering the following topics: Its VM environment, the underlying Linux kernel, Its resource management capabilities. Dalvik VM is capable of running multiple independent processes, each one with a separate address space and memory. Therefore, each Android application is mapped to a Linux process and able to use an inter-process communication mechanism, based on Open-Binder, to communicate with other processes in the system. The ability of separating each process is provided by Android's architectural model. During the device's boot time, there is a process responsible for starting up the Android's runtime, which implies the startup of the VM itself. Inherent to this step, there is a VM process, the Zygote, responsible for the pre-initialization and pre-loading of the common Android's classes that will be used by most of the applications. Afterwards, the Zygote opens a socket that accepts commands from the application framework whenever a new Android application is started. This will cause the Zygote to be forked and create a child process which will then become the target application. Zygote has its own heap and a set of libraries that are shared among all processes, whereas each process has its own set of libraries and classes that are independent from the other processes.

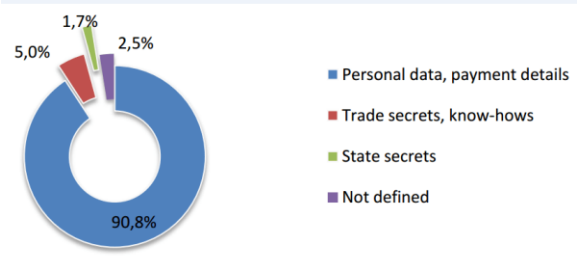


This model is presented in Figure 2. The approach is beneficial for the system as, with it, it is possible to save

RAM and to speed up each application startup process. Figure 8. Zygote Heap Android applications provide the common synchronization mechanisms known to the Java community. Technically speaking, each VM instance has at least one main thread and may have several other threads running concurrently. The threads belonging to the same VM instance may interact and synchronize with each other by the means of shared objects and monitors. The API also allows the use of synchronized methods and the creation of thread groups in order to ease the manipulation of several thread operations. It is also possible to assign priorities to each thread. When a programmer modifies the priority of a thread, with only 10 priority levels being allowed, the VM maps each of the values to Linux nice values, where lower values indicate a higher priority. Dalvik follows the threads model where all the threads are treated as native threads. Internal VM threads belong to one thread group and all other application threads belong to another group. According to source code analysis, Android does not provide any mechanisms to prevent priority inversion neither allow threads to use Linux's real-time priorities within Dalvik.

VI: FINDING OF REAL-TIME ANDROID

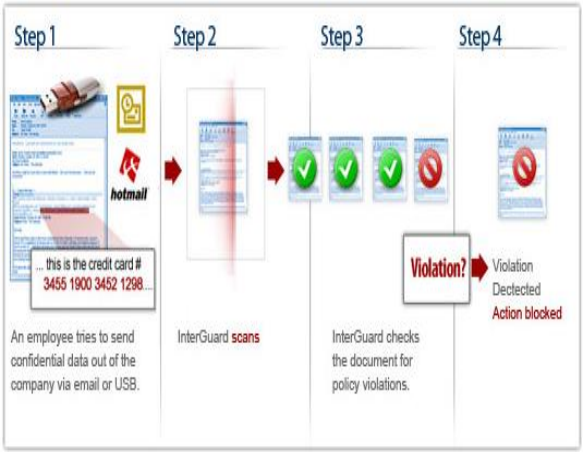
5.1 Finding 1: Mingyuan et.al, [5] Most data leaks are caused by 3rd-party advertising libraries: From Table 1.1, we found that 28 out of the 30 (93.3%) detected data leaks are caused by 3rdparty advertising libraries. As previous research [9], has pointed out, 3rd-party advertising Modules aggressively request application permissions to access various personal data. If an advertising library leaks data, it can potential affect lots of apps. Meanwhile, hackers have started to exploit advertising libraries to spy on users.



We believe that privilege separation and fine-grained privilege control will help to prevent the threats caused by these problematic libraries. From the perspective of app developers, App Audit can help check their apps before publishing to the market, which could effectively detect data leaks beforehand and avoid accidentally using data-leaking 3rd-party modules.

VII: COMPARISON REAL-TIME APPS:

Free apps that spread certain personal information identified by AppAudit. In the following table, for the "Privacy Policy" column, a "lib" means that the privacy policy does not cover the kind of data spread by advertising libraries. From Table1.1, we found that 28 out of the 30 (93.3%) detected data leaks are caused by 3rdparty advertising libraries. As previous research [5], has pointed out, 3rd-party advertising modules aggressively request application permissions to access various personal data. If an advertising library leaks data, it can potential affect lots of apps.



Meanwhile, Zhang et.al,[7] said that hackers have started to exploit advertising libraries to spy on users. We believe that privilege separation and fine- grained privilege control will help to prevent the threats caused by these problematic libraries. From the perspective of app developers, AppAudit can help check their apps before publishing to the market, which could effectively detect data leaks beforehand and avoid accidentally using data-leaking 3rd-party modules. From the table, we can find that, apps (Word Search and Speed test) are gaining awareness of privacy by removing problematic advertising libraries. We believe that AppAudit, when integrated with IDEs, could well assist developers for this purpose. On the other hand, we discover advertising libraries are gaining privacy awareness as well. For example, a newer version of the Tap joy advertising library hashes. IMEI before sending it to the advertising server.

CONCLUSION

Android OS supports pre-emption and multi-tasking, the results indicate Android may be seen as a potential target for real-time environments and there are numerous industry targets that would benefit from architecture with such capabilities. Taking this into consideration, this paper presented the suitability of the Android as a real-time system. By focusing on the core parts of the system it was possible to expose the limitations and to present four possible directions that add real-time behavior to the system. This paper also presented RTDroid, a variation of Android that aims to provide real-time capabilities to Android as a whole system. We have shown that replacing

DVM with an RT JVM and Linux with an RTOS is insufficient to run an Android application with real-time guarantees. In this paper, the design AppAudit, an efficient analysis framework that can deliver high detection accuracy with significantly less time and memory. AppAudit comprises a static API analysis that can effectively narrow down analysis scope and an innovative dynamic analysis which could efficiently execute application byte code to prune false positive and confirm data leaks. To address this shortcoming, we have redesigned Android's core constructs and system services to provide tight latency bounds to real-time applications to be useful for the that propose to use Android OS.

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Post Disaster Relief Operations using Ad-hoc Network

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***Abstract*:-- World has become ground for various disasters. Irrespective of natural or manmade, disasters cause a huge destruction which results in the failure of conventional communication systems, where the communication infrastructure might be collapsed partially or completely. In such situations, the rescue teams are deployed immediately in order to save human lives. In such scenarios, communication plays a vital role for better disaster response information gathering. To meet such needs we present peer to peer communicating Ad-hoc networks, which doesn't have infrastructure and is very helpful during catastrophic or tumultuous activities. In general, Ad-hoc networks have nodes, long transmission link which again require towers for antennas in order to establish long distance communication. But by using peer to peer communication mechanism, number of nodes are used between the source and destination for long distance communication. This inturn decreases the cost and increases the availability. Since rescue team must be on site where victims reside in order to establish a communication between rescuers and the victims, this is the best and effective way of communication.Hence paves a way for the usage of spontaneous networks like Ad-hoc , which are quickly and easily deployable.**

Keywords:-Disaster, Conventional communication system, Ad-hoc network, Tumultuous activities, Spontaneous network.

I. INTRODUCTION

Natural disasters like tsunamis, floods, earthquakes, hurricanes,e.t.c, and manmade disasters like explosion of nuclear reactors, large scale terrorist attacks,.e.t.c., occur around the world where hundreds and thousands of people become victims. When the disaster occurs, the conventional communication systems may be wiped off , cellular network infrastructure, wires gets breakdown, towers go down, and phones go dead, making the rescue operations more difficult. The people will not have any communication with their near and dear ones which creates a panic situation. They are also unaware of weather the rescue teams are near to them or not. The basic solution to this problem is to provide communication for people in disaster area by forming a network temporarily. But in such situation management of existing resources is a challenge for the rescue team. Advanced technologies have to be used in order to overcome this critical situations.

There are many disaster information networks which are developed using internet over wired and wireless network. When there is a situation where internet or wired networks are completely unavailable,it is necessary to move for completely wireless technologies. In this project, "Mobile Ad-hoc Network" i.e. MANET which is having wireless communication technology such as Wi-Fi, is proposed. It is an infrastructureless, self-relying network which is composed of individual devices and they communicate among themselves directly. Usage of MANET can provide the communication and it is helpful during the disaster management. We can use smart devices like mobile phones, laptops,. e.t.c. as nodes. When there is increase in number of terminals, they require more power from the source which may not be provided at such emergency situations, so by applying power mode algorithms we can overcome such drawbacks. Mainly this wireless communication doesn't depend on a single topology, they may change randomly. But the feasible technology options are very limited. Use of portable wireless Ad-hoc networks for establishing communication with the aid of existing infrastructure in a post disaster situation in order to coordinate field activities of rescue crews can solve many problems exist

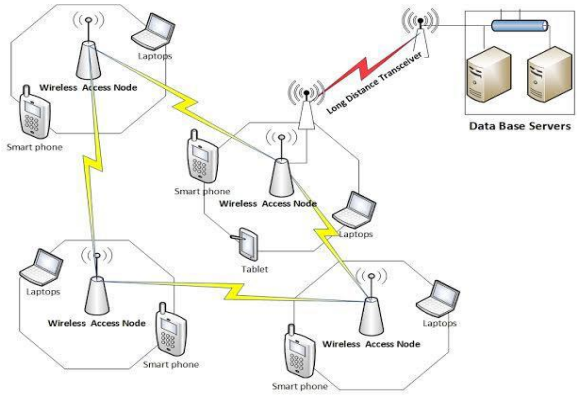

Figure 1. Mobile Ad-hoc Network configuration

Devices which are having wireless communication technologies such as Wi-Fi, are used as nodes or access points i.e. The nodes might be smart phones, laptops, tablets which can access to the network. architectures such as WSNPDM (wireless sensor network protocol for disaster management and LEACH (low energy adaptive clustering hierarchy),are well known architectures for disaster management. Implementation of these type of architectures can be beneficial for the disaster management.

II.PROPOSED METHOD:

In this project, a prototype device is constructed aiming for the disaster management application and the disaster relief communication .It help to evaluate its function and performance through many disaster applications like Voice Over IP (VOIP), file transfer and text message broadcasting . Prototype system also includes an android application which help connecting smartphones to network. This system might meet many problems that exist in emergency communication systems and it can be improved in different ways for the use of many applications.

In Ad-hoc network, if we have communicate for large distance, we have to deploy accessing node with long distance transmission link. This inturn increases the infrastructure and cost. Hence, we come with a solution to go for the peer to peer communication mechanism. For this, we just have to deploy nodes with small range of communication and cover the large distance. By implementing such mechanism we can reduce cost, power, error rate e.t.c,

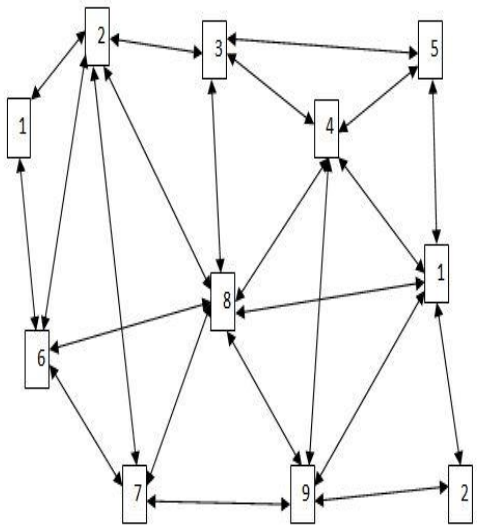

Figure 2. Peer to Peer communication in Ad-hoc Network

III.ARCHITECTURE:

The block diagram of the proposed system is shown in fig.3 .It consists of multiple wireless nodes/devices. Each node consists of communication equipment which is used for communication between the nodes. The coverage area of each node is approximately 100m to 1km which depends on type of module we use. These nodes are portable and hence makes easy to carry in the field. Nodes have to be maintained within the coverage area in order to organize Ad-hoc network among them. The entire network is connected to a data center through long distance communication links. For better redundancy a network should have more than one node with long distance transceiver. This provides gateway for wide area network through which we can exchange the information at the time of disaster. The application installed in these devices enable various services like peer to peer communication, message broadcasting , VOIP etc. as this application is a software element. Any user can connect with the network by installing this application with a smart phone/tablets. This is mainly aimed for the utilization of rescue members at the time of disaster.

3.1. Wireless network nodes:

Basically, a node consists of two parts .One is for intermodal communication and the other is for user access. The communication between the nodes is facilitated by IEEE802.11b,g,n standard wireless LAN(local area network).Since we are using Zigbee module, each node covers a 100m diameter area and is supportive for Wi-Fi capable smart devices .By using this we can communicate with the nodes that are in coverage area. Further architecture of a node and its specifications are given in below

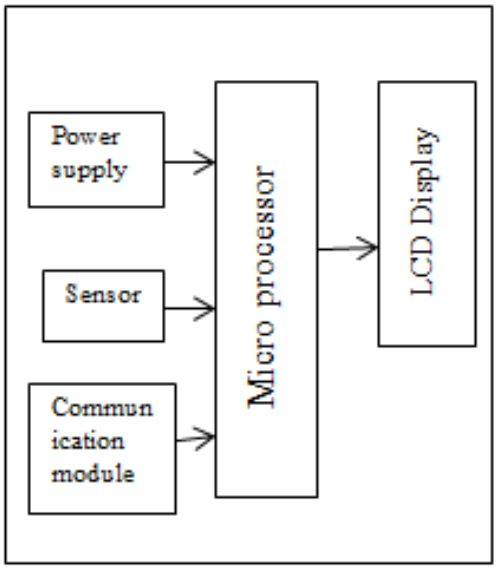

Figure 3.1.1. Architecture of wireless network node

Specifications :

Standard	-	IEEE802.11
Frequency	-	2.405GHz to 2.48GHz
Signal power	-	1 to 100 mW
Transmission speed	-	250kbps
Maximum distance	-	10 to 100m

3.2.Communication link:

Each node is equipped with a sensor, microprocessor, Zigbee unit, transceiver and a user access unit. Here transceiver acts as a link to wide area network. Since satellite communication equipment configuration is bulky and costly, Therefore we are going for Zigbee to make it cost effective for long distance communication link. Zigbee has low data rates and requires a clear LOS(Line Of Sight) for long distance communication. Since we use this network only to transmit the most critical messages and receive the important data from the nearby network node of same type, Zigbee will be the perfect choice. XBeepro 868 module is used for implementing Zigbee for long distance communication. This module is connected to the node via arduino uno module through arduino uno supportive xbee shield. The arduino convert erial to Ethernet in order to provide long distance transceiver data through nodal ip network. Ethernet shield is placed in between arduino board and node for the better conversion of serial to Ethernet.

As we know that zigbee has low data rates i.e. its data rate ranges between 20-250kbps, long distance communication might be limited, because long distance communication requires high data rates. Therefore this method is effective only for transmitting broadcast text messages /update text messages.

The multiple wireless nodes are connected mutually and automatically by auto configuration function by using different protocols. This results in the effective connectivity of one node with the neighboring nodes. Node will be connected with neighboring node which has strong electromagnetic field power density and this process is repeated to organize minimum spanning tree network. Therefore, an Ad-hoc network is organized in the disaster area. When the neighboring node moves or failed, then the node will selects the best neighboring node automatically by the same procedure as above. Hence , dynamical reconstruction of communication in wireless Ad-hoc network is maintained.

3.3. AODV Protocol:

Ad hoc On-demand distance vector routing protocol is a reactive protocol i.e. routes are determined only when needed. Any message (hello) is used to detect and monitor links to neighbors. For example, "HELLO" message is broadcasted to all its neighboring nodes and further these nodes repeat the same until the message reaches the destination node. If any one of the node fails then there will be a link break detected then an error message is sent to the source node in a hop-by-hop fashion. If the failed node is inactive for some period of time then the inactive node is removed from the predetermined route and the source node reinitiates the new route.

3.4. Android application:

An android application acts as an interface between network and the user. This application has all the network facilities. When we start a service on a local device, it reserves a given name and then advertises its existence to other devices within its range. The framework used in the application is responsible for the service of advertising operation which leads to transparency in communication via technologies such as Wifi, Wifi direct. The knowledge of how these advertisements are managed is not required both user and the service.

3.4.1. Basic services of android application:

Android application provides some basic application to achieve effective communication in the network. Some services are listed below

1. Voice calling
2. Sending and receiving of data.
   - Individual messaging
   - Peer to peer messaging
   - Group messaging

3. Transfer of files. e.t.c.

IV. PROTOTYPING SYSTEM AND EVALUATION:

From the previous study, we could derive that the Ad-hoc network is very much robust and most effective to quickly construct disaster management system. The prototype is constructed in order to evaluate whether peer to peer communication can reach out the long distance without any failure, error/ loss of information within minimum time.

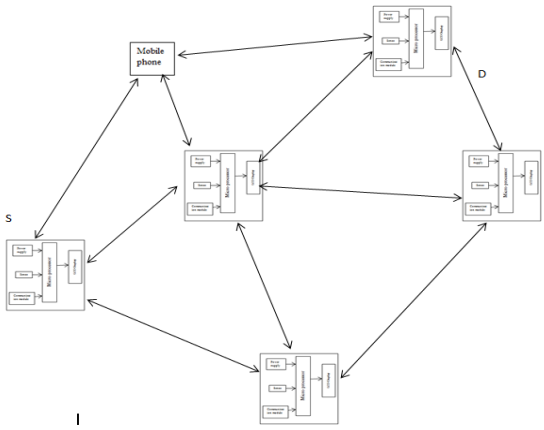

Figure 3.Block diagram of proposed method

In the above figure 3, we can see a small network which has peer to peer communication between the nodes. Each node has a Zigbee module, which transfers the data to the neighboring nodes within the range. In order to check this prototype we have connected a mobile phone to the network and send a message from it. Each node will get the messages which are in the range and by repeating this we can transfer messages to long distance. In case if there is any failure of one node in the network, the path changes and reach out the remaining nodes within the range.

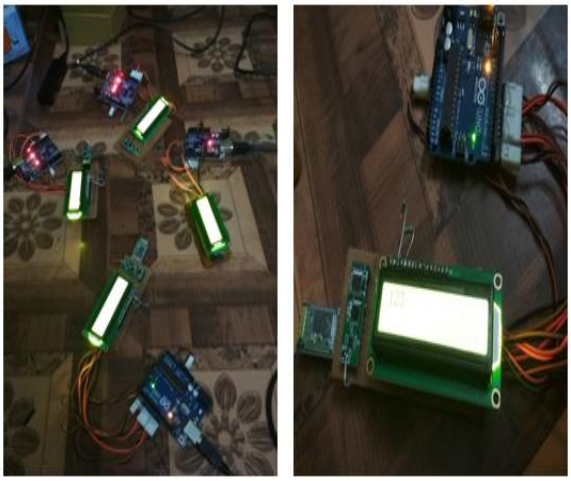

Figure 4. Prototype system

In the above figure 4, we observe four nodes which are separated with some distance. Power supply is provided to each node in order to activate them. Mobile phone is connected to this network in order to transfer the information to nodes. An input message is given using an android application in phone and see the transfer of the same message to all the nodes. This is shown in the figure below

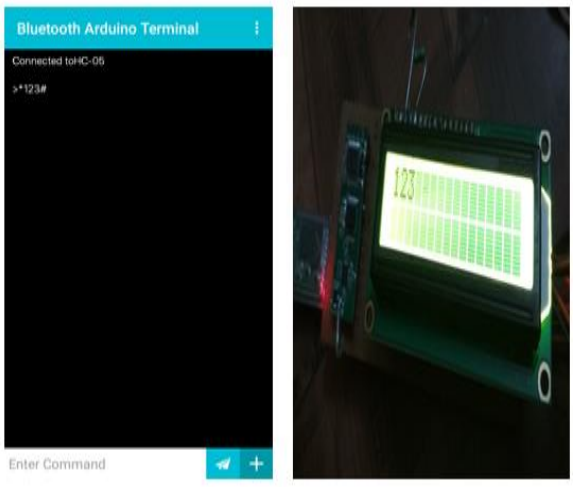

Figure 5. Results in android application and node display unit

V. CONCLUSION:

In this paper, we suggested a post disaster management system where various information with the disaster are provided. The system configuration and the architecture of the proposed method are described and their functions are explained keenly. The prototype system based on our suggested configuration was built to demonstrate its functionality. Peer to peer communication between the nodes helps to eliminate the usage of infrastructure like antennas, poles e.t.c., Now we are trying to implement more resource management at the time of post disaster. As a future research, evaluation of the more realistic and practical case where nodes are seriously damaged, implementing the recovery system for the partially damaged network, reducing the power consumption for efficient use, providing secure network which extend the scope of utilization of this system in military, defense, various security and monitoring applications.

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Detection of Citrus Plant Leaf Diseases Using Image Processing

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***Abstract*:-- Agriculture is a most important and ancient occupation in India. As economy of India is based on agricultural production, utmost care of food production is necessary. Pests like virus, fungus and bacteria causes infection to plants with loss in quality and quantity production. There is large amount of loss of farmer in production. Hence proper care of plants is necessary for same. The disadvantage of prior systems method is it's confinement to citrus plants itself. So we propose to extend and generalize the learning aspect of citrus leaves classifier so that it can detect other plant leaves diseases too. For improving accuracy rate and time consuming.**

Keywords: Agriculture, Citrus leaves, Classifier, Plant leaf diseases

INTRODUCTION

Agriculture is back bone of India wherein about 70% of the population depends on agriculture. Farmers have wide range of diversity to select suitable Fruit and Vegetable crops. However, the cultivation of these crops for optimum yield and quality produce is highly technical. It can be improved by the aid of technological support.

Farmers have a great diversity of crops. The pathogens are present in the environment which severely affect the crops and the soil in which the plant is planted, thereby affecting the production of crops. The various diseases are observed on the plants and crops. The main identification of the affected plant or crop are its leaves. The various colored spots and patterns on the leaf are very useful in detecting the disease. The past scenario for plant disease detection involved direct eye observation, remembering the particular set of disease as per the climate, season. Plants become an important source of energy and only a primary source to the problem of global warming.

The damage caused by emerging, re-emerging and endemic pathogens, is important in plant systems and leads to potential loss economically. The crop diseases contribute directly and indirectly to the spread of human infectious diseases and environmental damage. As these diseases are spreading worldwide causing damage to the normal functioning of the plant and also damaging the financial condition by significantly reducing the quantity of crops grown. The crop production losses its quality due to much type diseases and sometimes they occur but are even not visible with naked eyes.

The main approach adopted in practice for detection and identification of plant diseases is naked eye observation of experts. The decision-making capability of an expert also depends on his/her physical condition, such as fatigue and eyesight, work pressure, working conditions such as improper lighting, climate etc. That's why this is not a proper way and also time consuming. It might be expensive as continuous monitoring of experts in large farms.

When some diseases are not visible to naked eye but actually they are present, then it is difficult to detect it with the naked eye. And when it is visible it will be too late to detect disease and can't help anymore. Earlier, microscope is used to detect the disease, but it become difficult as to observe each and every leaf and plant. So, the fast and effective way is a remote sensing technique. Detection and recognition of diseases in plants using machine learning is very fruitful in providing symptoms of identifying diseases at its earliest. very few diseases have been covered, So, work needs to be extended to cove more diseases. The possible reasons that can lead to misclassifications can be as follows: disease symptoms varies from one plant to another, features optimization is needed, more training samples are needed in order to cover more cases and to predict the diseases more accurately.

Plant diseases have turned into a nightmare as it can cause significant reduction in both quality and quantity of agricultural products, thus negatively influence the countries that primarily depend on agriculture in its economy. Consequently, detection of plant diseases is an essential research topic. Monitoring crops to detecting diseases plays a key role in successful cultivation. The naked eye observation of experts is the main approach

adopted in practice which is expensive in large farms. Further, in some developing countries, farmers may have to go long distances to contact experts, this makes consulting experts to very expensive and time consuming. Therefore, looking for a fast, automatic, less expensive and accurate method to detect plant disease cases is of great realistic significance.

We initiate the following information related to the understanding of crop diseases.

CAUSES OF PLANT DISEASE

Non-infectious disease - caused by natural agencies

Infectious disease - caused by pathogens. (Infectious means that which tends to spread from one plant to another or from one part of the plant to the other.)

LITERATURE SURVEY

According to the authors Pranjali B. Padol, Prof. Anjali A. Yadav[1] they use the method K-means Clustering to detect plant diseases. Where in this we First divide the dataset into K number of clusters and assign the data points randomly to the clusters. Then for each data point, calculate the Euclidean distance, from the data point to every cluster.

If the data point is closest to its own cluster then leave it where it is. Shift it into the nearby cluster, if the data point is not closest to its own cluster. Repeat all steps until an entire pass through all the data point. Now the clusters become stable and the process of clustering will stop. If the data point is closest to its own cluster then leave it where it is. Shift it into the nearby cluster, if the data point is not closest to its own cluster. Repeat all steps until an entire pass through all the data points. Now the clusters become stable and the process of clustering will stop.

According to the authors Ms. Kiran R. Gavhale, Prof. Ujwalla Gawande, Mr. Kamal O. Hajari [3] to the citrus leaf detection is

Gray-Level Co-Occurrence Matrix (GLCM) is the statistical method of investigative texture which considers the spatial relationship of pixels . The GLCM functions characterize the texture of a leaf image by calculating occurrence of pixel in an image with specific values and in a specified spatial relationship. By creating a GLCM followed by extracting statistical measures from this matrix. The advantage is use of harmful chemicals on plants can be reduced. The disadvantage is consumes the time.

According to the authors Nandhini M, Pream Sudha V, Vijaya MS[4], they use the method is

Support vector machines (SVMs) are a set of related supervised learning methods used for classification and regression. A support vector machine constructs a hyper plane or set of hyper planes in a high-dimensional space, which can be used for classification, regression or other tasks. Intuitively, a good separation is achieved by the hyper plane that has the largest distance to the nearest training data points of any class called functional margin, since in general the larger the margin the lower the generalization error of the classifier. Classifying data is a common task in machine learning. Suppose some given data points each belong to one of two classes, and the goal is to decide which class a new data point will be in. In the case of support vector machines, a data point is viewed as a p-dimensional vector of a list of p numbers, and on to know whether one can separate such points with a $p - 1$-dimensional hyper plane.

Decision tree learning is the process of learning decision trees from the labelled training examples.

Decision tree classification algorithm generates the output as a binary tree like structure called a decision tree, where each non leaf node i.e., internal node denotes a test on an attribute, each branch represents an outcome of the test and each leaf node or terminal node holds a class label. The topmost node in a tree is the root node. A decision tree model contains rules which are used to predict the target variable. The class label of a new instance is predicted by testing the attribute values of the instance against the decision tree. A path is traversed from the root to a leaf node, which gives the class label of that data. Decision trees can be easily converted into classification rules.

METHODOLOGY:

In the previous approaches the disadvantage of prior systems method is its confinement to citrus plants itself. So, we propose to extend and generalize the learning aspect of citrus leaves classifier so that it can detect other plant leaves diseases too.

The main problem is that we just know only whether the leaf is healthy or not, it just gives us the damaged ratio of the leaf. We cannot know whether the leaf is defected or not, only on seeing with our naked eye. So, it is important to know the damage ratio of the leaf. But the drawback is it just only give the damage ratio, it does not give any information regarding whether the leaf is cured or not, and we also don't know how to cure it. In this project we can over come the drawback on using classification we can know the type of disease and we can also know how to cure using pesticides and we can also know the quantity of pesticides to cure the damaged leaf.

The first step is the captures the image and given to the input image. And then next it is converted into the RGB to gray colour. It shows the damaged mask and then using to the feature extraction. In this feature extraction is used to

the SFIT algorithm. Finally, the result is detection of diseases.

Feature Extraction:

Feature extraction plays an important role for identification of an object. Drawing out specific features from the pre-processed Images is called feature extraction. Feature extraction plays a vital role in data mining. It can be used to improve the classification effectiveness and computational efficiency. Feature extraction is carried out with all the pre-processed leaf images.

Three types of features such as colour, texture and shape features are extracted in this work in order to extract the prominent features of an imageIn many application of image processing, feature extraction is used. The features which can be used in plant disease detection. Monica jhuria et al considers color, texture and Morphology as a feature for disease detection. They have found that morphological result gives better result than the other features. Texture means how the color is distributed in the image, the roughness, hardness of the image. It can also be used for the detection of infected plant areas. Color, texture, morphology, etc. are the features which can be used in plant disease detection.

Image Segmentation is the partitioning of the digital image in a multiple segments. It has set as pixels, such as super pixels. The goal of segmentation is the representation of the image and easier to analyse. A region of interest is a portion of an image that you want to filter or perform some other operation. It define the ROI by creating the binary mask. Which is a binary image that is same size as the image.

Most of the methods include pre-processing followed by feature extraction in detection of diseases. Neural network classifier to classify leaves disease has been chosen as classification tools. Color Co-occurrence for feature extraction is also proved to be helpful in many of plant diseases detection based on color and texture. these techniques in other applications like agricultural robot is another boon to farmer and society. A novel cloud computing for smart farming has been proposed including robotics and video processing on tomato plant. Here use of Internet of things importance with agricultural world has been told. Also using various controllers or processor in agricultural robot for detection of plant disease has become interesting concept. Image segmentation is an important aspect of digital image processing. It may be defined as a process of assigning pixels to homogenous and disjoint regions which form a partition of the image that share certain visual characteristics. The major goal of segmentation is to simplify or change the representation of an image into meaningful image that is more proper and easier to explore.

Segmentation is essentially a collection of methods that allows spatial partitioning to the close parts of the image as objects.

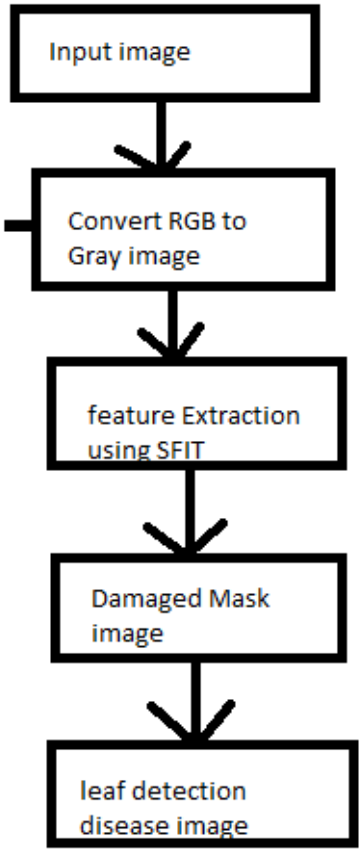

Fig 1: Proposed System

Experimental Results :

Our project mainly focused on the SFIT algorithm. In this algorithm used for the feature extraction. Scale invariant feature transform (SIFT) is a feature based object recognition algorithm. The intuition behind it is that a lot of image content is concentrated around blobs and corners. This algorithm first take the input image.

Fig 2 : input Image

And then image is converted in RGB to gray Convert the RGB image to gray image: It uses the feature extraction using the SFIT algorithm.

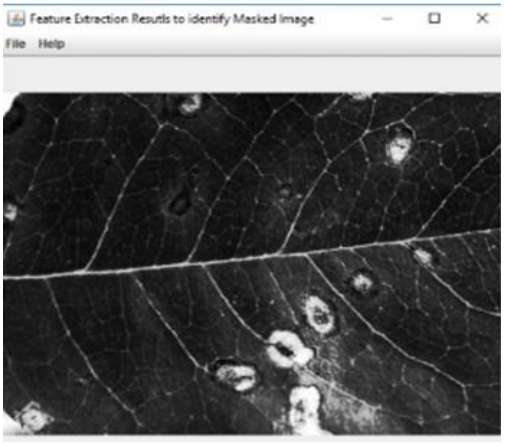

Fig 3: Gray image

Fig 4: Damaged Mask Image

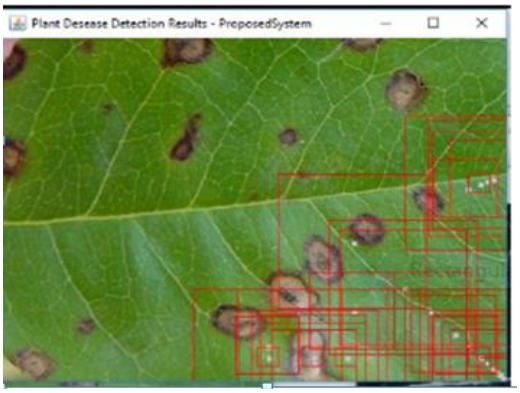

Fig 5: Final result

CONCLUSION:

Here in this project we propose to extend and generalize the learning aspect of citrus leaves classifier so that it can detect other plant leaves diseases too. to describe point features are mainly dependent on the description of image blocks , such as SIFT (Scale Invariant Feature Transform) method . The pieces of literature in recent years indicated that the researchers attached more and more importance to the improvement of SIFT-based matching accuracy while limiting the computation volume. The method of image feature description plays a vital role in the quality of image. It using separator functions and for improving accuracy and extending the functionality.

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Automobile Safety Management and Vechile Post Crash Analysis System Using GPS Based On Ai Theory

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***Abstract*:-- This paper focuses on the proposal to develop a prototype of Black Box for analysis of vehicle which can be implemented in any sort of vehicle. We all know that "Black Box" technology made a huge impact on diagnosis of vehicles in which case it helps in vehicle clash investigation. This prototype play a part in producing safer vehicle, improving the medical assistance for the accident victims and decreasing the death rate by providing enhanced road status as well as air route which clearly states flight data recorders in aircraft . The prototype provides artificial intelligence support by making an interaction between the user and the vehicle. The major case study of this paper is the analysis of unforeseen forthcoming vehicle before it intends to collide along with live analysis of vehicle to vehicle communication. It also provides all information about the vehicle along with navigation system collaboration with Google earth.**

Keywords: **Black Box; Artificial Intelligence; Data Recorders; Google Earth; Global Positioning Society.**

INTRODUCTION

Agriculture is back bone of India wherein about 70% of the population depends on agriculture. Farmers have wide
As for now, if you get into a crash, it's usually going to be a driver's fault ,a human driver. Parts can fail and tires can burst, but about 90 percent of all car crashes are caused by human error, depending on which we study. But in the not too distant future, that clear-cut cause will evaporate as many vehicles take over more driving tasks, creating more and more data as they make. And that data gets recorded in a black box.

Right now, if you get into a crash, it's usually going to be a driver's fault — a human driver. Parts can fail and tires can burst, but about 90 percent of all car crashes are caused by human error, depending on which study you read. But in the not-too-distant future, that clear-cut cause will evaporate as more vehicles take over more driving tasks, creating more and more data as they do. And that data gets recorded in a black box.

According to the report of World Health Organization, more than a 10 lakh people in the world lose their life's every year because of driving-related accidents. In order to consider this situation, the black box system is the solution to solve problem. Like flight data recorders in aircraft, "Black Box" technology plays a major role in vehicle crash investigations. All newly manufactured passenger vehicles are required to have a black box on board, though the majority of cars had the technology on board, though the majority of cars had the technology on board as well before the deadline. It's officially known as an event data recorder {EDR}, and it records on a loop metrics such as speed, brake application, air bag, deployment and seat belt use from the car's sensors. According to Consumer Reports, an EDR grabs about 5 seconds of data before the crash and just 1 second after. This system is mainly considered to three sections. First is how to detect and gather the necessary information from the vehicle. Second is how to communicate the data to the user in clearly understandable manner. The Last one which is important, where the information related to rashness and abruptness in the driving skills of the driver are transmitted from one vehicle to another using Transceivers and Radio Frequency. To measure the inclination of vehicle, tilting and analyzing the speed of the vehicle, basically a Vehicle Dynamics Control Unit there are G-Sensors used in the vehicle which are connected to the Microcontroller. As sensors proliferate on vehicles, they are gathering more information. C programming is being used to interface all the sensors on the Arduino as it provides improved efficiency to the microcontroller. This programming helps in recording the data and recollecting the data from microcontroller memory to an LCD for displaying,

In this prototype, the older version of Black Box is replaced by a newer technology i.e. the traditional black box used a OBD-II cable for diagnosis of the vehicle whereas the present Black Box uses sensors connected to

the Microcontroller better and more information about the vehicle along with the On-Board Diagnostics cable.

The applications of Car Black-box include:

1.Better crash research that may produce improved driver education programs, safer road designs and improve highway safety.
2.Collision data for research, data to improve vehicle design internally and externally.
3.To not only record the relevant data, but also try and prevent a possible collision by limiting the speed of the vehicle in accident-prone areas.
4. Black boxes in autonomous cars records data from 16 years simultaneously, adding information on things like tire pressure, camera images, radar data and drivers profiles. So in the case of a crash, the black box will know where you put your seat and what radio stations you like.
5. Wireless communication by transmission of alert message in the event of a collision along with the time and location co-ordinates through GSM.

II. HARDWARE AND SOFTWARE RESOURCES

The hardware part consists of the components and the sensors used in the black box system. This part mainly collects the status of the sensors and stores it into the micro controller‘s EEPROM.

A. Sensors

Proximity Sensor: A proximity sensor is an electronic sensor capable of detecting the presence of nearby objects without physical contact. It emits an electromagnetic field or a beam of electromagnetic radiation (for example: infrared) and then looks for changes in the return signal or field. The object that is being sensed is the proximity sensor's target. Depending on the proximity sensor targets, different sensors may be used. For example, an inductive proximity sensor requires a metal target, whereas a capacitive photoelectric sensor may be suitable for a plastic target. Proximity sensors have a long functional life and high reliability due to the absence of mechanical parts and the lack of physical contact between the sensor and the target. A proximity sensor that is adjusted to a very short range can often be used as a touch switch.

2) Ultrasonic sensor: The Ultrasonic sensor is a device that can measure the distance to an object by using sound waves. It measures distance by sending out a sound wave at a specific frequency and listening for that sound wave to bounce back. By recording the elapsed time between the sound wave being generated and the sound wave bouncing back, it is possible to calculate the distance between the sonar sensor and the object.

Leakage Sensors: This sensor is used to detect mainly the leakage in CNG or LPG vehicles and alarming the vehicle user about it through a buzzer or indication on the dash board.

Pressure Sensor: A pressure sensor is a device that senses pressure and converts it into an electric signal where the amount depends upon the pressure applied. TE Connectivity designs and manufactures pressure sensors ranging frm the sensing element to system packaging for harsh environments. We are an industry leader for our range of both standard and custom pressure sensors , from board level components to fully amplified and packaged transducers.

Temperature Sensor: This sensor is mainly used to detect the temperature of the engine of vehicle. It detects two types of temperatures one is abnormal temperature and other is engine temperature.

OBD-II Reader: Onboard Diagnostics II (OBD-II) is a standardized system that onboard computers in cars and trucks use for self-diagnostics and reporting. This system grew out of Californa Air Resources Board (CARB) regulations, and it was implemented with specifications that were developed by the Society of Automotive Engineers (SAE).Unlike earlier, OEM-specific OBD-I systems, OBD-II systems use the same communication protocols, code designations, and connectors from one manufacturer to another.This allows a single OBD-II scanner to provide access to the data that these systems are capable of providing across all makes and models of vehicles produced, which was the first model year that OBD-II was required across the board.

B. Digital Processing

In order to control all these sensors and their inputs, a digital process can be used. As prototype a Arduino micro controller is selected to control the black box.

1) Arduino Uno Board:

The Uno is Microcontroller board based on the ATmega328P. It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz quartz crystal, a USB connection, a power jack, an ICSP header and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started. You can tinker with your UNO without worrying too much about doing something wrong, worst case scenario you can replace the chip for a few dollars and start over again.

2) Arduino Mega 2560:

The Mega 2560 is a microcontroller board based on the ATmega2560. It has 54 digital input/output pins (of which 15 can be used as PWM outputs) The Arduino MEGA 2560 is designed for projects that require more I/O llines, more sketch memory and more RAM. With 54 digital I/O pins, 16 analog inputs and a larger space for your sketch it

is the recommended board for 3D printers and robotics projects. This gives your projects plenty of room and opportunities maintaining the simplicity and effectiveness of the Arduino platform. This document explains how to connect your Mega2560 board to the computer and upload your first sketch. 16 analog inputs, 4 UARTs (hardware serial ports), a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started. The Mega 2560 board is compatible with most shields designed for the Uno and the former boards Duemilanove or Diecimila.

3) Microcontroller's Program: The main function of the microcontroller program is to take input samples from different ports. These samples are taken from the sensors installed in the vehicle. After that, each sensor sample is saved into the microcontroller's EEPROM. After the accident all the data from the sensors is received by the microcontroller before it goes into the sleep mode. This data is used to analyzing the accident. The choice of the microcontroller's transmission protocol was the standard asynchronous format using 8 data bits, no parity bit and one stop bit with a 9600 baud rate. Since the complexity is in the interpretation of the data and not in the transmission, the need was for a format that guarantees minimum simplicity with maximum reliability. In addition, a MAX232 is used as an intermediary station, to connect the microcontroller to the serial port of the computer.

III.VEHICLE BLACK BOX ARCHITECTURE

The In Vehicle based Car Black-box consists of an Arduino Microcontroller. The GSM/GPS module is also connected to the processor. Different sensors are interfaced with the programmable circuit board.

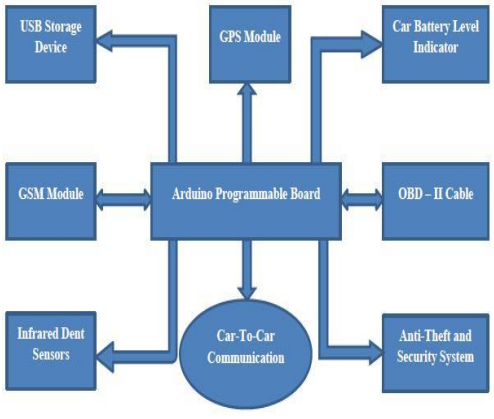

Fig. 1Architecture of Black Box

IV. DESIGN AND FUNCTIONS OF THE PROPOSED PROTOTYPE

The proposed system is an updated version of the Black Box designed first. The earlier box consists of diagnostics elements like Camera and Microphone for detection of any failures in the vehicle.

The basic and main purpose of the upgraded version of black box is to provide complete data analysis along with fleet management to the user by giving detailed list of the parts working within the automobile and the functions in a simplified non-technical language where the driver can identify and diagnose the wrong doings in the vehicle without him having the need to go to a mechanic where he is charged a huge amount for a simple malfunctioning.

The upgraded version has sensor based activation with the programmable board along with the Diagnostics Cable put inside a single box allowing the user to configure and detect the malfunctioning in the vehicle system and navigate through roads and paths by tracking through a mass platform Google Earth. The newer version of Black Box offers a user friendly program with safe navigation by letting the driver know the details of the vehicle approaching the driver by communication through Transceivers which are sending and receiving the signals as soon as a threshold is crossed. This ensures safety to the user.

Table 1. Function and Feature of Black Box Mining System Designed

Function	*Existing system*	*Proposed system*	*Function & Feature*
Function of detecting collision	Yes	Yes	Function of detecting external shock to car
Audio/video encoding	Yes	Yes	Function of encoding video & audio signal
Function of saving data	Yes	Yes	Encoding & storing information data of car
GPS function	Yes	Yes	Function of receiving current location information of car
Communication function	No	Yes	Function of transmitting car information to distant place using WCDMA modem
Function of transmitting video	No	Yes	Function of transmitting video of current load status to control center at distant place
Function of analyzing location information	No	Yes	Function of minimizing the load of network by analyzing current moving path of car and minimizing the transmission of data to distant place using moving path & pattern of car collected from mining system at distant place

Fig. 2 Proposed System Design

V.CONCLUSION

This paper has presented a new concern for future of automobile. The use of black box technology of vehicle diagnostics is a pitch capable to revolutionize the way a layman views his vehicle. Every view was made for every part of this system. This paper also delivers a user friendly embedded program to analysis of the data of the accident. The Black Box system created can be installed in any sort of vehicles. The highlight of this prototype is the ability to interact with another vehicle approaching it by transmitting the values of speed and RPM of the vehicle for safety

purposes and alerting the user for abruptness in the driving system of the forthcoming vehicle. As soon as the driver starts the engine, this system will starts saving the data's and displaying the necessary information on the display screen of the vehicle. In situation of an accident, an extra 10 seconds of events before and after this accident will be recorded for complete analysis of the current situation at the accident. The data saved can be recollected only after the accident for privacy purposes. In addition to that, a report will be given to the user containing the recorded data in the memory through the text file.

VII.ENHANCEMENT FOR FUTURE

We can enhance the current system to check other parameters like fuel level, tire pressure and working of headlights before starting the vehicle.

The electronic unit that I propose to be installed every vehicle would be a simple version of the existing telematics and navigation units increasingly being installed in new vehicles. Other crucial parameters can be read and stored in the memory. Another useful credit to the present system could be cameras on front and backsides which keep recording live images and storing them in memory. This video data would be much useful for investigation purposes.

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Applications, Challenges and Future Scope - Big Data

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***Abstract*:-- The phrase Big Data has been coin to submit to the gargantuan largeness of data that cannot be dealt with by traditional data-handling techniques. Big Data is still a novel concept and in the following literature we determined to elaborate it in a conspicuous fashion. It commences with the concept of the subject itself along with its properties and the two general approaches of dealing with it. The comprehensive study further goes on to elucidate the applications of Big Data in all diverse aspects of economy and being. The exploitation of Big Data Analytics after integrating it with digital capabilities to secure business growth and its visualization to make it understandable to the technically apprenticed business analyzers has been discussed in depth. Aside this, the incorporation of Big Data in order to improve population health for the betterment of finance, telecom industry, food industry and for fraud detection and sentiment analysis have been delineated. The challenges that are encumbering the growth of Big Data Analytics are accounted for in depth in the paper. This topic has been isolate into two arenas- one being the practical challenges faces whilst and other being the theoretical challenges. The hurdle of securing the data and democratizing it have been elaborated amongst several others such as inability in finding sound data professionals in required amounts and software that possess ability to process data at a high rate. Through the article, the authors intend to decode the notions in an intelligible manner embodying in text several use-cases and illustrations.**

Keywords: **Big Data, Data Visualization, Integration, Encryption, Data Democratization.**

INTRODUCTION

We generate 2.5 quintillion bytes of data in every day, so much that 90% of the data in the world today has been created in the last two years alone. This data comes from everywhere: sensors are used to gather posts to social media sites, digital pictures and videos, climate information, purchase transaction records, and cell phone GPS signals to name a few. Such vast amount of data that is being produced continuously is what can be coined as Big Data. Big Data decodes previously untouched data to derive new approaching that gets integrated into business operations. However, the amounts of data increases exponential, the current techniques are becoming obsolete. Dealing with Big Data requires comprehensive coding skills, domain knowledge and statistics. Despite being Herculean in nature, Big Data applications are almost universal from marketing to scientific research to customer interests and so on. We can witness Big Data in action almost everywhere today.

Big Data can be simply defined by explaining the 3V‘s volume, velocity and variety which are the driving dimensions of Big Data quantification. Gartner analyst, Doug Laney introduced the famous 3 V‘s concept in his 2001 Metagroup publication.

3D data management: It controls Data Volume, Variety and Velocity.

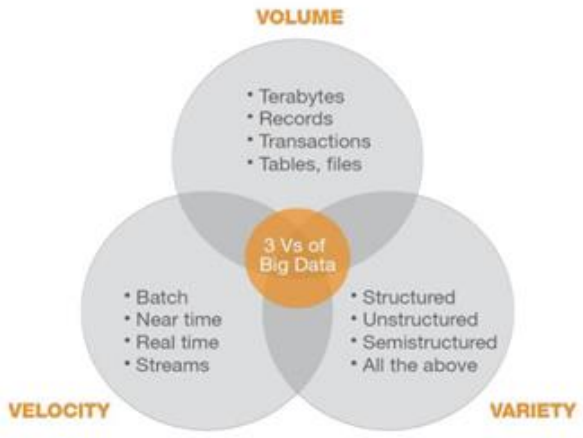

Image-1: schematic representation of the 3V‘s of Big Data

a. Volume: Essentially it concerns the large quantities of data that is generated continuously. Initially storing such data was problematic because of high storage costs. However this is only a better technology and temporary solution needs to be developed. E-Commerce, Smartphone

and social networking websites are examples where enormous amounts of data are being generated. This data can be easily distinguishes between structured data, unstructured data and semi-structured data.

b. Velocity: This technique is only realistic when the incoming data rate is slower than the batch processing rate and the delay is much of a hindrance. At present times, the speed at which such huge amounts of data are being generated is unbelievably high.

c. Variety: Data generated can be any type i.e., structures, semi-structured or unstructured. The conventional form of data is structured data. For example unstructured data can be generated from social networking sites, sensors and satellites. Implementing Big Data is a huge task given the large volume, velocity and variety.

Big Data is a term encircling the use of techniques to visualize, process, capture, and analyze potentially large datasets in a reasonable timeframe not accessible to standard IT technologies. By expansion, the platform, tools and software are used for this purpose are together called Big Data technologies.

Currently, the most commonly implemented technology is Hardoop. Hadoop is the conclusion of several other technologies like Hadoop Distribution File Systems, Pig, Hive and HBase. Etc. However, even Hadoop or other existing techniques will be highly incapable of dealing with the complexities of Big Data in the near future.

The following are few cases where standard processing approaches to problems will fail due to Big Data

- ***Large Synoptic Survey Telescope (LSST):*** Every night during the decade –long LSST survey sky over 30 thousands gigabytes (30TB) of images will be generated There is a corollary to Parkinson‘s Law that states.
- Data expands to fill the space available for objectives storage. This is no longer true since the data being generated technologies into the background operations and internal will soon exceed all available storage space.
- 72 hours of video are uploaded to You Tube every minute.

At present there are two general approaches in big data

a. Divide and Conquer using Hadoop: The huge data set is broken into smaller parts and process in a parallel fashion using many servers.

b. Brute Force using technology on the likes of SAP HANA: One very powerful server with massive storage is used to compress the data set into a single unit.

II. APPLICATIONS

Big Data is a field which can be used in any zone whatever given that this large quantity of data can be harnessed to one‘s advantage.

The major applications of Big Data have been listed below.

The Third Eye- Data Visualization

In order to get this constraint, data scientists need to efficiently visualize and present this data in comprehensible manner. Giants like Google, Face book, Twitter, EBay, Wal-Mart etc., adopted data visualization to ease complexity of handling data. Data visualization has shown immense positive outcomes in such business organizations. Implementing finally begin to tap into the immense potential that Big data possesses and ensure greater return on investments and business stability.

Integration- Integrating digital capabilities in decision-making of an organization is transforming enterprises is an exigency of the 21st century. By transforming the processes, such companies are developing agility, flexibility and precision that enables new growth.

Big Data in Healthcare:

Every day health care field generates an enormous amount of data. There is a need and chance to mine this data and provide it to the medical researchers and practitioners who can put it to work in real life, to benefit real people. The solutions we develop will be focused on preventing the onset of disease, improving diagnosis and enhancing quality of care. Further, there is the potential to lower health care costs, one of the greatest challenges facing our nation. And the Alliance will also drive economic growth in Pittsburgh, attracting hundreds of companies and entrepreneurs, and generating thousands of jobs, from around the world.

Big Data and the World of Finance:

Big Data can be a very useful tool in analyzing the incredibly complex stock market moves and aid in making global financial decisions. For example, intelligent and extensive analysis of the big data available on Google Trends can aid in forecasting the stock market. Though Big Data is also being implemented in a field called Quantitative Investing where data scientists with negligible financial training are trying to incorporate computing power into predicting securities prices by drawing ideas from sources like newswires, earning reports, weather bulletins, Facebook and Twitter.

In general, big data is set to develop the landscape of Finance and Economy. Several financial institutions are adopting big data policies in order to gain a spirited edge. Complex algorithms are being developed to execute trades through all the structured and unstructured data gained from the sources. The methods adopted so far has not been completely adept, however, extensive research ensures growing dependence of the stock markets, financial organizations and economies on big data analytics.

Big Data and Sentiment Analysis:

Sentiment Analysis is by far the most comprehensively used application of big data. Presently, zillions of conversations are occurring on the social media, which when harness to one‘s advantage can aid any company in determining new patterns, protecting their brand image and segmenting consumer base to improve product marketing and the overall customer experience. Several giants are presently developing tools for efficient sentiment analysis.

Big Data for the Telecom Industry

Using concepts of Big Data and Machine learning are being progressively implemented to improve the customer service and satisfaction. Call detail records, web and customer service logs, emails to social media as well as geospatial and weather data are the few examples of data being accessible to telecom operators. Handling such massive amounts of data can be a daunting task.

Challenges in Big Data:

- One of the key set of challenges faced in today‘s tight market is need to find and analyze the required data at the least speed possible. However with exponentially growing amount of data, speed becomes a major issue as analyzing such absolute volumes of data in detail to find out required output becomes more and more tedious. It is not only the quantity of data but also discovering the data according to the appropriateness of the project which is a Herculean task.
- Elimination of out-of-context data is an essential objective. Even if in-context data retrieved at a high speed is achieved, the quality of data may be compromised if it is not accurate or timely.
- It involves those relating to the vulnerability and security of Big Data. Breaches of privacy, especially with data relating to individuals and organizations have been a topic of serious concern.
- Organizations dealing with big data need to take this issue in their stride and make sure that the data storage and location be made heavily protected so that it is not misused. They could do so by using unique database tables, having dedicated database servers, encrypting the data, having multiple security levels, having separate authentication and authorization modules and ensuring secure system operations, data transmission and data flow control.

Three key areas of security threats have been identified in the implementation of Big Data using software such as Hadoop.

• Breach of privacy by unauthorized release of data,
• Manipulation of data in the database and
• Denial of information.

In particular, the following areas of threat have been recognized in Hadoop.

• Manipulation of data in a file at a DataNode through pipeline-streaming data-transfer protocol.
• Adding/deleting/changing priority of a job in a queue.
• Unauthorized access of intermediate data of Map job via its task trackers HTTP shuffle protocol.
• An executing task may use the host operating system interfaces to access other tasks, access local data which include intermediate Map output or the local storage of the DataNode that runs on the same physical node.
• Submitting a workflow to Oozie as another user.

Big Data analysts is faced the Real time security or compliance monitoring is also a challenge. Due to the copious amounts of data involved, the number of alarms triggered by the security devices is so large that several of these alarms tend to be overlooked as humans cannot cope with the shear amount.

- The above challenges that are faced by Big Data needs to be addressed and solutions of these problems need to be determined so that industries can start implementing big data analytics in their business strategies

FUTURE SCOPE AND DEVELOPMENT

Future Scope for Big Data and Analytics are:

1. Visual data discovery tools will be growing 2.5 times quicker than rest of the Business Intelligence (BI) market. By 2018, invest in this enabler of end user self-service will become a requirement for all enterprises.

2. In excess of next five years spending on cloud-based Big Data and analytics (BDA) solutions will grow three times quicker than spending for on-premise solutions.

3. Hybrid on/off premise deployments will become a requirement.

4. Five times that many positions requiring related Skills there will be 181,000 deep analytics roles in 2018 and Shortage of skilled staff will persist.

5. Growth in applications incorporating advanced and

analytics include machine learning will speed up in 2015. These apps will grow 65% faster than apps without predictive functionality.

6. Decision management platforms will expand at a CAGR of 60% through 2019 in response to the need for greater consistency in decision making and decision makes. process knowledge retention.

5. CONCLUSION

A survey of this literature discusses Big Data from its infancy until its current state. It elaborates on the concepts of big data followed by the applications and the challenges faced by it. Finally we have discussed the future opportunities that could be connect in this field. Big Data is an evolving field, where much of the research is yet to be done. Present Big data is handled by the software named Hadoop. However, the proliferate amounts of data are making Hadoop insufficient. To attach the potential of Big Data completely in the future, extensive research needs to be carried out and revolutionary technologies need to be developed. Summarizing, Peter Sondergaard, Senior Vice President of Gartner Research famously stated Information is the oil of the 21st century and analytics is the combustion engine

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IoT Based Energy Meter Reading,Theft Detection and Energy Control Using GSM

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***Abstract*:-- This paper has the information about the design based on ATmega328p micro controller and also has the energy meter implementation using the concept of IoT. This system design intimate about the Theft detection, power or energy consumption and energy control. When theft is detected at particular transformer it will noticed to the service provider end and consumers. How much power consumed in their house stored in the web page.so consumers can moniter their energy or power consumption. If the capacity of the meter is exceeded i.e.,over load ,that information is intimated to the consumer.so consumer can monitor their meter safely.The hardware interface circuit involves ATmega328P micro controller,wifi module,GSM modem.**

***keywords:* ATmega328P micro controller,ESP8266Wi-Fi module,GSM modem.**

INTRODUCTION

Today, our world is frequently facing a challenging environment everywhere.The main problem is energy crisis. For this problem, having a relevant system to control and monitor the power usage is the only solution. Reducing the usage of power in households is the only approach through which today's energy crisis can be addressed.

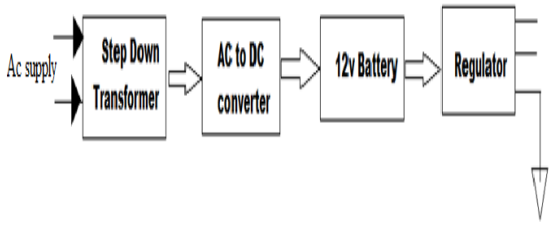
We should provide an ideal solution for this, so that consumers can be facilitated. The solution is concept of IoT(Internet of things) meters.Here,current transformers and voltage transformers are connected consider as a energy meter.

In this information like electricity theft can be known to service provider end and consumer through GSM.How much theft energy is detected it is stored in the web page.so consumers also to known about thefted energy.

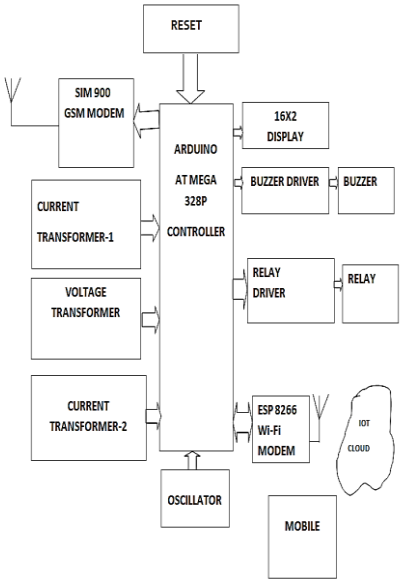
Number of units the consumer consumed is stored in web page by wi-fi module.so consumer knows about their energy consumption by using their IP address in web page.consumers can moniter their power or energy.If the meter is over loaded it will noticed to the consumer through GSM.

Following the above factors, this concept is of four units. They are Microcontroller unit, current transformers, GSM modem and Wi-Fi module. The consumers can keep track on their power consumption from a web page providing a device IP address.

BLOCK DIAGRAM



Fig(1a) : Block diagram of power supply



Fig(1b):Block Diagram Of Smart Energy Meter

II.RELATED WORK

We have observed that many researches have done relentless work on internet of things(IoT) and PCB boards (circuits).The paper from the web server gave us basic idea of IoT bases energy meter which are authorized by merolop,landic,ianniel G. This IoT based meter can gives us to analyze the unnecessary power loss in different areas and improve efficiency of power system one of the papers of web server written by darshan iyer gave the information on power theft detection ,the same related work can be collected from paper by pounam barle ,ankitha saswadhar ,pupal,s kali.

A. Existing Method

The present system of energy meter provides the feedback to the house holder (consumer) in the form of bill at the particular date every month. The bill is based on the power consumption by the consumer in that particular month. the major disadvantage in the present system is tampering of power system meter which causes energy crisis.

B.Proposed method

The existing system has no way to track the energy usage on a more immediate basis,to overcome this problem this method has an opportunity to know.

III. SYSTEM IMPLEMENTATION

The project describes about the theft detection, power optimization and relevant energy consumption information to user.User can also know the number of units consumed from a web page by providing device IP address .If there is any theft detection occurs in energy or smart meter will be displayed on the window. Power supply is a primary requirement for the project work for this we have to used center tapped secondary of 12v-0-12v(step down) transformer and current transformer is used to measure the alternating current.Here semi-conductor diodes are used as a rectifier to convert alternating current(AC) to direct current(DC) .The rectified output is filtered for smoothing the DC, for this purpose capacitor is used.IC LM 78XXX series is used for voltage regulator and safe guard it from overheating.The pulse data from energy meter takes the ATmega328 micro controller and performs the logic or control operations like number of units the consumer consumed and send it to the wi-fi module.Meter reading ,wi-Fi configuaration data will be displayed on the LCD module .

1.Electro-Mechanical Switch For Load:

It is a mechanical switch which is operated electrically to turn ON or OFF current in an electrical switch. when the applied current or voltage exceed the threshold value,if the coil activates the armature it which operates either to close the open contacts or to open the closed magnetic force that activates the switch mechanism.

2(i). Theft Detection:

Here we have used two current transformers one is at the source end (current transformer-1) and other is at load end(current transformer-2).If the power difference between these transformers is exceed the threshold level then there is a theft is detected.The buzzer driver indicates the theft by raise the buzzer and relay activates the switch mechanism.

Theft detection result is intimated by the company side and consumer side from the web page or to the particular mobile number registered for that meter device.

2(ii).Power consumption:

Consumers knows about their energy consumption from the web page by using their IP address by the wi-fi module.so consumer can moniter their power or energy.

2(iii).Energy control:

If the meter threshold level is exceeded due to the over-load it will notify to the consumer through GSM to send the msg to the consumer.

3.Wi-fi Unit:

Wi-Fi is a technology for wireless local area networking with device based on the IEE 802.11.standards.Wi-fi modem is used for store the information in cloud like theft detection , number of units the consumer consumed.

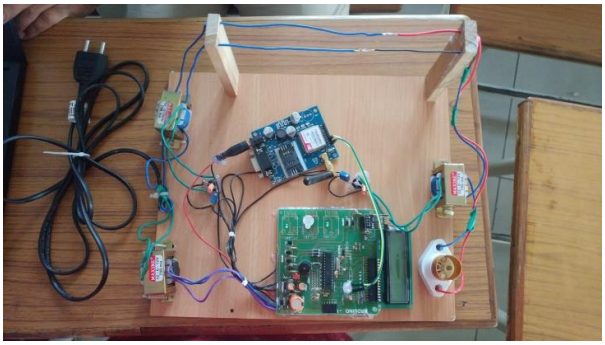
FIG: WI-FI MODEM

4.GSM Modem:

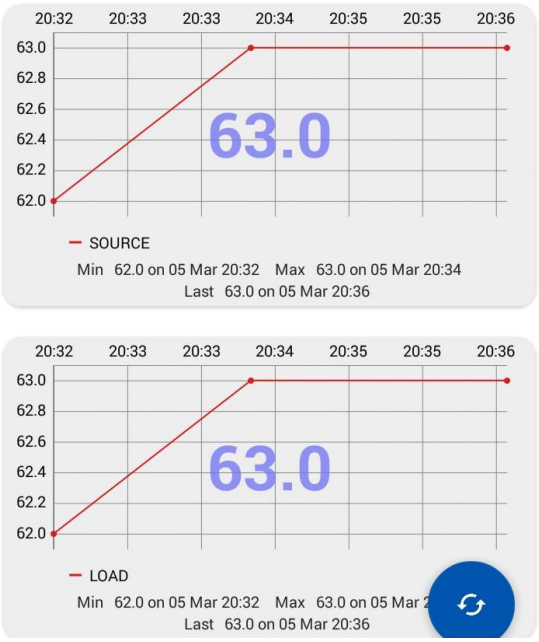
GSM moden operates over a subscription to a mobile operator.Here theft detection information and meter over load information is intimated to the service and consumer provider end through GSM modem to the particular mobile number register for that meter device.

FIG:GSM MODEM

IV.RESULT



Fig(4):IoT energy meter reading and theft detection circuit.



Fig(4b):Terminal window showing theft detected and energy consumption.

V.CONCLUSION

According the present generation of smart city advancement THEFT & POWER ENERGY METER which is mainly concentrated on connectivity and network factor of the IOT , energy consumption calculation based on connecting of calibration pulses which is designed and implemented using PIC18F46K22 MCU in embedded system domain.

In this IOT based meter reading system is designed to continuously monitor in the meter reading and service provider. Which is also used to disconnect the connection when customer doesn't pay monthly bill. Which mainly avoided human involvement and deliver effective meter reading, prevent billing mistake.

THE PROJECT HAS ACHIEVED FOLLOWING OBECTIVES:

- Ease of accessing information for consumer from energy meter through IoT.
- Theft detection at consumer end in real time.
- LCD displays energy consumption units and temperature.
- Disconnection of service from remote service.

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A Novel Structure of the Data Objects in Data Aware Networking

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Abstract:-- **Innovative progressions in technologies, in particular, the proliferating smart livelihood systems provoking a gigantic data hardship on the networks these days. The proclamation of brand new technologies every day might significantly demand a thumping data to be disseminated around, which causes the existing networks awkward to handle it copiously. In order to address such impediments and to instigate diverse services to be flourished in the prospective networks, the ITU-T recommended a state-of-the-art network paradigm, known to be as the Data Aware Networking (DAN). This recent approach structures its data in the form of data objects that lets the users have a quick name based identification and retrieval of the desired data nevertheless of its location, which significantly curtails the burden on the networks and also greatly reduce the blockades in today's host centric networks. In this paper, we classified the data objects into various categories and proposed a novel structure for the data objects that empowers the DANs intermediary elements to identify a requested data object, process it accordingly in order to disseminate the same to its requester possibly from a nearest DAN element. This novel approach makes the DAN an imperative architecture to realize the future networks.**

Index Terms—Data Aware Networking, DAN, Data Objects, DO_ID, Country_ID, Agent_ID, Author_ID, Scope_ID, Nature_ID, Life_ID, Regional Agents, National Agents, Local Agents.

INTRODUCTION

The extent of data transmission over the networks are in lightning acceleration today. According to Cisco VNI forecast, the yearly IP traffic may surpass 3 zettabytes by 2021 and likewise the rush-hour demand will have a remarkable expansion of 4.6 fold [1]. Emerging trends in technology including IOT, personal digital systems, cloud computing platforms, augmented reality and artificial intelligence systems are ceaselessly spawning and communicating large volumes of data, which entails a seamless connectivity of the networks. Such a stimulation in users affinity in information necessitate massive amounts of data dissemination and demands the allocation of substantial network resources, which makes it awkward for today's host-centric networks. In this perception, the ITU-T in its wide recommendation Y.3001, identified and highlighted Data Awareness as one of the prime design goals of the future networks. It entails the significance of architecting and incorporating a proficient paradigm for accessing and disseminating such a large volumes of data irrespective of their location. This approach can be realized under the name of Data Aware Networking.

Data Aware Networking (DAN) is a futuristic networking framework that empowers its users attain a brand-new tailor-made service experience in quick accessing the desired data simply and securely irrespective of its location [2]. DAN can systematize its data in the form of data objects. A Data Object (DO) is a uniquely identifiable named data chunk, distributed over DAN and can be manageable using its name. Such a name based communication is the reigning idea behind DAN and can prompt a streamlined mobility management. More importantly, the intermediary nodes of DAN are aware of user requests, capable of recognizing the data objects, process them and refine the corresponding responses in an optimized manner [3]. Hence the data awareness feature of DAN clearly distinguish them from the existing networks. However, the DAN elements can also able to restrict the network traffic towards the hosts by serving the possible requests with a locally cached copy of a data object. This provision from DAN not only substantially lightens the burden on the actual data hosts but can also effectively address the busy-hour internet traffic as well.

Data Objects play a major role in the orchestration of DAN at full extent. An efficient Systematization of data objects facilitates the required DOs easy to locate, retrieve and distribute from their corresponding DAN components and also revamps their performance and utilization. This can be realized by classifying and methodizing the data objects accordingly into various categories of their relevance.

The rest of the paper is structured as follows. Section-II illustrates the classification of the data objects into various categories. We defined the structure of a data object along with a detailed explanation of its attributes in section-III. Finally section-IV provides the conclusion and future work of the proposed data objects structure.

II. CATEGORIZATION OF DATA OBJECTS

Data Objects categorization is the process of organizing the data objects into different categories for their most sufficiently efficient utilization. In order to realize such an operational fringe benefits, the data objects can be classified into four categories.

A. Category-I-Open access Data Objects

As per the classification, the data objects of Category-I are intended for general public usage. This category includes all those data objects which are straightforwardly accessible and have no restrictions for their retrieval. All the DAN users can request and be served with these category of objects from a nearest DAN element. Some examples of the data objects that falls into category-I are: Public notices, advertisements, contact information, product prices, route maps, etc.

B. Category-II- Local access Data Objects

The data objects of Category-II are intended for the local usage within the organization/functional component in which the actual data objects are being produced. These data objects are intended for use by the local/internal users and permitted partners. This category should include all those data objects that have a pre-defined geographical access limitations, say within the organization. Some examples of the data objects that falls into category-II are: Organization policies and procedures, personnel code of conduct, internal correspondences, etc.

C. Category-III-Privileged access Data Objects

The data objects of Category-III are intended for appropriate access for a specific organization/functional components in which the actual data objects are being produced. These data objects are sensitive and intended for use only by the admissible users with access limitations. All the privileged users with valid access rights can request and be served with these category of objects from a nearest DAN element. Some examples of the data objects that falls into this category are: Health records, passports, personal information, etc.

D. Category-IV-Restricted access Data Objects

The data objects of Category-IV are intended for restricted access. This category includes highly sensitive data objects, which are intended for use only by a fairly limited number of approved users. Only the legitimate users with pertinent access rights can request and be served with these category of objects from their nearest DAN element. Some examples of the data objects that falls into this category are: Passwords, credit cards, organizations financial documents, shareholders private correspondences, etc.

III. STRUCTURE OF A DATA OBJECT

A data object can be composed in a way that can be easy to identify and discover the essential information about it, which assists the DAN elements to implement an effective find-retrieve-forwarding strategy. Therefore, by combining the aforementioned categorization requirements, the proposed structure of a data object can be visualized into two parts:

I) Header Part

II) Data Part

Figure1 below shows the proposed structure of the data objects

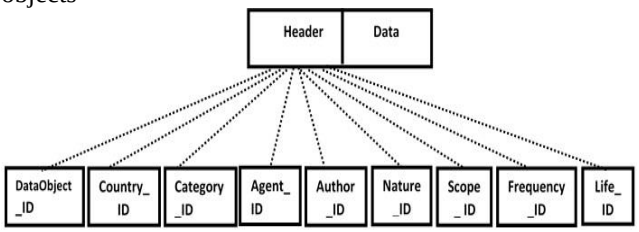

Figure 1: Structure of a Data Object

The header part of a data object is composed of various key attributes that can provide essential information required for the DAN components to process a data object. While the data part contains the actual content of that data object. The possible attributes in header section includes the following:

A. DO_ID

The Data Object ID (DO_ID) is the unique ID with associated name of the data object that distinctly identifies it. The name of a data object must be persistent and provided with the property of uniqueness in order to enable the DAN users to access it irrespective of its location.

B. Country_ID

A data object can be better recognized when provided the name of the country or region from which it was being published. This helps the DAN elements in identifying the geographical limitations if any applies to a data object before serving it to a requester, which not only empowers the availability and maintenance of data objects but also promotes fairness in its delivery, subject to its underlying geographical restrictions.

C. Category_ID

Category_ID is an attribute useful to identify the category of a data object and thus for its efficient organization accordingly. Category_ID can also be helpful for DAN to consider access restrictions if any applicable for a data object in order to achieve a fair delivery of it. As discussed earlier in section 2, an openly accessible data object can be disseminated to a requestors without any access limitations. While the restricted category data objects are

liable to certain pre-determined access restrictions as imposed by their producers.

D. Agent_ID

Agents are one of the essential functional elements of DAN. These elements are the authenticated agencies for the provision of ample assistance in publishing the data objects by the original publishers or their appointing authorities. Moreover an agent element should be capable of identifying and registering various publishers, categorize, assign them with appropriate author_id and manage their identity accordingly by offering necessary functionalities for registering their data objects to DAN.

Agent functionality can be effectively realized by distributing among the following three units:

• Regional Agents (RA)
• National Agents (NA)
• Local Agents (LA)

Regional Agents:

A Regional Agent (RA) is an agent element of DAN that operates in its corresponding region. Each regional agent can be identified and authenticated with its corresponding Regional Agent ID (RA_ID). Each RA provides all the aforementioned agent operations in its jurisdiction and coordinates the activities of its subsequent national agents and ensures their management of data objects in an efficient manner. Thus the RAs worldwide can operate with a prime goal of the legitimate distribution and trustworthy maintenance of the data objects.

National Agents:

A National Agent (NA) is an agent element of DAN that allowed to operate in its own country or province. Each national agent can be identified and authenticated with its corresponding National Agent ID (NA_ID). Each NA can be operated under the control and coordination from their corresponding regional agents and is responsible for coordinating the activities of its subsequent local agents and governing the data objects within its specific country.

Local Agents:

A Local Agent (LA) is an agent element that operates under the supervision of its concerned NA. Each local agent can be identified and authenticated with its corresponding Local Agent ID (LA_ID). Each LA can be operated under the control and coordination from their corresponding national agents. LAs are considered as functionally essential elements as they are having direct relations with various producers of the data objects in its local area or state.

The relationship between all the three different levels of agents can be shown in figure2, using a top-down agent hierarchy.

Figure 2: Agent Hierarchy

E. Author_ID

Authors are the elements of DAN that can create, publish the data objects. An author might represent an individual, an organization or any agency with an aim to publish their data objects over the DAN. An author who desired to publish his/her data objects initially would require to communicate with an authorized agent in order to register himself and obtain authorization for further publication activities.

F. Scope_ID

The Data objects in DAN can be distributed according to their corresponding scope. The extent of an area where a data object can be accessible is known to be its scope. Determining the scope of a data object becomes an essential requirement that facilitates a fairly rightful delivery of it. Consequently the data objects can be organized around two scopes, either local or global. The data objects are required to be unique in the given scope. However a local data object required to be unique in its local scope/region whereas a global data object required to be unique in the entire global scope.

G. Frequency_ID

Frequency indicates the extent of demand for a data object. Based on the Frequency_ID, DAN can determine the compulsion of caching and maintaining a data object. A data object having a higher frequency can assume top priority from the DAN elements

H. Nature_ID

The nature of a data object indicates its endurance. A data objects nature can be either persistent or transient. A persistent data object persists forever or for a precise time span, whereas a temporary data object ruins in a shorter time. A Persistent data object is the one which maintains several version of it. It conserves its earlier versions when a new version is released or the existing one is modified. Whereas, a Transient data object is the one which maintains only one version of it. It maintains only one version of it. A newer version of transient data object always replaces the earlier one.

I. Life_ID

The lifetime of a data object is the period of time between its creation/publication and removal/withdrawal from the DAN repository and as well as from their caching points. The lifetime of a data object varies from one another.

The proposed structure of the data object in this paper are unrivalled and are useful in designing a more efficient and effective structuring of data objects for DAN. The list of attributes present in the header part sufficiently assists DAN in recognizing, identifying and retrieving them from their point of presence.

IV. CONCLUSION AND FUTURE WORK

Data Objects are the principal elements in DAN that supports name based data access, which can erect the DAN as an innovative approach in data dissemination. DAN can serve its users with a requested data object regardless of its location, possibly from a nearby intermediary element. This promotes the DAN to quickly respond against each request and also fosters them to serve the possible requests natively. This paper presented the categorization of the data objects in DAN and also proposed a novel structure for the data objects. However, a much needed information for DAN elements about each data object will be furnished by the attributes present in the header part of the proposed data object structure. In continuation to the work proposed in this paper, we are working on implementing the same by assigning suitable IDs for each attribute in the structure, which makes it possible to attain a pre-eminent data object maintenance in DAN.

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Classification of Business Crop Disease by Data Analytics

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***Abstract*:-- Due to automation, the term, data is large in amount so it is transformed as big data in many fields. Rapid advancements in the robotics cause floricultural data to participate in the era of big data. Traditional tools and techniques are side-lined to store and to determine this process on the part of data. To save and resolve this type of data is comparable in computing and in figuring out the need of model. Big data problem-solving is used as a quick solution to fix the problem.. To reach this solution we use Hadoop and Hive tools. The data is poised, cleansed and distribute. Data is encrypted from research laboratory reports and web sites etc. then cleansing of data is done i.e. necessary information which is extracted from disorderly unnecessary data. In the next step, we finish the normalization process. Later, Normalized data is uploaded on HDFS and save in a file placed hive. Havel is a SQL like interrogate sound which identifies some crop contamination symptoms like plague and so. And benefit an explanation occupying on evince from historical data. Result is picturized in the model graphs. That will compare the result with other with other diseases of the crop.**

***Keywords*--Big data analytics, Hadoop, Havel, Recommendation system.**

1. INTRODUCTION

With the vocational advancements and augmented prosperity of data husbandry data has enrolled the era of big data. Big data is a term recognizable interpret augmented surge of data. Data may enlist the form of file process or it may enter directory. And that data can't be fixed by common operating system techniques and directory's [1]. The main aim of the script undergoes cultivate a proposal technique to diagnose and cater result of horticulture crop plagues. With the help of big data horticulture partition, consulters can certainly appoint from archival data. It will be a great modification and pioneering pre-empt personal biography if big data partition is used in cultivation [2]. Agriculture data is intensifying regular at wonderful rate. The explanation for this commit use big data data and for evaluation of such type of data Hadoop and its tools are used. In the probe work Apache Hadoop and Hive is used for solving the problems of horticulture big data logic. Apache Hadoop is a principle used in scattered ecosystem. arrangement is cultivated that select epidemics and endorse results occupying on archival data. And this groundwork will help probers reluctance construction and it is clearly coherent. The sap i.e. really used for a certain plague has tiptop antecedence. For protest formed structure is at home with name Paddy crop leaf storm contamination and endorse a juice [3]. Apache Hadoop and its different tools are elucidated in next branch. Hadoop and Tools Platform/Tools Description Apache Hadoop Apache Hadoop is operating system plan specifically a candidly free in natural world and apache Foundation get technical name of it. Hadoop hangs by Linux. Hadoop implements a shared processing, depot and enactment situation. Hadoop is a program printed in java computer technology that caters scheme for MapReduce jobs.

2. METHODOLOGY

Primary emotion of the process appear the lot of data undergo work researchers by contributing an explanation for discrete bugs of crops. It was not an easy task to form a new plan find disorder and urge explanation positioned on symptoms parallel. These structures cater the explanation occupying on real data. Data for this scheme is possessed from diverse sources. This design intrinsically tempts proposal process. The endorsement process uses the classical data or the grasp of the produce [4]. Many browsing companies use support arrangement for sales (e.g. Amazon. in). In the recommended design endorsement structure is interest cultivation realm. Firstly, data is quiet from numerous sources e.g. lab reports, husbandry websites etc. quiet data is admitted as raw data because it incorporates irregularities and undesirable science. So, data is unformatted and it needs electronic publishing or approval. This data is hoarded on HDFS. Name Node of HDFS keeps road how your files are drab into file blocks, that nodes drugstore these blocks. clients communicate shortly with Data Node to treat the sectional files produce the blocks.

Laboratory Test reports: It is a crucial source of data for researchers. the tests conducted are soil, water, manure, plant analysis etc.

Agriculture info websites: These websites act like mentor for farmers. These sites give information related to agricultural economic entity; commonly used pesticides etc. agriculture information websites provide information to farmers about which crop to plant where and when. And suggest solutions to various problems related to crops. by these sites farmers get knowledge about new techniques and tools.

Agriculture department reports: Using these reports decision making is easy for crops of area. These reports are important to provide information regarding field of a geographical area.

3. AN OVERVIEW OF PROPOSED SYSTEM

The term DISEASE is coined by coupling principle DIS + EASE = DISEASE. The nickname DIS mark ugly, lift, or inverted, and exhaustive EASE mode encouragement, or liberty from pain or disbelief. A Crop pest may respectively be defined as: any harrowing deviation or fluctuation from everyone conducted in mundane processes. Crop diseases mean by dint of the loss they make [5]. The completion of crop bugs is a basic arbitrate which runs it and enhances yields and makes profits in a different manner will radiate some of the consecutive situations. Bhutan wise for the order time one of adversity rice devastation wave in 1995 limited that most of the rice growers in Paro and Thimphu suffered brutal losses. Similarly, the late dry bug of tuber whatever soar by a gunk (Phytophthora infesting) is genuinely resident and appears always when the shower is ruthless. Once the poisoning distance will perfect rigorous loss to yam growers. Apple scab is supplementary wave plant ready in the high altitudes of Thimphu, Paro, Hai and Bum hang. Reliance on man age-experts is affected with cutoff and suggested issues. So, developing a thermionic data tapping galvanized crop arrangement pray principally deferential with symptoms and preventions of all variety of crops whatsoever can praise solutions to a reap user is the need of the hour [6].

Instead of collaborative filtering to support recommendations we propose to implement a Cascade Hybridization Recommender System(CHRS).

A CHRS is one recommender that refines the recommendations given by another to yield better suggestions based on multiple dimensions.

The CHRS consists of Singular Value Decomposition(SVD) model and a Nearest Neighborhood (NNH) algorithm in combination with Pearson correlation (or cosine similarity) to compute disease predictions.

The proposed factorization algorithm of CHRS was tested on synthetic crop disease dataset and the performance outcome validates the efficiency of our approach in terms of accuracy and processing complexity. Algorithmic steps are as follows:

```
function r = factorizeMatrix(k)
load IO_File R;

[U,S,V] = svds(R,k);
SV = sqrt(S)*V';

numItems = numel(R(1,:));
ISM = zeros(numItems,numItems);

for x = 1:numItems
  for y = 1:numItems
    if x <= y
      break;
    else
      ISM(x,y) = cosineSim(SV(:,x),SV(:,y));
    end
  end
end

ISM = ISM+ISM';
[S,IX] = sort(ISM,2,'descend');
```

Fig 1 : Algorithm

4. RESULTS

When we entered the symptom name as Spot, by using the Collaborative Filtering(CF) it gives the processing time as shown in fig 2 and it is also different from one area to another area by using graphical representation as shown in fig 3. And by using Cascade Hybridization Recommender System(CHRS) it gives the processing time as shown in fig 3.

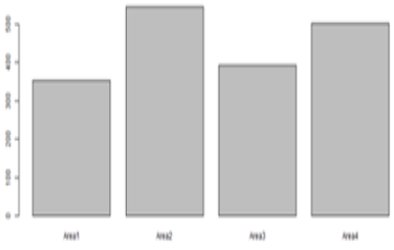

Fig 2 : Processing time for symptom 'Spot' using Collaborative Filtering(CF)

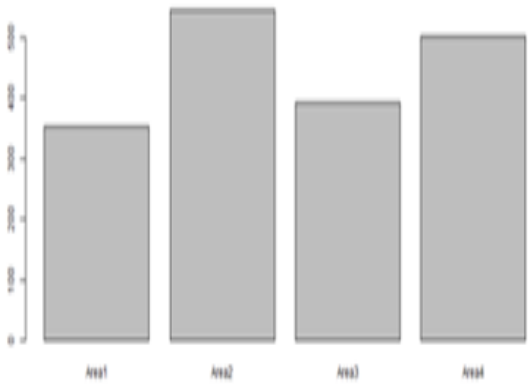

Fig 3 : Processing time for symptom 'Spot' using Cascade Hybridization Recommender System

5. CONCLUSION:

In this paper, we have introduced Uncertainty Resolution, which is the problem of identifying the minimal set of questions to be submitted among public to reduce the uncertainty in the ordering of top-K query results. First, we proved that measures of uncertainty that consider the structure of the tree in addition to ordering probabilities (i.e., UMPO, Hub and UORA) achieve better performance than state-of-the-art measures (i.e., UH). Moreover, since UR does not admit deterministic optimal algorithms, we have introduced two families of heuristics which is (offline and online, plus a hybrid thereof) capable for reducing the expected residual uncertainty of the result. The proposed algorithms have been evaluated experimentally on both synthetic and real datasets, against baselines that select questions either randomly or focusing on tulles with an ambiguous order. The experiments show offline and online best-first search algorithms which achieve the best performance. But are computationally impractical. Conversely, the T1 on and C off algorithms offer a good trade off between costs and performance. With synthetic datasets, both the T1 on and C off achieve significant reductions of the number of questions wart. The proposed algorithms have been shown to work with no uniform tuple score distributions and with noisy crowds. Much lower CPU times are possible with the increase of algorithm with slightly lower quality (which makes incr suited for large, highly uncertain datasets). These trends are further validated on the real datasets. Future work will focus on generalizing the UR problem and heuristics to other uncertain data and queries. For example, in skill-based expert search, where queries are desired skills and results contain sequences of people sorted based on their topical expertise and skills which can be endorsed by community peers.

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A Greedy Search Aware Fuzzy Scheduling in Cloud

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Abstract:-- **Cloud computing can provide on-demand storage as well as computing services that have a high performance level along with high scalability. The increasing consumption of energy in the cloud data centers is a very prominent problem today. The cloud performance has been affected because of the issues in security. Thereby, the service providers have been held responsible for taking proper care of these systems here and the scheduling will be held responsible for the choice of best and also most suitable resources in the task execution by means of taking certain types of static as well as dynamic parameters along with the restrictions of such tasks into consideration. The scheduling in that of cloud computing will belong to one category of the problems that are called the Non-deterministic Polynomial (NP)-hard based problems owing to the solution space and so it takes a long time in identifying an optimal solution. Here in this work, the fuzzy logic and the methods are greedy in terms of the methods that were proposed. For calculating the value of the fitness in the fuzzy inference system the membership function is used to determine the degree until which these parameters belonging to a fuzzy set which is relevant. The work also introduced another new idea for integrating the approaches in solving the hard problems that are combinatorial. This proposed methodology which shall evaluate all the objects in a manner that can combine the fuzzy reasoning along with a greedy mechanism. It also means that the fuzzy solution space is exploited with some greedy methods. The results of the experiment proved that this method proposed can achieve better performance than that of the fuzzy logic.**

Keywords— Cloud Computing, Scheduling, Security, Fuzzy Logic and Greedy Search.

1. INTRODUCTION

In the current scenario, Cloud computing has grown to become one new paradigm in computing that has a flexibility that is unparalleled and also has access to that of the shared and the storage in the digital world of today resulting in a highly significant growth in data centres in which the size grows from about 1000's to about a hundred thousand servers. These types of data centres in Cloud computing can offer Information Technology (IT) based resources as services and such types of various hardware systems like the servers or the data network systems with the storage and also representing all of their resources in a data centre that can provide the Infrastructure as a Service (the IaaS) along with that of the Platform as a Service (the PaaS). Such applications like the web search, the computation along with that of social networking are all being offered by the data centres of cloud computing which have been hosted to be the Software as a Service (SaaS). These applications will be run further using the virtualized IT resources which may also be Virtual Machines (VMs), that have been duly provided by the PaaS and the IaaS. Based on that of the requests that have been made by the services providers for all of such resources there are several other types of services which may be provided by the VMs to all their requests [1].
However, the various changes that are in the minimization of the approaches will not take into consideration the cloud services and the charges depend on the minutes or the instance hours. An integral instance hour will increase the difficulty in solving the problem of cost minimization. An auto scaling and scheduling algorithm is the one that will bring down the cost by means of considering the integral instance hours. In this algorithm, tasks of local deadlines are assigned and these decide number as well as the types of the VMs that are needed for executing such an application [2].

The consumption of energy of such data centres will constitute a major part of the operation cost. This energy consumed by the large data centres [3] result in the increased energy demand being a hurdle to the scalability of the data centre. There is an Emerson report that has made an estimate of the servers in such data centres that can account for about 52% of the entire energy consumed, and the cooling systems of about 38%, with the other miscellaneous systems, like power distribution, that tend to account for what is remaining which is around 10%. These are the three different sub-systems in that of a data centre that can be optimized for the efficiency of its energy [3].

There are however certain concerns to the security that may also relate to all of the areas of risk and of the external storage along with the dependency based on which there is a public based internet, its multi-tenancy and also the lack of integration or control with that of the security. While being compared to all of these traditional technologies, the cloud has many more specific features like resources of

large scale that belongs to the providers which have been completely distributed as they are heterogeneous along with being fully virtualized. Such security mechanisms used traditionally like identity or authentication along with the authorization will not be sufficient for the clouds that are seen in their current form. However, 0wing to the very fact that the models of cloud service that have been employed, such operational models along with that of the technologies, are all being used for the purpose of enabling the cloud. However, such types of integration of security using such solutions are being perceived as making them much more rigid than earlier [4].

Scheduling normally permits some optimal allocation of the resources among various given tasks within a finite time for achieving the desired Quality of Service (QoS). Formally, such types of scheduling problems will involve tasks that are scheduled to certain constraints for being optimized and in general conditions the actual problem of the mapping of the tasks on the unlimited resources of computing among cloud computing will particularly belong to another different category known as the NP-hard problems. There have been no algorithms that can produce any optimal solution within that of a polynomial time for these types of problems. The solutions that are based on such exhaustive search may not be feasible as their operating cost in the generating of schedules is found to be very high. The Meta-heuristic based techniques tend to deal with such problems by means of providing near optimal solutions inside a reasonable time frame. The Meta-heuristics have also gained huge popularity in the last few years because of their efficiency and also their effectiveness in solving large as well as complex problems [5].

Here in this work, this greedy search aware fuzzy has been proposed for the cloud scheduling. The rest of the investigation has been organized into all the following sections. The Section 2 discusses all the related work in literature. The Section 3 explains several other methods that are used in this work. Section 4 has discussed the experimental results and the conclusion is made in Section 5.

II. RELATED WORKS

Ma et al., [6] further proposed yet another Dynamic Greedy Strategy (DGS) being feasible and also flexible as its dynamic task scheduling scheme, that was able to dynamically allocate all of the virtual resources for executing their computing tasks and also promptly completing all types of scheduling as well as the process of execution by means of using an improved greedy strategy. This simulation platform CloudSim has been expanded to realize that the proposed scheme as well as their simulation results that show that a DGS can speed up tasks' and their completion time and further improve the cloud resource utilization for achieving load balance

Wang et al., [7] had further proposed one more new Adaptive Genetic Algorithm (AGA), that had been found to be yet another algorithm employed in scheduling which was based on the double-fitness adaptive algorithm-Job spanning time and also a Load balancing Genetic Algorithm (the JLGA). This type of a strategy works on the basis of the tasks included in scheduling and the ones that have shorter jobs wherein the average job make span will only be able to satisfy its balancing inter-node. Navimipour and Milani [8] presented another new and evolutionary algorithm which was known as the Cuckoo Search Algorithm (the CSA) that was used for scheduling of the tasks which were present in the cloud computing. Such a CSA based algorithm will be based upon the behaviour of the obligate brood parasites that belong to a particular type of cuckoos which are in combination of that of the Lévy flight behaviour that is seen in certain birds and also in some fruit flies. The simulation results have been demonstrated while the value of that of a Pa will be recorded to be extremely low, the coverage and the actual speed of this algorithm will be quite high. Such type of a system structure can possibly identify all such flow of fuzzy logic inference that will be derived for that of their input variables which will be for the output variables. For this, a fuzzification that is in the input interface can duly translate all of these analog inputs to be inside that of their fuzzy rules so that all such fuzzy inferences will be completed only within the rule blocks which may contain the linguistic control based rules. The final output of all of such rule blocks have also be the linguistic variables and the defuzzification which is in the output interfaces that will be able to translate them into analog variables.

Bianchi and Presti [9] further presented yet another two-stage Virtual Network Embedding (VNE) algorithm, that was capable of mapping the first virtual nodes for the substrate nodes that has been based on that of a suitable ranking algorithm and then also map link along with that of the shortest path that can exist among such nodes. The main ingredient in this approach will be the novel algorithm of ranking which is known as the Markov Chains with Rewards Ranking (MCRR), further based on the Markov reward processes, that are all associated with that of the actual local resources captured within the vicinity fo a certain node. All these experiments have shown that this algorithm will be able to outperform the other earlier approaches as regards the lower rate of VNE rejection, better utilization of resources and much higher revenues.

Keeping in view this min-min algorithm that has shown preference to the scheduling of all the small tasks and the max-min algorithm to their scheduling of big tasks that will lead to the problem of any type of load imbalance in that of cloud computing, with another new algorithm called min-max that has been proposed by Zhou and Zhigang [10]. This Min-max has made good use of the actual time

of greedy strategy, the small tasks as well as the big tasks that have been put together for the purpose of scheduling and also for solving problems in load imbalance.

III. METHODOLOGHY

Here in this section there is fuzzy logic as well as greedy search based algorithm of fuzzy scheduling that have been discussed.

A. Fuzzy Logic

This Fuzzy logic can provide a very simple way of arriving at a proper conclusion which has been based on a vague that is based ambiguous noisy and imprecise input information. This Fuzzy logic had been proposed by Zadeh in the year 1965 and has been used widely today as it has been dealing with various imprecise as well as incorrect information. It has been found to be extremely close to the human mind and for fuzzy logic a human expertise will be embedded within this system. The Fuzzy logic further applies to all the various fields like the air conditioners, the microcontrollers, the washing machine, the microprocessor, and image processing in other applications.

These Fuzzy inferences are widely used for solving the problems of reasoning in all the environments that are not certain. One such typical fuzzy inference module contains three major components that are [11]: the Inference Engine: which will defines all of the fuzzy logic operators with that of the defuzzifier that is used in a process of inference. The Membership Functions: this is the one that defines the degree to which all the fuzzy elements will be part of the fuzzy set. It further maps all the crisp values to a degree of membership among 0 to 1. In case of these fuzzy inference system, every such input as well as the output variable will have its own function set of membership. The Rule base: this will denote a set of the "If-Then" rules that can define all the ones within the inference model and a rule structure will be: "If antecedent Then consequent", in which the antecedent and consequent one will denote the fuzzy propositions that have been connected by the "AND" or the "OR" operators.

This particular system structure will identify all the fuzzy logic inference flow that is from the input variables to that of the output variables. Fuzzification in an input interface will translate the analog inputs within their fuzzy values and such fuzzy inference will take place only in the rule blocks that consist of the linguistic control based rules. The output of all such rule blocks will be the linguistic variables and a defuzzification in that of output interfaces will translate them into the analog variables.

B. Greedy Search Algorithm

This type of a greedy search algorithm is the one that uses the heuristics for making the right choice and when there is backtracking here the choices are re-evaluated. These Greedy algorithms are often the first ones that are considered for the problems in optimization and also for that of the maximization of problems in which there is a general form as shown below: there is also another attempt made for building one more ideal solution which will be by the execution of all these steps until such time no other item is left which can be considered for the same purpose: (1) the standard of selection: this means in case of a greedy way it will choose and also further consider this item that has been found as an optimal one based on a certain criterion that is in its current stage; (2) the condition of feasibility: this is taken into consideration only for one item and will be accepted only on satisfying one more set of conditions with yet another feasible solution with the tasks being accepted inside the problem or its constraints. Such a criterion for the selection is related to all the many different constraints as well as their objective functions and are normally found to be the ratio of an 'advantage' to 'cost', which will be able to measure the item and its efficiency. For such a problem the prime constraint will be from the capacity of this problem to hold on to this approach and such a constraint will only be the actual value of this task and its demand [12].

C. Proposed Greedy Search Aware Fuzzy Scheduling

The actual concept of thus fuzzy greedy evaluation which is for problems involving combinatorial optimization that has been presented in the year 2005 by Sheibani and for such greedy methods that has been a significant question and also an ideal choice in a particular stage of this algorithm. The greedy algorithm will make some choice that will look with no such consideration to that of the earlier choices and also their future consequences. Therefore, it will be aware of the choices that will be the best and this may also be the worst ones as well in terms of being a solution. Such a fuzzy set theory allows us to duly represent all the vague concepts that may be expressed in one such natural knowledge which can be a choice that is made for all these greedy methods [13].

Consider a set of combinatorial optimisation problems where each is associated with on discrete solution space being X, and a feasible space S

That has a property $S \subseteq X$ that has been defined by a problem constraint and

also an objective function $f : X \mapsto \Re$.

For situations of minimization the main aim will be to find a solution which is feasible $x^* \in S$,

So that $f(x^*) \leq f(x),\ \forall x \in S,$

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In which, $x = (x_1, ..., x_n)$ denotes a vector of the decision variables (solution).

Another cost function c (x), $\forall x \in \{x_1, ..., x_n\}$ defined for every problem referring to the function c (x) as its greedy evaluation function denoting the priority for the incorporating of the element x into a solution being constructed without resulting in infeasibility.

It will now describe another alternative approach and treat a set X as its fuzzy set having a well-defined membership function $\mu(x)$, and its form as shown in equation (1).

$$\mu(x) = \frac{1}{1 + \lambda^2 \rho \left(\left(\frac{1-\lambda}{\lambda} \right) x - \theta \right)^2} \quad (1)$$

Here the variable $x \in X$ will correspond to one of such variables within the definition of a problem of combinatorial optimisation; in this it consider $x \in \Re$.

This parameter θ will be a basic measure for the evaluation of the priority that has to be assigned to that of a variable x; and it will require $\theta \in \Re$.

This parameter λ will be a tuning parameter selected by the experimentation so that the $0 \le \lambda < 1$.

The parameter will play a critical role in the developed algorithm to be considered later and a parameter $\rho > 0$ will be effectively in the shape parameter, so that values of ρ will increase, and the graph of the $\mu(x)$ will get narrower.

This proposed function of evaluation

$$\mu : X \mapsto (0.1],$$

will have the properties below:

$\mu(\lambda\theta / (1-\lambda)) = 1$ and $\mu(x) < 1$ for all $x \neq \lambda\theta / (1-\lambda)$.

Equation (1) will be a modification of the general formulas of the families of the other fuzzy membership functions referring to the greedy evaluation replacing the role of the function of greedy evaluation to determine the priority that is assigned to the element x. This Fuzzy Greedy Search Algorithm (FGSA) [14] is actually an extension of that of the concept of fuzzy greedy evaluation which is in the form of one metaheuristic. The process begins with the initial population that is generated for the phase of construction of the Greedy Randomized Adaptive Search Procedure (GRASP). This algorithm will work based on that set of individuals (called the population) that has been divided into two sub-sets that are generated where one is through a recombination operator with a standard approach and the other by employing a procedure for construction similar to the GRASP construction phase except where the process adopts another version of the evaluation as opposed to the greedy evaluation function.

IV. RESULTS AND DISCUSSION

In this section, the fuzzy and greedy fuzzy methods are used. The makespan, degree of imbalance and resource utilization as shown in tables 1 to 3 and figures 1 to 3.

TABLE I.

Number of Jobs	Fuzzy	Greedy Fuzzy
200	44	42
400	92	88
600	147	141
800	193	187
1000	247	236

Fig.1. Makespan for Greedy Fuzzy

From the figure 1, it can be observed that the greedy fuzzy has lower makespan by 4.65% for 200 number of jobs, by 4.44% for 400 number of jobs, by 4.16% for 600 number of jobs, by 3.15% for 800 number of jobs and by 4.55% for 1000 number of jobs when compared with fuzzy.

TABLE II.
DEGREE OF IMBALANCE FOR GREEDY FUZZY

Number of Jobs	Fuzzy	Greedy Fuzzy
200	2.5	2.4
400	2.4	2.3
600	2.1	2
800	2	1.9
1000	1.9	1.8

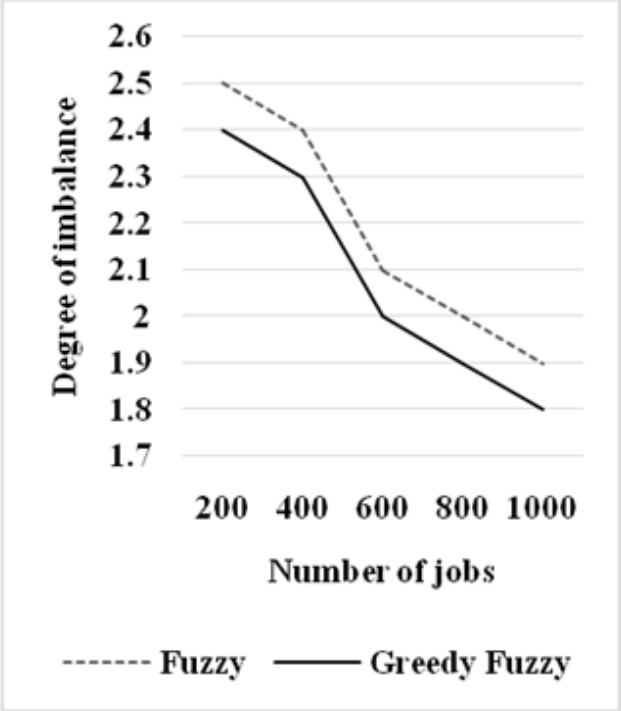

Fig.2. Degree of Imbalance for Greedy Fuzzy

From the figure 2, it can be observed that the greedy fuzzy has lower degree of imbalance by 4.08% for 200 number of jobs, by 4.25% for 400 number of jobs, by 4.87% for 600 number of jobs, by 5.12% for 800 number of jobs and by 5.4% for 1000 number of jobs when compared with fuzzy.

TABLE III.
RESOURCE UTILIZATION FOR GREEDY FUZY

Number of Jobs	Fuzzy	Greedy Fuzzy
200	79	80.7
400	78	80
600	81	83.4
800	82	83.8
1000	79	81.1

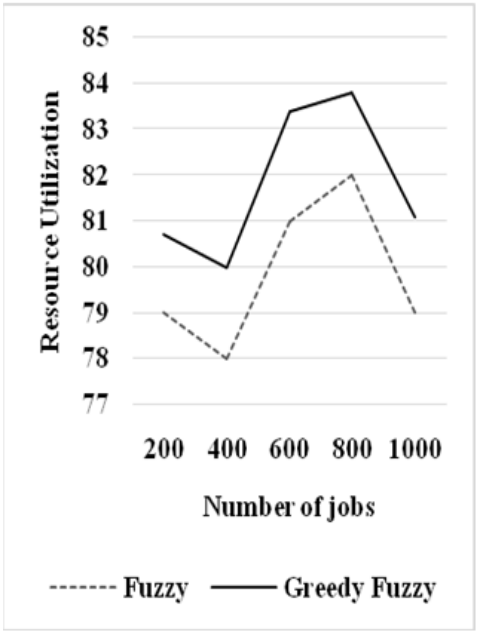

Fig.3. Resource Utilization for Greedy Fuzzy

From the figure 3, it can be observed that the greedy fuzzy has higher resource utilization by 2.12% for 200 number of jobs, by 2.53% for 400 number of jobs, by 2.91% for 600 number of jobs, by 2.17% for 800 number of jobs and by 2.62% for 1000 number of jobs when compared with fuzzy.

V. CONCLUSION

This has large prospects but also has some threats that are embedded. The work uses the method of greedy search aware fuzzy scheduling and it makes the best choice for this. This concept is integrated within the approaches for the problems that are hard and combinatorial. The method further evaluated the manner in which the fuzzy reasoning is combined with the greedy mechanism and given that these mechanisms are inexpensive compared to the other sophisticated methods for the optimization there is some practical significance to this. The efficiency has been demonstrated based on that of the hard combinatorial optimization problems that are in operational research as well as the management science. The results have proved that this greedy fuzzy has a much higher resource utilization by about 2.12% for the 200 number of the jobs, by about 2.53% for the 400 number of the jobs, by about 2.91% for the 600 number of the jobs, by about 2.17% for the 800 number of jobs and finally by about t2.62% for the 1000 number of the jobs on being compared to fuzzy.

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Cyberbullying Detection based on Semantic-Enhanced Marginalized Denoising Auto-Encoder

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***Abstract*:-- Social Networking is a group of Internet based applications that allow the creation and exchange of user-generated content. Via social media, people can enjoy enormous information, convenient communication experience and so on. Since, social media may have some side effects such as cyberbullying, which may have negative impacts on the life of people, especially children and teenagers. Cyberbullying can be defined as aggressive, intentional actions performed by an individual or a group of people via digital communication methods such as sending messages and posting comments against a victim. Different from traditional bullying that usually occurs at school during face-to- face communication, cyberbullying on social media can take place anywhere at any time. Most of the individuals involved in these activities belong to the younger generations, especially teenagers, who in the worst scenario are at more risk of suicidal attempts. Here, we propose the technique for detection and avoidance of cyberbullying words in social media when cyberbullying takes place. And also proposing the technique for detection and blocking the accessing of a predator in social media.**

Keywords: Cyberbullying, Detection, Social Media, Traditional bullying, user-generated content.

I. INTRODUCTION

Social networking sites have become immensely popular in the last few years. More than millions of users have used these websites as communication tools and as real-time, dynamic data sources. Where users can create their own profiles and communicate with other users regardless of location and physical limitations. Bullies are utilizing social media as a new platform for spreading rumors.

Cyberbullying is emerged as a major problem along with the recent development of online communication and social media. Cyberbullying actions are intentionally performed by an individual via social networking sites such as sending messages or posting comments against a victim. Cyberbullying is recognized as a serious problem, because the victims might face health issues like stress, depression and there is a high risk of suicidal attempts. Cyberbullying is different from traditional bullying that takes place any time. Social media provides users not only a good platform for communication and information sharing, but also an easy access to the current information. However, these platforms are also places where users experience bullying as victims, bullies or predators. The most common places where cyberbullying occurs are:

• Social Media, such as Facebook, Instagram, Snapchat, and Twitter.
• SMS (Short Message Service) also known as Text Message sent through devices.
• Instant Message (via devices, email provider services, apps, and social media messaging features).
• Email.

Cyberbullying Tactics:

Some of the cyberbullying actions that takes place over social media is:

• Posting victims personal information without his permission and spreading rumors about victim.
• Telling someone to kill themselves.
• Posting a hurtful picture or video.
• Posting hateful names, comments, or content about any race, religion, ethnicity, or other characteristics online.
• Creating a hurtful webpage about someone.

II. LITERATURE REVIEW

According to the authors Mohammed Ali Al-garadi et al. [1] applied Random Forest to detect cyberbullying. A systematic approach to develop Online Patrol by automatically spotting suspicious entries and reporting them to PTA members and therefore help them do their job. Random forest is an ensemble learning technique that builds multitudes of decision tress. A decision tree is a graphic method in which each branch node represents a choice between alternatives. A graphic approach is employed in decision trees to compare competing alternatives.

According to the authors Ying Chen et al. [2] applied Lexical Syntactic Feature (LSF) architecture to detect offensive content and identify potential offensive users in social media. The overall accuracy is 77.8% in user offensive detection.

According to the authors Maral Dadvar, Dolf Trieschnigg, Roeland Ordelman & Franciska de Jong, [3] applied SVM to detect cyberbullying, and determined that incorporating user-based content improved the detection accuracy of SVM. Using data sets from MySpace, Dadvar et al. developed a gender-based cyberbullying detection approach that used the gender feature in enhancing the discrimination capacity of a classifier. Dadvar et al. and Ordelman et al. included age and gender as features in their approach; however, these features were limited to the information provided by users in their online profiles. Moreover, most studies determined that only a few users provided complete information about themselves in their online profiles. Alternatively, the tweet contents of these users were analyzed to determine their age and gender.

The paper [4] proposes an alternative approach to cyberbullying: a system composed of multiple agents that control users' norm adherence within virtual societies. Being physically present in the virtual society, the agents continuously monitor the behavior of the visitors, communicate with each other to maintain shared beliefs of the visitors' characteristics, and apply punishments and rewards to influence their behavior. Computer software was developed to detect the presence of cyberbullying in online chat conversations.

In existing system even after detecting the cyberbully attack it wouldn't avoid and also there is no detection and avoidance of a predator.

III. METHDOLOGY

The main goal of this project is to detect the cyberbullying messages and avoiding the cyberbullying messages to be posted. This project also detects the predator or bully, and blocking the accessing of a predator. Here we are proposing N-grams algorithm to detect the cyberbullying messages.

N-grams algorithm is considered to be an improved approach to detect cyberbullying messages. It is a contiguous sequence of 'n' items typically collected from a text or speech corpus. An n-gram of size 1 is referred to as a "unigram"; size 2 is a "bigram" (or, less commonly, a "digram"); size 3 is a "trigram". Bi-gram and Tri-gram are the most popular N-grams used in text mining. For example, for the sentence "The cow jumps over the moon". If N=1(known as unigrams), then the n-grams would be:

- The
- Cow
- Jumps
- Over
- The
- Moon

If N=2 (known as bigrams), then the n-grams would be:

- The cow
- Cow jumps
- jumps over
- Over the
- The moon

IV. EXPERIMENTAL RESULTS

The project mainly focuses on detecting cyberbullying messages and avoiding those messages and also detecting bullies and blocking the access of a bully. Initially, the user has to register by register as in an online social network, by entering his/her details. After registration is done, the users can login with their login credentials. The existing users can send messages privately and publicly, options are built. Users can also share post with others. The user can able to search the other user profiles and public posts. In this module users can also accept and send friend requests. If in case, the user posts information containing bullying words or foul language the post gets blocked and will not be displayed. The details of the bullies, who tries to post information containing bullying words are detected and sent to admin. The admin can block the access of a bully.

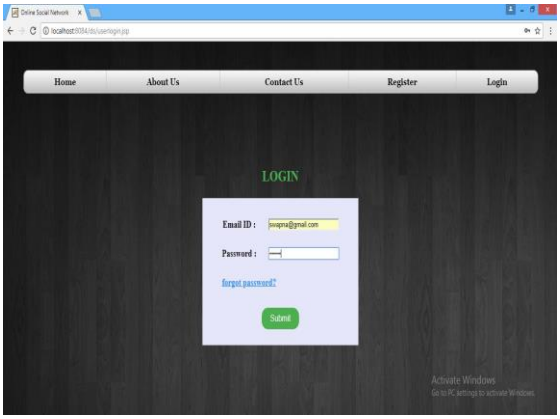

Fig 1 : User Login

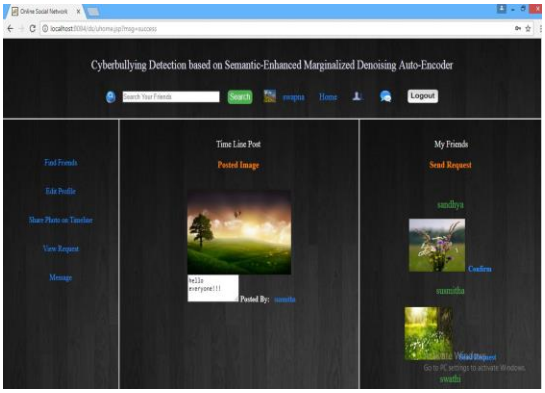

Fig 2: User Account

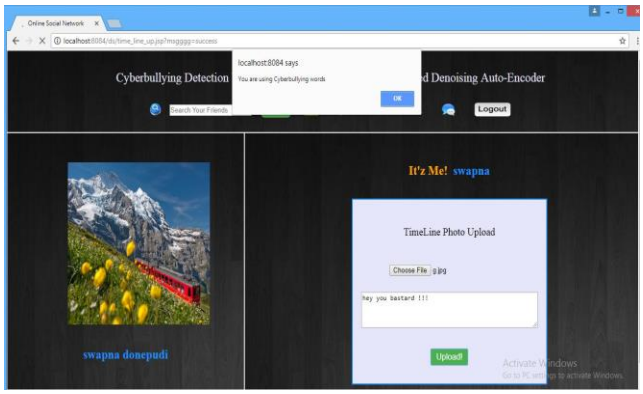

Fig 3: Detection of cyberbullying words

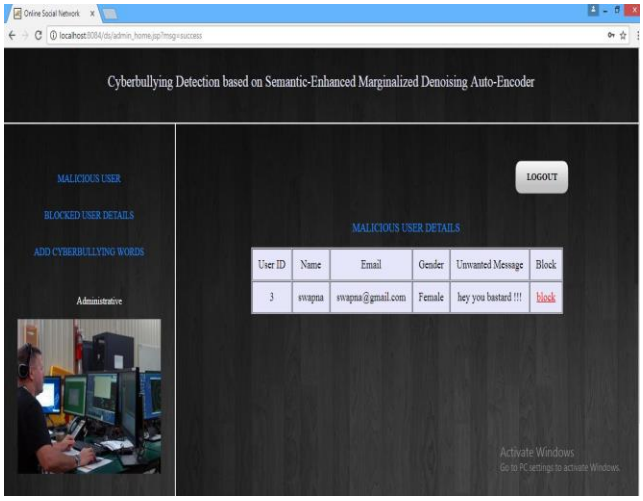

Fig 4: Detection of bully

CONCLUSION

This project mainly focus on the text-based cyberbullying detection problem, where robust and discriminative representations of messages are critical for an effective detection system. Study about effects of bullying is present but implementation for monitoring social network to detect cyberbullying activities is less. Hence, the proposed system focuses on detecting the presence of cyberbullying activity in social networks and avoiding the cyberbullying words to be posted in social networks. The proposed system also focuses on detecting the predator and blocking the accessing of a predator in social networks. This could help to construct a healthy and safe social media environment.

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Opinion Mining on Twitter Data for Sentiment Classification

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Abstract:-- **Opinion mining and Sentiment analysis gives sentiments, opinions and subjectivity of text. Now a days many people express their opinions and ideas through social networking sites like Face book, Google+ and Twitter. These are platforms to allow people to share and express their views about topics, have discussion with different communities. Twitter data is short and continues data suitable for sentiment analysis. This paper focus on sentiment classification (positive, negative and neutral) which is multistep process involves preprocessing phase, parts of tagging (POT), calculating polarity and apply three classification algorithms that are Decision tree, Naïve bayes and Support vector machine on twitter data in Jupyter. This paper also presents empirical comparison of classification algorithms in which decision tree algorithm is highest accuracy in comparison of all three algorithms considered in this study.**

Keywords: Naïve-Bayes, Decision Tree, Support Vector Machine, POT, Polarity

I. INTRODUCTION

Micro blogging websites have become a source of various kinds of information. In micro blogs, people post real time messages about their opinions on various topics such as discuss current issues, complain and express positive sentiment for products they use in daily life. Twitter is such a platform where people expressing and sharing their thoughts and opinions on all kinds of information or opinions about products, politicians, events etc. Sentiment detection of tweet is one of the basic research topics over twitter data and it is very useful because it allows feedback to aggregate without manual intervention. From the sentiment analysis many people like consumer, businessman or may be typical person get benefit and many companies study user reactions and reply to users on micro blogs. One challenge is to build technology to detect and summarize an overall sentiment. In this paper, we look at Twitter and build models for classifying "tweets" into positive and negative sentiment.

Twitter is a micro blogging platform where anyone can read or write short form of message which is called tweets. The amount of data accumulated on twitter is very huge. This data is unstructured and written in natural language. Twitter Sentimental Analysis is the process of accessing tweets for a particular topic and predicts the sentiment of these tweets as positive, negative or neutral with the help of different machine learning algorithm.

We have chosen to work with twitter since we feel it is a better approximation of public sentiment as opposed to conventional internet articles and web blogs. It includes rich structured information about the individuals involved in the communications. For example it maintains information of who follows whom and re-tweets and tags inside of tweet provide discourse information. Another reason is that the amount of relevant data is much larger for twitter, as compared to traditional blogging sites. The response of twitter is more prompt and more general.

Sentiment Analysis is process of collecting and analysing data based upon the person feelings, reviews and thoughts. Sentimental analysis often called as opinion mining as it mines the important feature from people opinions. Sentimental Analysis is done by using various machine learning techniques, statistical models and Natural Language Processing (NLP) for the extraction of feature from a large data.

Sentiment Analysis can be done at document, phrase and sentence level. In document level, summary of the entire document is taken first and then it analyse whether the sentiment is positive, negative or neutral. In phrase level, analysis of phrases in a sentence is taken in account to check the polarity. In Sentence level, each sentence is classified in a particular class to provide the sentiment.

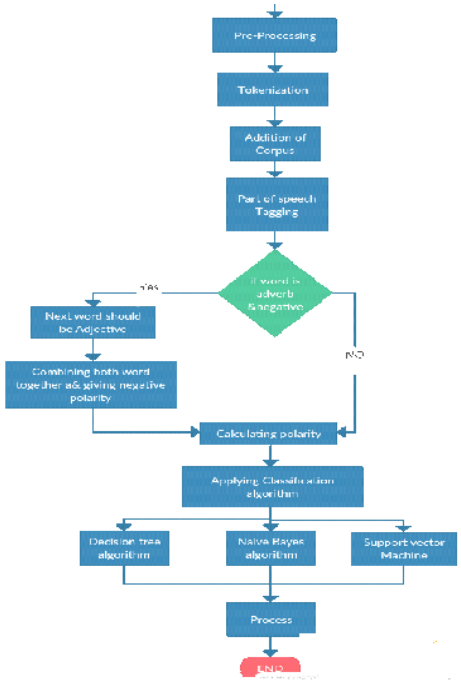
Sentimental Analysis has various applications. It is used to generate opinions for people of social media by analyzing their feelings or thoughts which they provide in form of text. Sentiment Analysis is domain centered, i.e. results of one domain cannot be applied to other domain. Sentimental Analysis is used in many real life scenarios, to get reviews about any product or movies, to get the financial report of any company, for predictions or market.

The layout of the paper is as follows: Section II discusses about the Design Framework.. Section III presents Experiments and Results. Section IV concludes with the Conclusion.

II. DESIGN FRAMEWORK

In this section, we represent an overview of the architecture which resembles process in fig1.

The following steps will expand the process of the proposed system,
1 Collect Tweets
2 Preprocessing of Tweets
3 Feature Extraction
4 Data Modeling



The Fig:1 shows the diagram in schematic form the general arrangement of the parts or the components of a complex system or process, such as an industrial apparatus or an electronics circuit. The block diagrams are heavily used in engineering in various hardware designs.

1. Collect Tweets

Twitter data is short and continues data suitable for sentiment analysis. To improve visibility of the content user generally used Emoticons for pictorially facial expressions, "@" symbol used to refer other users and Hashtags. Hashtags are used to mark topics.

The Initial Data or the Raw Data is collected from Twitter for analysis purpose. Overall 1400 tweets are collected.

2. Preprocessing of Tweets

The reviews are pre-processed primarily to make them noise free at the classification part as the review sentences may describe about two or more features which will be difficult to classify if the sentence has positivity and negativity associated[1]. So the features if two or more are present in a sentence are splitted in order to eliminate the above case And we also took into consideration that the reviews scraped from the websites [2] will contain some spelling mistakes which will be serious issue. Example: 'Gud' may mean nothing to the computer which if corrected does make some sense like positive or negative. Thus the pre-processing includes these steps to make review sentences noise-free along with Stemming as it is the standard procedure to make the words cut short to make match with the features.

3. Feature Extraction

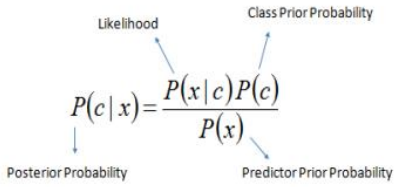
Large number of features without considering un important features [3] are extracted. Thus the sentences are first tokenized to check for the words which are adverbs/adjectives and nouns. Then we apply a POS tagging to select Adverbs/Adjectives and Nouns. Here adverbs/adjectives and nouns are only considered because the word which describes the feature in a review sentence is an adverb or a noun. Example: The body of the mobile is fragile. This sentence when tokenized and POS is applied will look like: [(The,DT), (body,VBP), (of,IN),(the,DT) ,(mobile, NN), (is,VBZ), (fragile,JJ)] Here we take the sentence to see if a feature is present in it or not to check if the sentence is worth further processing. If it does not have any feature, we continue with other review sentences.
Senti-wordnet is a large database consisting of many words associated with its pos and neg score [4]. Example: 'Good' has a positivity score of 0.75 and negativity score of over 0.25

4. Data Modeling

For sentiment classification on twitter data, here we are using decision tree[6], naïve bayes[5] and support vector machine. In the proposed feature selection, a Decision tree induction chooses relevant features using following formula:

$$\text{info}(D) = -\sum_{i=1}^{m} p_i \log_2(p)$$

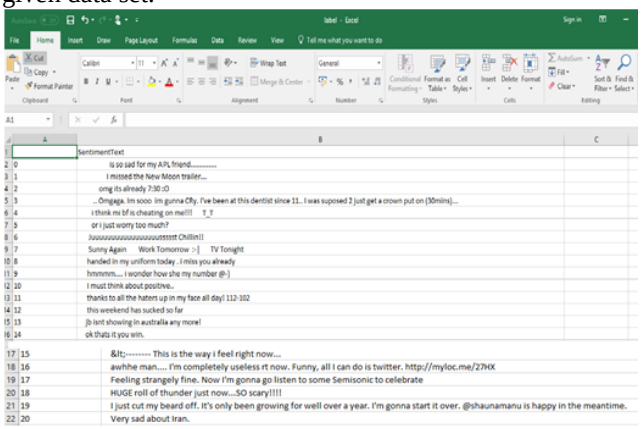
For naïve bayes following is used:



Above, • P(c|x) is the posterior probability of class (c, target) given predictor (x, attributes).
• P(c) is the prior probability of class.
• P(x|c) is the likelihood which is the probability of predictor given class.
• P(x) is the prior probability of predictor
SVM are supervised machine learning methods used for classification, regression and detection models. SVM are more effective for high dimensional space. SVCs are capable for multi-class classification. SVC and NuSVC are similar whereas, LinearSVC are based on linear kernels.

III. IMPLEMENTATION AND TESTING

This is implemented in Jupyter on Windows Download the Jupyter software from the official website. http://jupyter.org/ and click on Download the Jupyter. Fig 2 shows tweets data set. Fig 3shows important features in given data set.



	SentimentText
2	0 is so sad for my APL friend....
3	1 I missed the New Moon trailer...
4	2 omg its already 7:30 :O
5	3 ...Omgaga. Im sooo im gunna CRy. I've been at this dentist since 11.. I was supposed 2 just get a crown put on (30mins)...
6	4 i think mi bf is cheating on me!!! T_T
7	5 or i just worry too much?
8	6 Juuuuuuuuuuuuuuuuussssst Chillin!!
9	7 Sunny Again Work Tomorrow :-| TV Tonight
10	8 handed in my uniform today . i miss you already
11	9 hmmmm.... i wonder how she my number @-)
12	10 I must think about positive..
13	11 thanks to all the haters up in my face all day!! 112-102
14	12 this weekend has sucked so far
15	13 jb isnt showing in australia any more!
16	14 ok thats it you win.
17	15 <------- This is the way i feel right now...
18	16 awhhe man.... I'm completely useless rt now. Funny, all I can do is twitter. http://myloc.me/27HX
19	17 Feeling strangely fine. Now I'm gonna go listen to some Semisonic to celebrate
20	18 HUGE roll of thunder just now...SO scary!!!!
21	19 I just cut my beard off. It's only been growing for well over a year. I'm gonna start it over. @shaunamanu is happy in the meantime.
22	20 Very sad about Iran.

Fig2: Tweets Data set

```
In [15]: words

Out[15]: ['sad',
          'friend',
          'trailer',
          'already',
          'dentist',
          'since',
          'get',
          'crown',
          'put',
          'think',
          'cheating',
          'worry',
          'much',
          'handed',
          'uniform',
          'today',
          'miss',
          'already',
          'wonder',
          'number'
```

Fig3: Extracted features for classification of data set

After extracting important features from tweets, assign polarity to each feature in three levels. These three level sentiment polarities are positive, negative, neutral.
Fig4 shows performance of Naïve bayes, SVM, decision tree algorithms

	Accuracy	Precision	Recall	F-score
Naïve Bayes	0.56128	0.4129	0.25169	0.22907
Support vector machine	0.8006	0.8459	0.62999	0.68586
Decision Tree	0.8961	0.8713	0.8493	0.8596

FIG4: COMPARISON TABLE

IV CONCLUSION

We presented results for sentiment analysis on Twitter. Twitter is a demandable micro blogging service which has been built to discover what is happening at any moment of time and anywhere in the world. By using machine learning algorithms i.e naïve bayes, decision tree, SVM, we conclude that it is easier to classify the tweets and more we improve the training data set and more we can get accurate results. We can also implement features like emoticons, neutralization, negation handling and capitalization or internationalization as they have recently become a huge part of the internet. This paper also presents empirical comparison of classification algorithms in which decision tree algorithm is highest accuracy in comparison of all three algorithms considered in this study.

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An Innovative Approach to Virtual Reality

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Abstract:-- **Virtual reality is a computer-generated environment that lets you experience a different reality. Virtual reality (VR) is a simulated information environment used in a growing number of applications. The aim in VR is to create an experience that mimics or resembles real life situations using a computer. People can try out and practice in a virtual world procedures that are complex, difficult, time consuming, expensive, and even dangerous. To date VR has found applications in the education, entertainment industry, building and engineering design, medical surgery, the tourist industry, advertising, food retail and others. While today's T.V and video productions got used to the benefits of virtual studio technology, the interaction between actors and virtual objects inside a virtual world remains challenging.**

Keywords — **Virtual Reality, Simulated Environment.**

I. INTRODUCTION

The definition of virtual reality comes, naturally, from the definitions for both 'virtual' and 'reality'. The definition of 'virtual' is near and reality is what we experience as human beings. So the term 'virtual reality' basically means 'near-reality'. This could, of course, mean anything but it usually refers to a specific type of reality emulation. Virtual reality is the term used to describe a three-dimensional, computer generated environment which can be explored and interacted with by a person. That person becomes part of this virtual world or is immersed within this environment and whilst there, is able to manipulate objects or perform a series of actions.

Features of virtual reality systems

There are many different types of virtual reality systems but they all share the same characteristics such as the ability to allow the person to view three-dimensional images. These images appear life-sized to the person.

Plus they change as the person moves around their environment which corresponds with the change in their field of vision. The aim is for a seamless join between the person's head and eye movements and the appropriate response, e.g. change in perception. This ensures that the virtual environment is both realistic and enjoyable.

A virtual environment should provide the appropriate responses – in real time- as the person explores their surroundings. The problems arise when there is a delay between the person's actions and system response or latency which then disrupts their experience. The person becomes aware that they are in an artificial environment and adjusts their behavior accordingly which results in a stilted, mechanical form of interaction.

The aim is for a natural, free-flowing form of interaction which will result in a memorable experience.

The Virtual Reality Modeling Language (VRML) allows the creator to specify images and the rules for their display and interaction using textual language statements. VRML (Virtual Reality Modeling Language, pronounced vermal or by its initials, originally—before 1995—known as the Virtual Reality Markup Language) is a standard file format for representing 3-dimensional (3D) interactive vector graphics, designed particularly with the World Wide Web in mind.

A report from research firm Super Data shows the global virtual reality (VR) market will be worth $38 billion within three years, twenty times what it was in 2016. This year it will grow to almost $5 billion, up 168 percent from last year's $1.8 billion.

According to the report, this year revenue from VR software are expected to increase by $1 billion from 2016's $300 million. North America will be the fastest-growing market, expanding from $97 million in 2016 to $403 million this year. Asia will be the top VR software market at $430 million in 2017.

II.HISTORY OF VR

The idea of virtual reality (VR) has been around for a long time. Before computers were invented, even. The French playwright Antonin Artaudmentioned 'virtual reality' as far back as1936 (although he was speaking specifically about the theatre rather than technology). And a year before that in 1935, Stanley G. Weinbaum wrote of a goggle-based VR devicein his short story 'Pygmalion's Spectacles' – a whole 77 years before modern VR headsets likeOculus Rift were conceived.

But for a brief history of virtual reality as we know it, most people would agree that the beginning of the swinging sixties is a good place to start:

1962– Morton Heilig builds 'Sensorama', a projection booth with a 3-D display, stereo sound and a vibrating seat. It produces smells and sensations to takeyouon a virtual journey – through New York on a motorcycle (complete with the smell of hot dog stalls) was one of the 'trips' on offer.

1965– Ivan Sutherland creates the first VR head-mounted display system. His device is so large and heavy that it has to be suspended from the ceiling, and its awe-inspiring (or terrifying) look gives it the nickname, 'The Sword of Damocles'.

1969 -Myron Kruegere – one of the first virtual reality computer artists – helps create 'GlowFlow', a computer controlled environment that responds to the people in it.

1984– VPL Research, one of the first companies to create VR products including its famous DataGlove, is co-founded by engineer Tom Zimmerman and dreadlocked VR pioneer and visionary Jaron Lanier.

1987– Lanier coins and popularises the term 'virtual reality'.

1991– Sega announces details of their Sega VR headset and console designed for gaming (although sadly, it never actually made it into the shops).

1991– Virtual reality launches and produces the first VR games. Players put VR goggles on and enter gaming machines for an immersive real-time VR gaming experience

1992– The film Lawnmower Man follows a mentally-challenged man who is given superpowers through VR therapy. Writer and director, Brett Leonard, admits to drawing inspiration from companies like VPL.

2011– 18-year old Palmer Lucky makes a rough prototype of the VR headset Oculus Rift.

2012– Oculus VR, the newly formed company behind Oculus Rift, launches a Kickstarter campaign to fund its development.

2014– Facebook purchases Oculus VR for $2bn.

2014– Sony announces Project Morpheus, a VR headset for the PS4.

2014– Google announces details of Google Cardboard, a basic VR headset made of… cardboard.
2014– Samsung releases the Gear VR, a device that has no display itself, but uses the Galaxy Note 4 as a screen and computer.

2015– At MWC in Barcelona, HTC and Valve announce details of their upcoming VR headset, Vive.

VIRTUAL REALITY BRINGS BIG DATA VISUALIZATION

Data visualization tools have made it somewhat easier to glean intelligence from a mass of information. But today's tools are still extremely inefficient, as they fail to incorporate the science of human visual perception into their data visualization techniques. This results in tools that deliver great "eye candy" but poor human comprehension of the data.

Traditional tools also tend to visualize what we already know about the data, rather than the unknown. The ideal data visualization tool would let people find things that they don't know, but should. Helping people find outliers, expose hidden trends or clusters, and dive deep into fast changing data sets is where visualization provides real value. But how can we go about doing so?

Perhaps the boffins at the Defense Advanced Research Projects Agency (DARPA) have the answer. We recently reported on its experiments with Oculus Rift, the virtual reality headgear recently acquired by Facebook, which are a fine example of the way VR can help us to better understand data. DARPA has modified Oculus Rift in such a way that futuristic cyberwarriors can visualize three-dimensional network simulations – in some cases with the goal of better targeting them for attack.

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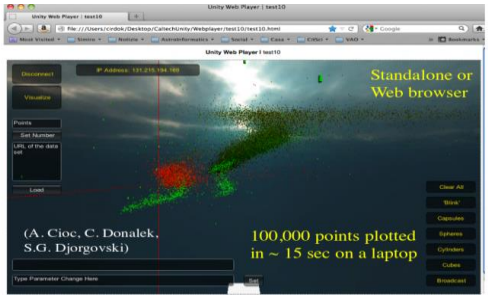
1.Getting 'inside' Big Data

Immersible virtual reality environments to visualize data for the first time.
"We had the idea that this stuff puts you close to information, putting you in places you can't go in real life," explained Dr. Maples. "If you do this in a way that plays to the way humans function, the way they interact we found that learning would increase. We were so successful that it spun out as a private company that later went public".
Dr. Maples' Virtual Reality techniques have helped to solve numerous real world problems. In one example, he was approached by race car engineers from The Goodyear Tire & Rubber Company who'd struggled for more than two years to work out why they were always losing races.
"They hadn't a clue," stated Dr. Maples. "They didn't know what they were looking for."
Dr. Maples and his team spent two months building a virtual reality model for all of Goodyear's data. They ended up with a virtual replica of Goodyear's race car that engineers could immerse themselves in.
"Wheels on the car would morph in size as the pressure changed," explained Maples. "Everything that was happening was exaggerated so that as you drove the car, you could see it and experience it."
And within five minutes, Goodyear's engineers found their answer.

1.The 3-D Web: A new world of Big Data

Maples isn't alone in these efforts. Engineers at Caltech have also been experimenting with the use of immersive virtual reality(VR) spaces as a data visualization platform. They began by using virtual worlds, such as that in the MMORPG game Second Life and other open-source counterparts that use the Open Simulator (OpenSim) platform.
"Thus, a scientist can "walk" into their data, while interacting and collaborating with their colleagues in the

same virtual space," writes Alex Cioc, a sophomore at Caltech working on new data visualization techniques.
But of course, a virtual world designed for a computer game has plenty of drawbacks and technical limitations. That's why Caltech engineers, working alongside Microsoft researchers, have begun development on a new 3-D data browser based on the Unity3D game development engine capable of rendering 100,000 data objects in about 15 seconds onto a bog standard 2011 Macbook Air.
"Our prototype data browser allows multiple forms of user control, and allows for the loading of local or external data sets," writes Cioc. "Cross-platform users, which are represented by small cubes, can interact within the same space and control what they see."



The 3-D data browser is just one tool Caltech is developing to better understand what it calls the "3-D web". This PDF presents a nice overview of what the 3-D Web really is, but in a nutshell it refers to a future in which 3D technology is taken for granted and used extensively and naturally by everyone connected to the internet. The 3-D web's enabling technologies encompass 3D video, games, virtual worlds, touchscreens, haptic interfaces and more – exactly the kinds of tools that Dr. Maples and his team have been playing with for years.

"There is nothing more important to the long-term health of the HPC industry than the 3D Web," said Justin Rattner, Intel CTO, in a keynote talk at the SC'09. "The 3D Web will be the technology driver that revitalizes the HPC business model."

And not only that, it will also revitalize the way we understand Big Data. The 3D Web promises to deliver more more intuitive data visualization than we've ever seen before, and that can only lead to one thing – even greater insights, and even faster learning. After all, as Dr. Maples points out, no one knows for sure what's really inside their data. "That's the miraculous thing," he said. "Even the people who think they know, I can guarantee you there will always be surprises." Amazon has launched a suite of tools promising to make it quick — and affordable — for any business to create slick-looking 3D virtual reality and augmented reality apps. The company's Amazon Web Services unit announced Amazon Sumerian, a new service for building VR, AR, and 3D applications that can be viewed on mobile devices, head-mounted displays, digital signage, and web browsers. The Sumerian tools let customers create 3D characters, called "Hosts" (which, by the way, also is what the AI robots in HBO's "Westworld" are called), to narrate and guide users through immersive scenes.

AWS is aiming Sumerian at businesses across a range of industries for applications including training simulations, virtual concierge services, enhanced ecommerce experiences, and virtual real-estate tours.

Amazon Sumerian will let any developer create "a realistic, interactive VR or AP application" in just a few hours, according to Marco Argenti, VP of technology at AWS.

It's designed to eliminate the need for specialized tools for tasks like 3D modeling, environmental design, animation, lighting effects, and audio editing, as well as the additional step of adapting AR and VR applications for different hardware platforms. According to Amazon, the VR and AR apps created in Amazon Sumerian will run in any browser that supports WebGL or WebVR graphics rendering. Supported devices include Google's Daydream, HTC Vive, Facebook's Oculus Rift, and iOS mobile devices.

Given previous requirements to launch AR or VR apps, businesses have been "daunted and overwhelmed by the up-front investment in specialized skills and tools required to even get started building a VR or AR application," said Argenti.

Amazon Sumerian uses a web-based editor that developers can use to create "professional-quality scenes," and a visual scripting tool to build the logic that controls how the objects and characters in the scenes interact and respond to actions.Amazon Web Services doesn't charge a fee for designing and editing AR and VR applications.

As with other AWS offerings, customers are charged based on the amount of storage used for the 3D assets and the volume of traffic generated by their apps. Storage pricing for Sumerian 3D assets is 6 cents per gigabyte monthly, and the fees for the total volume of traffic generated by each scene is 38 cents per GB per month. (More info on Amazon Sumerian pricing is available here.) Amazon Sumerian's editor lets developers drag and drop 3D characters and objects (like furniture or buildings) into "scenes" (e.g. rooms, office environments, and landscapes). The suite includes a library of prebuilt objects and templates with pre-populated scenes; users can also download and import objects from third-party asset repositories such as Sketchfab or Turbosquid or create and

import their own objects. The Sumerian tools are integrated with Amazon Lex and Amazon Polly, which provide automatic speech recognition, natural-language processing, and text-to-speech capabilities. That's supposed to let customers create 3D characters that can understand and respond to end users in virtual conversations.

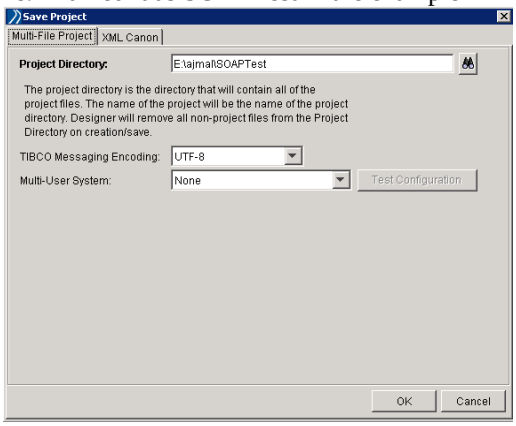
III.TIBCO BW INTRODUCTION

Web Service Development in TIBCO is one of the basic thing that almost every TIBCO developer has to do. Integrating applications through Web Service Interfaces is a common practice in almost every organization in order to comply with SOA standards.

Developing SOAP Web Service in TIBCO is not a tough job. TIBCO Designer tools make it easy to expose or consume web services in a convenient way without going into the hassle of writing complex code.

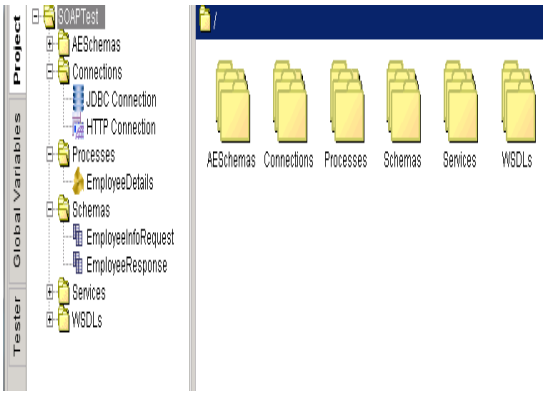
Step 1: Create New Project:

Create a new project in TIBCO designer. Name it whatever you like. I named it as SOAPTest in the example



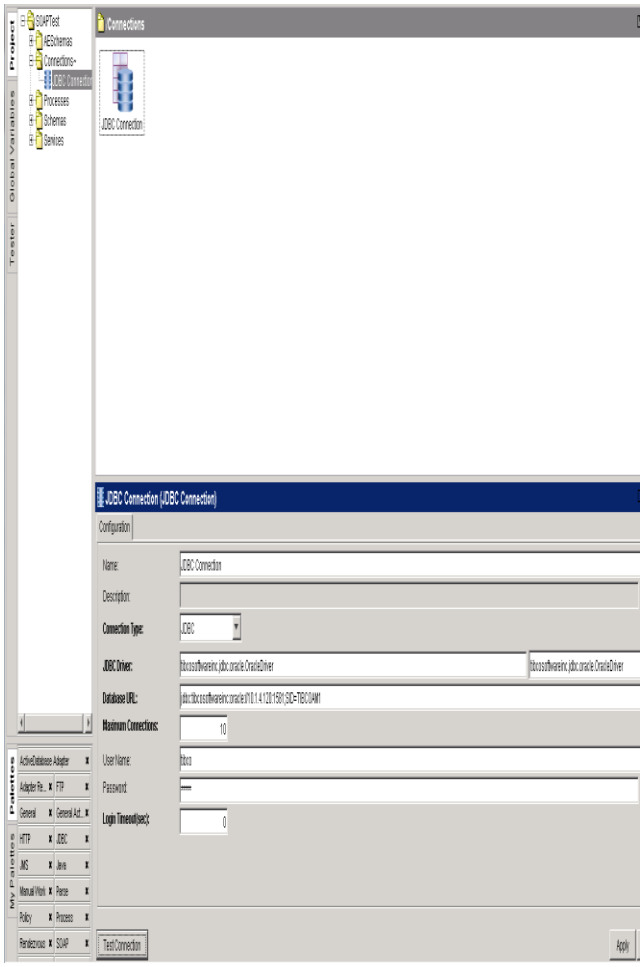
Step 2: Create Folders For Proper Organization:

In order to organize components better, create separate folders for Processes, Connections, Schemas, Services etc as shown below:

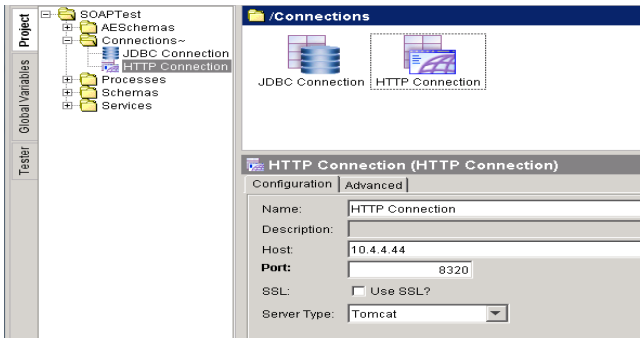


Step 3:Create JBDC and HTTP Connections

Our web service operation will be fetching all details about employee from Oracle database. So we need to create a JDBC Connection in our Connections folder. Specify, host, IP, SID, User, Password, driver etc for the connection. Once you are sure all required information is populated, use Test Connection button to test the JDBC connection.



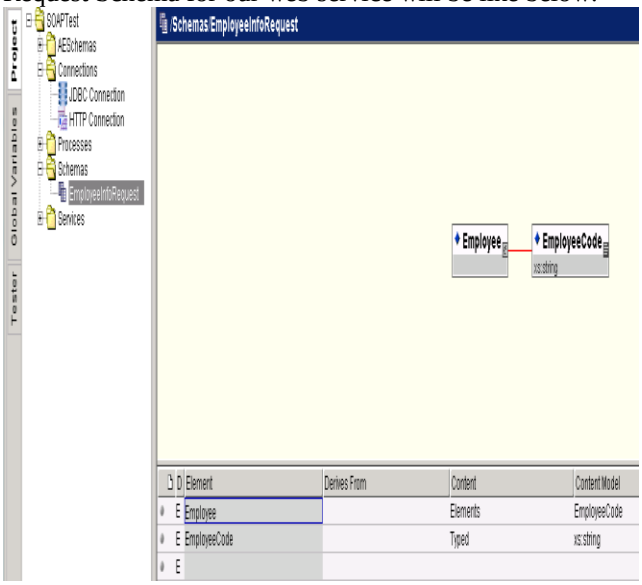
We also need to create a HTTP Connection in the same directory which will be used in Endpoint URL of our web service.



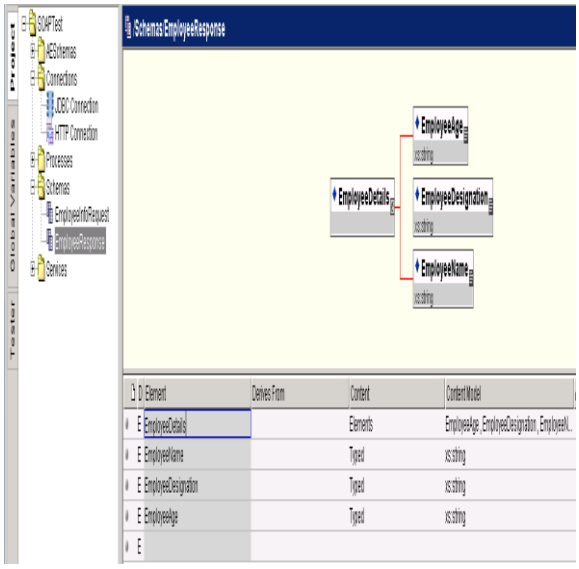
Step 4: Create XML Schema for Input and Output:
Our web service will receive Employee Code as input and will return Employee details as output. We need to create two schemas (XSD files) for this:

1. EmployeeInfoRequest
2. EmployeeInfoResponse

Request Schema for our web service will be like below:



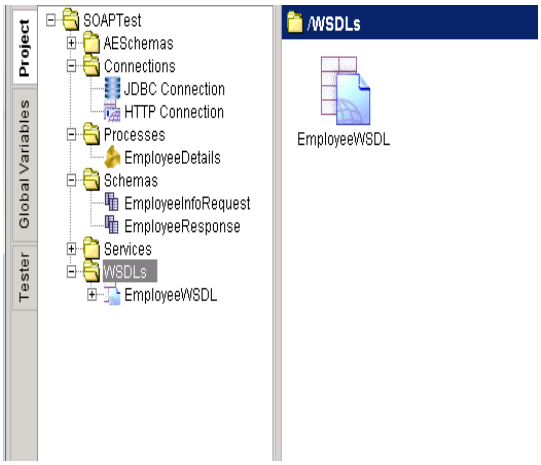
Response schema which specifies our web service output structure will like this:



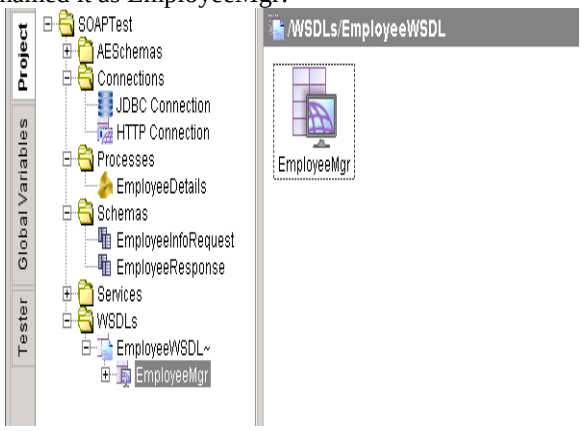
Step 5 : Create WSDL in TIBCO

There are two ways to generate a web service in TIBCO:
1. Generating Web Service from Process
2. Generating Web Service from WSDL

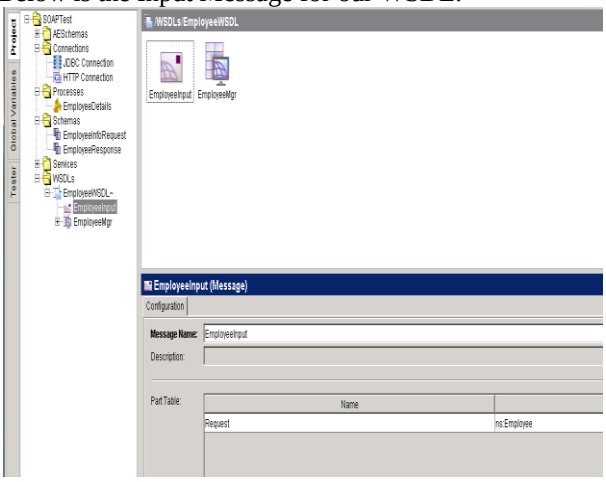
In our case, we will be following second approach. We will create a WSDL in TIBCO and then will generate web service from this wsdl.



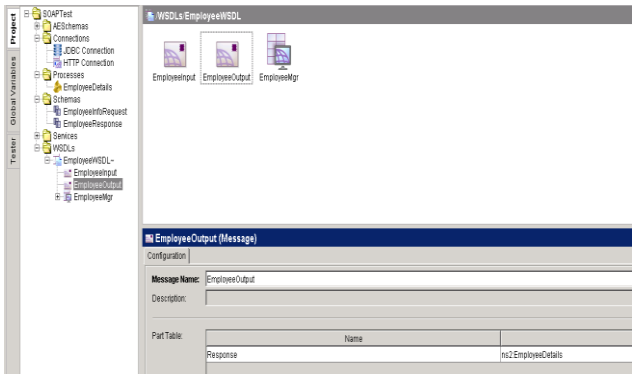
Double click on EmployeeWSDL and create a PortType. I named it as EmployeeMgr:



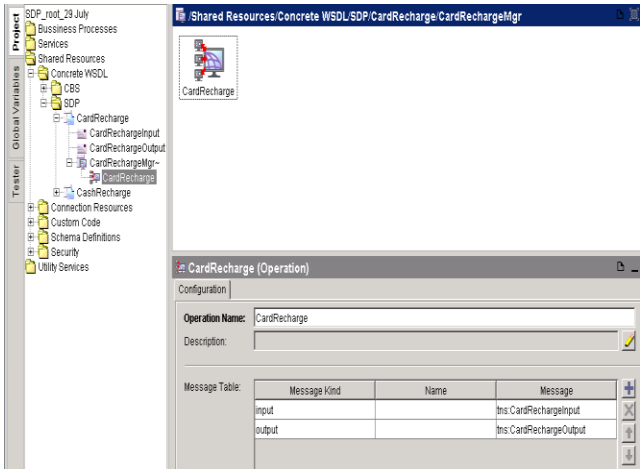
Now we need to create Message components which are used to specify type of information being exchanged by our web service. We will create one message for input and one message for output. We will use our Request and Response schemas in these Message components.
Below is the Input Message for our WSDL:



Below is output Message for our WSDL:



Double click on PortyType and then create operation in it. I named operation as EmployeeDetails. This will be the only operation exposed in our Web service. In configuration of our operation, we specify input and output messages that we just created.



IV. EXPERIMENT WITH VR

We have a small thought that arises in our mind to make some experiment with VR.As VR is the highly enhancing and enriching technology we cannot collaborate VR with any other device or a model but there arises our question as VR is utilized by a person who need to have a 4g mobile with him and its services are being utilized by only 4g service. This service was first been organized with only few persons who have been utilizing this 4g services fortunately now a days these services are going to a lay man with the help of a jio mobile phone.

In Order to provide VR technology as a service there are many ways people are going to code the VR Applications but here the thing is that VR must precisely provide its service faster and reach the lay man .This can be happened only when educationists show enthusiasm to apply this technology to a lay man faster so that a customer who is going to use this service can make this service utilization faster and this is happened by using a tool called TIBCO BW where a VR Service is been correlated to VR in order to generate a service and this is the experiment we have conducted in our college to make and take the VR Applications to a lay man.

V.CONCLUSION

Now we use mail or conference for communication while the person is not sitting with you, but due to technology distance is not matter. This technology give enormous scope to explore the world of 3D and your own imagination. The Virtual Reality presents an opportunity of learning with a real situation, but artificially created , facilitating the visualization and the interaction sensation with the study focus. When we can't have the real experiences, the Virtual Reality is irreplaceable.
Virtual reality is vast field & its reality is worked on the aspect and so it depends on the various field. This paper ensembles with the explanation of virtual reality technologies that are forthcoming now a days also it elucidates the width of virtual reality in various fields especially in the field of gaming. It also tells us an idealistic approach on how VR Technologies are enriching now a days.

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Enhanced Lung Cancer Detection Using OpenCV

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***Abstract*:-- The paper is proposed to detect the lung cancer using an interdisciplinary approach based on the image processing and machine learning by Computer Aided Detection(CAD) system. Modified Fuzzy Possibilistic C Means(MFPCM) is used for segmentation whereas Gabor filter for de-noising the medical images. Feature extraction and selection is done after segmentation. This system is developed using SVM algorithm whichacceptinput as lung CT(Computed Tomography) images and detects the cancerous cells effectively.**

I. INTRODUCTION

Statistics have it that in the United States, lung cancer strikes 225,000 people every year, accounting for $12 billion in health care costs. Early detection is critical in providing patients with the best shot at survival and recovery. Lung cancer is the major cause of cancer deaths worldwide, symptoms appear only at advanced stages causing the mortality rate to be the largest in all other types of cancer, due to this detection is difficult in it'searly stages. More people die of lung cancer than any other types of cancer such as: breast, colon, and prostate cancers. There is prominent proof signifying that the early detection of lung cancer will decrease the mortality rate. The recent estimates provided by the World Health Organization shows that around 7.6 million deaths occur worldwide due to lung cancer per year. Moreover, mortality due to cancer is supposed to continue rising, to become around 17 million worldwide in 2030. The early detection of lung cancer in the primary stage is a challenging problem, because of complicated structure of the cancer cells, where most of the cells are overlapping with each other. It is a computational procedure that classifies the images into groups based on similarities. The manual analysis of samples is very time consuming, inaccurate and requires well trained person to avoid diagnostic errors. The quantitative procedure is very helpful for earlier detection of lung cancer. Experimental analysis will be made with dataset to assess the performance of the various categories of SVM classifiers. The performance is based on effective classification by the classifier. The main aim of our proposed CAD systems is to increase the accuracy and decrease the time of diagnoses. The conventional approach is to implement a multistage CAD system capable of revealing the presence or absence of nodules to the radiologist. A critical stage in this system is the detection of ROIs (regions of interest) that could quite possibly be nodules, for the sake of reducing the scope of the problem. Image segmentation is the process of partitioning regions in an image into meaningful segments belonging to different objects. During image analysis, it is very often much more convenient to isolate objects of interest before performing the actual analysis, in the form of either cutouts or highlights; using distinguishable borders. Image segmentation usually precedes other analysis related processes. Since most applications necessitate the segmentation of specific objects of interest, it is quite common for image segmentation techniques to include certain forms of object recognition too. In medical image analysis, medical experts are usually only interested in certain organs visible in the image, which is chiefly why image segmentation is required in almost all medical image related applications.

2.LITERATURE REVIEW:

Omar S.Al-Kadi, D.Watson [2008][1] focused on the texture of the region of interest. CE-CT (Contrast Enhanced Computer Tomography) images are used for the fractal analysis to differentiate between aggressive (advanced stage) and nonaggressive (early stage) tumors.For this work, DICOM images are acquired, by using Differential Box Counting (DBC) algorithm these images were transformed into the Fractal Dimension Images.The differentiation accuracy between aggressive and non-aggressive tumor was up to 83% and this system also gave the information about the aggressiveness.

Lee [2009][2], presented a template matching technique with the combination of conventional template matching for the detection of lung nodule in helical CT images. This technique was applied on both, inside the lung region and on the lung walls. In order to detect the nodules inside the lung region the generic algorithm for template matching (GALM) was used and for detection of nodule at the lung walls, lung wall template matching (LWTM) was used. For this system, detection of nodules in low contrast was difficult and the number of FP was high.

S.K Vijai [2010][3], proposed a CAD system in which different image processing techniques combined with neural network were applied on the images.To separate the lung region and to convert the image into binary form optimal thresholding was used.GLCM (gray level co-occurrence matrix) was obtained which consist the white pixel values occurred in the ROI.The accuracy of this system was 86.3% and the implementation time was less than 3 minutes.

Disha, Gagandeep [2011][4], proposed a CAD system in which wiener filter is used to remove the noise content. For extraction of lung region, image slicing algorithm was applied. To enhance the quality of image various morphological operations like opening, closing followed by erosion, dilation was applied to remove any irrelevant information in the image.In this paper, five features (area, calcification, shape, size, contrast Enhancement) were extracted based on which the ROI was classified as tumor or non-tumor.

Mokhled [2012] [5], discussed about various lung tumors detection techniques of different stages. Three methods were proposed for image enhancement, to remove the noise from the image and to make the image better i.e. Auto enhancement, Gabor Filter and FFT (Fast Fourier Transform). Gabor filter is more efficient because it can effectively optimize the border differences among the lung regions. In Masking, White area inside the lung region was referred as mass. Blue color of the mass shows normality, while RGB shows the abnormalities of the mass. On the basis of these features, system classification has less accuracy.

Jinsa Kuruvilla, K. Gunavathi [2014][6], presented a system for the detection of lung tumor in CT scan images using artificial neural network. In this System, the scan image which was in gray scale firstly converted to binary image using grey level thresholding.The statistical parameter, standard deviation, skewness, kurtosis, fifth and sixth central moment were calculated. For the pattern classification two neural networks feed forward and feed forward back propagation networks were used.Thenetwork was trained with 13 training function among allfunction gave the maximum classification accuracy with minimum mean square error. Two training functions were proposed with which the sensitivity of the system was increased to 91.4% with 30FP/scan.

3.PROPOSED SYSTEM

Broadly, our proposed system has 3 major processes: image pre-processing, feature extraction and finally the classification process. The CAD system accepts the CT scan image of lungs as an input. In the real-world scenario, the CT scan image is expected to contain noise and hence needs processing to facilitate extraction of lung features so that classification may be performed successfully based on these features. The first step of our system is image pre-processing. Image preprocessing includes de-noising i.e. removing unwanted noise from the image. Image features extraction stage plays an integral part in our working in which algorithms and techniques are used to detect and isolate the various desired portions or shapes(features) of an image. Feature extraction is an essential stage that represents the conclusive results to determine the normality or abnormality of an image. These features act as the basis for classification process.

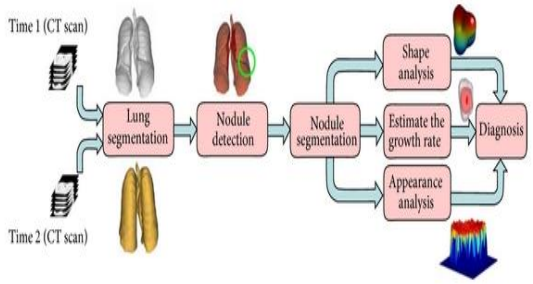

Fig 3.1: Classification of Lung Image

3.1Image Acquisition

First step is to acquire the CT scan image of lung cancer patient. The lung CT images are having low noise when compared to X-ray and MRI images; hence they are considered for developing the technique. The main advantage of using computed tomography images is that it affords enhanced clarity with lower distortion. For research work, the CT images are acquired from NIH/NCI Lung Image Database Consortium (LIDC) dataset. DICOM (Digital Imaging and Communications in Medicine) has become a standard for medical Imaging. The acquired images are in raw form. In the acquired images lot of noise is observed. To improve contrast, enhance clarity, remove the background noise, pre-processing of images is indispensable. Hence, various techniques like smoothing and enhancement are used to get image in the required format

3.2 Image Pre-processing

Smoothing It suppresses the noise or other small fluctuations in the image; equivalent to the suppression of high frequencies in the frequency domain. Smoothing also blurs all sharp edges bearing valuable information about the image. For removing noise from images, median filtering is used. Median filtering is a non-linear operation often used in image processing to reduce salt and pepper noise. In general, the median filter allows a great deal of high spatial frequency detail to pass while remaining very effective at removing noise on images where less than half of the pixels in a smoothing neighborhood have been

affected. B=medfilt2(A,[m,n]) performs median filtering of the matrix A in two dimensions. Each output pixel contains the median value in the m x n neighborhood around the corresponding pixel in the image. Medfilt2 pads the image with 0's on the edges, so the median values for points within one - half the width of the neighborhood ([m,n]/2) of the .edges might appear distorted.

3.3 Enhancement

There are two types of enhancement technique, Special domain and Frequency domain. Due to enhancement we improve the quality of images, for human viewer or to provide better input to image processing technique. We use histogram equalization technique for enhancement.

3.4 Segmentation

The segmentation is performed for determining the cancer nodules in the lung. This phase will help identify the Regions of Interest(ROI) in the lung nodule, that can help identify the cancerous region. Modified Fuzzy Possibilistic C Means (MFPCM) is used in the proposed technique for segmentation because of better accuracy of MFPCM.

3.5 Feature extraction

Feature extraction is a crucial step of the CAD system. It uses different methods and algorithms for feature extraction from the segmented image. Based on the extracted features normality and abnormality of the lung are decided. The features extracted include portion or shape of an image are used for the classification purpose we need the features like area,perimeter, roundness,eccentricity.

3.5.1 Area It is the scalar value that gives actual number of overall nodule pixel in the extracted ROI. Transformation function creates an array of ROI that contains pixels with 255 values. Area = A = (Ai,j , X ROI[Area] = I , Y ROI[Area] = j) Where, i, j are the pixels within the shape. ROI is region of interest. X ROI[ ] is vector contain ROI x position, Y ROI[ ] is vector contain ROI y position[3].

3.5.2 Perimeter It is a scalar value that gives actual number of the nodule pixel. It is the length of extracted ROI boundary. Transformation function create array of edge that contain pixel with 255 values that have at least one pixel which contain 0 values [3]. Perimeter = P =(Pi,j , X edge[P] = i, Y edge[P] = j) Where, X edge [ ] and Y edge[ ] are vectors represent the coordinate of the ith and jth pixel forming the curve, respectively[3]

3.5.3 Eccentricity: This metric value is also called as roundness or circularity or irregularity complex (I) equal to 1 only for circular and it is less than 1 for any other shape. Eccentricity = Length of Major Axis Length of Minor Axis

Roundness: The roundness value is to 1 only for circular and it is less than 1 for any other shape.

4. SVM ALGORITHM:

candidateSV = { closest pair from opposite
classes }
while there are violating points
do
Find a violator
candidateSV = candidateSVµ violator
if any αp < 0 due to addition of c to S
then candidateSV = candidateSV \ p
repeat till all such points are pruned
end if
end while

5.OPENCV:

OpenCV was designed for computational efficiency and with a strong focus on real-time applications. Written in optimized C/C++, the library can take advantage of multi-core processing. In our project we use basic features of openCV i.e. smoothing images, basic thresholding operations.

6. RESULTS

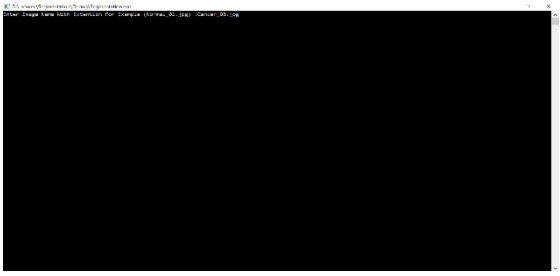

Figure 6.1: Input window

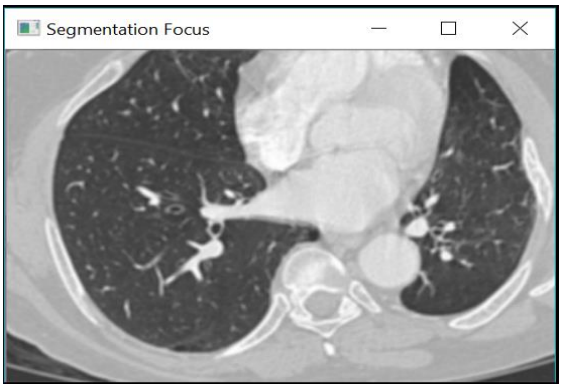

Figure 6.2: Segmentation focus window

Figure 6.3: window for adjusting canny value

Figure 6.4: Segmented Lung Image window for Canny value of 172

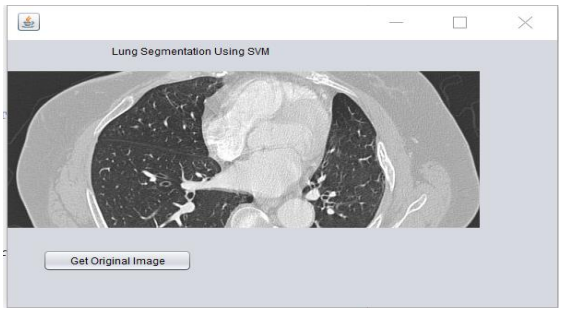

Fig 6.5: Original Lung Image

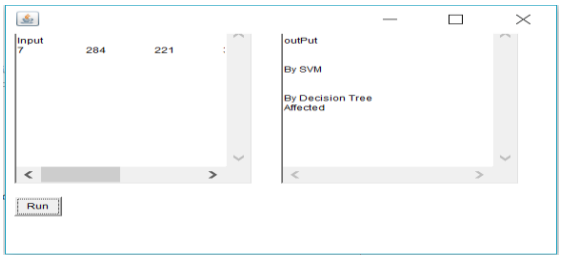

Figure 6.6: Result window

7. CONCLUSION

The most dangerous and widespread disease in world is lung cancer. To have more accurate result three stages are used: Image enhancement, segmentation, feature extraction stage. the SVM algorithm gives more accuracy (84.55%) than other approach.

8. FUTURE ENHANCEMENT

This applicationis helpful for the detection of the lung cancer for adult lung images. It gives the binary formatted result i.e.., wither the person is affected or not affected.

In future extension to this application can be carried out for children. Which also needs some additional smoothening techniques.

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An Intangible Approach to Artificial Intelligence

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***Abstract*:-- This paper represent a research application in artificial intelligence and it is represented with the basic design of a regular E commerce application with an artificial intelligence embedded in it because an artificial intelligence is a recreation of a mankind. This paper also mentions few issues that are going to be evolved through artificial intelligence this paper represent the problem solution approach on those issues. This paper resembles artificial intelligence in two different manners that's why the paper titled an intangible approach to artificial intelligence .This paper represents only the design view of the applications of AI using a tool called construct2d.This tool is normally used for games but here is a representation of AI applications design.**

Index Terms—Intangible,artificial intelligence,NLP,Construct2d

I. INTRODUCTION

According to the father of Artificial Intelligence, John McCarthy, it is "The science and engineering of making intelligent machines, especially intelligent computer programs".

Artificial Intelligence is a way of making a computer, a computer-controlled robot, or a software think intelligently, in the similar manner the intelligent humans think.

AI is accomplished by studying how human brain thinks, and how humans learn, decide, and work while trying to solve a problem, and then using the outcomes of this study as a basis of developing intelligent software and systems.

Philosophy of AI

While exploiting the power of the computer systems, the curiosity of human, lead him to wonder, "Can a machine think and behave like humans do?"

Thus, the development of AI started with the intention of creating similar intelligence in machines that we find and regard high in humans.

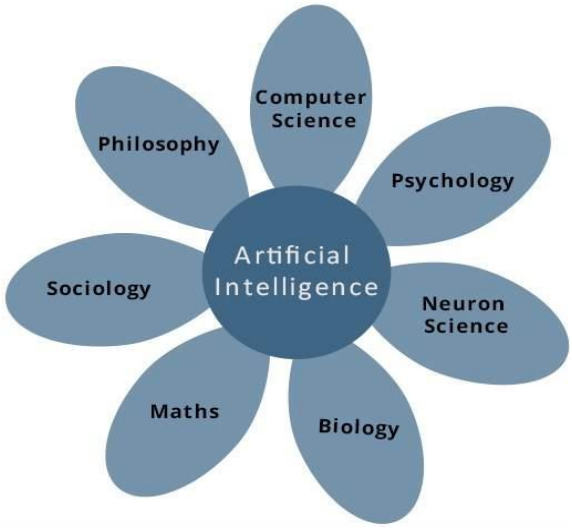
Goals of AI

- To Create Expert Systems − The systems which exhibit intelligent behavior, learn, demonstrate, explain, and advice its users.
- To Implement Human Intelligence in Machines − Creating systems that understand, think, learn, and behave like humans.

Contributes to AI

Artificial intelligence is a science and technology based on disciplines such as Computer Science, Biology, Psychology, Linguistics, Mathematics, and Engineering. A major thrust of AI is in the development of computer functions associated with human intelligence, such as reasoning, learning, and problem solving.

Out of the following areas, one or multiple areas can contribute to build an intelligent system.



AI Technique

In the real world, the knowledge has some unwelcomed properties −

- Its volume is huge, next to unimaginable.
- It is not well-organized or well-formatted.
- It keeps changing constantly.

AI Technique is a manner to organize and use the knowledge efficiently in such a way that −

- It should be perceivable by the people who provide it.
- It should be easily modifiable to correct errors.

- It should be useful in many situations though it is incomplete or inaccurate.

AI techniques elevate the speed of execution of the complex program it is equipped with.

Applications of AI

AI has been dominant in various fields such as −

- ***Gaming*** − AI plays crucial role in strategic games such as chess, poker, tic-tac-toe, etc., where machine can think of large number of possible positions based on heuristic knowledge.
- ***Natural Language Processing*** − It is possible to interact with the computer that understands natural language spoken by humans.
- ***Expert Systems*** − There are some applications which integrate machine, software, and special information to impart reasoning and advising. They provide explanation and advice to the users.
- ***Vision Systems*** − These systems understand, interpret, and comprehend visual input on the computer. For example,
- A spying aeroplane takes photographs, which are used to figure out spatial information or map of the areas.
- Doctors use clinical expert system to diagnose the patient.
- Police use computer software that can recognize the face of criminal with the stored portrait made by forensic artist.
- ***Speech Recognition*** − Some intelligent systems are capable of hearing and comprehending the language in terms of sentences and their meanings while a human talks to it. It can handle different accents, slang words, noise in the background, change in human's noise due to cold, etc.
- ***Handwriting Recognition*** − The handwriting recognition software reads the text written on paper by a pen or on screen by a stylus. It can recognize the shapes of the letters and convert it into editable text.
- ***Intelligent Robots*** − Robots are able to perform the tasks given by a human. They have sensors to detect physical data from the real world such as light, heat, temperature, movement, sound, bump, and pressure. They have efficient processors, multiple sensors and huge memory, to exhibit intelligence. In addition, they are capable of learning from their mistakes and they can adapt to the new environment.

LISP AND NLP

Natural Language Processing (NLP) refers to AI method of communicating with an intelligent systems using a natural language such as English.
Processing of Natural Language is required when you want an intelligent system like robot to perform as per your instructions, when you want to hear decision from a dialogue based clinical expert system, etc.
The field of NLP involves making computers to perform useful tasks with the natural languages humans use. The input and output of an NLP system can be −

- Speech
- Written Text

Components of NLP

There are two components of NLP as given −
1) Natural Language Understanding (NLU)
Understanding involves the following tasks −
• Mapping the given input in natural language into useful representations.
• Analyzing different aspects of the language.
2) Natural Language Generation (NLG)
It is the process of producing meaningful phrases and sentences in the form of natural language from some internal representation.
It involves −

- ***Text planning*** − It includes retrieving the relevant content from knowledge base.
- ***Sentence planning*** − It includes choosing required words, forming meaningful phrases, setting tone of the sentence.
- ***Text Realization*** − It is mapping sentence plan into sentence structure.

The NLU is harder than NLG.

Difficulties in NLU
NL has an extremely rich form and structure.
It is very ambiguous. There can be different levels of ambiguity −

- Lexical ambiguity − It is at very primitive level such as word-level.
- For example, treating the word "board" as noun or verb?
- Syntax Level ambiguity − A sentence can be parsed in different ways.

- For example, “He lifted the beetle with red cap.” − Did he use cap to lift the beetle or he lifted a beetle that had red cap?
- Referential ambiguity − Referring to something using pronouns. For example, Rima went to Gauri. She said, “I am tired.” − Exactly who is tired?
- One input can mean different meanings.
- Many inputs can mean the same thing.

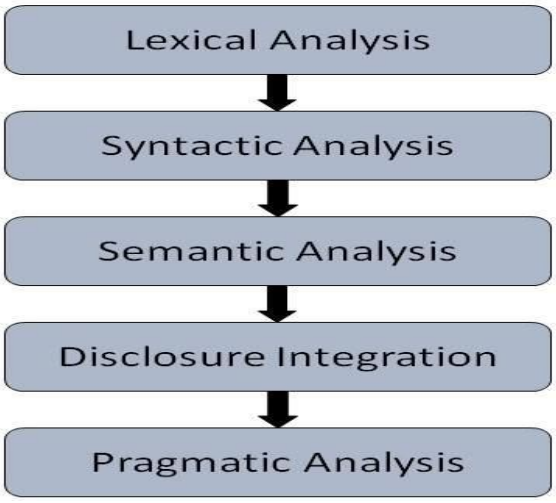
NLP Terminology

- Phonology − It is study of organizing sound systematically.
- Morphology − It is a study of construction of words from primitive meaningful units.
- Morpheme − It is primitive unit of meaning in a language.
- Syntax − It refers to arranging words to make a sentence. It also involves determining the structural role of words in the sentence and in phrases.
- Semantics − It is concerned with the meaning of words and how to combine words into meaningful phrases and sentences.
- Pragmatics − It deals with using and understanding sentences in different situations and how the interpretation of the sentence is affected.
- Discourse − It deals with how the immediately preceding sentence can affect the interpretation of the next sentence.
- World Knowledge − It includes the general knowledge about the world.

Steps in NLP

There are general five steps −

- Lexical Analysis − It involves identifying and analyzing the structure of words. Lexicon of a language means the collection of words and phrases in a language. Lexical analysis is dividing the whole chunk of txt into paragraphs, sentences, and words.
- Syntactic Analysis (Parsing) − It involves analysis of words in the sentence for grammar and arranging words in a manner that shows the relationship among the words. The sentence such as “The school goes to boy” is rejected by English syntactic analyzer.



- Semantic Analysis − It draws the exact meaning or the dictionary meaning from the text. The text is checked for meaningfulness. It is done by mapping syntactic structures and objects in the task domain. The semantic analyzer disregards sentence such as “hot ice-cream”.
- Discourse Integration − The meaning of any sentence depends upon the meaning of the sentence just before it. In addition, it also brings about the meaning of immediately succeeding sentence.
- Pragmatic Analysis − During this, what was said is re-interpreted on what it actually meant. It involves deriving those aspects of language which require real world knowledge.

LISP

John McCarthy invented LISP in 1958, shortly after the development of FORTRAN. It was first implement by Steve Russell on an IBM 704 computer.

It is particularly suitable for Artificial Intelligence programs, as it processes symbolic information effectively.

Common Lisp originated, during the 1980s and 1990s, in an attempt to unify the work of several implementation groups, which were successors to Maclisp like ZetaLisp and NIL (New Implementation of Lisp) etc.

It serves as a common language, which can be easily extended for specific implementation.

Programs written in Common LISP do not depend on machine-specific characteristics, such as word length etc.

Features of Common LISP

- It is machine-independent
- It uses iterative design methodology, and easy extensibility.

- It allows updating the programs dynamically.
- It provides high level debugging.
- It provides advanced object-oriented programming.
- It provides convenient macro system.
- It provides wide-ranging data types like, objects, structures, lists, vectors, adjustable arrays, hash-tables, and symbols.
- It is expression-based.
- It provides an object-oriented condition system.
- It provides complete I/O library.
- It provides extensive control structures.

Applications Built in LISP

Large successful applications built in Lisp.

- Emacs
- G2
- AutoCad
- Igor Engraver
- Yahoo Store

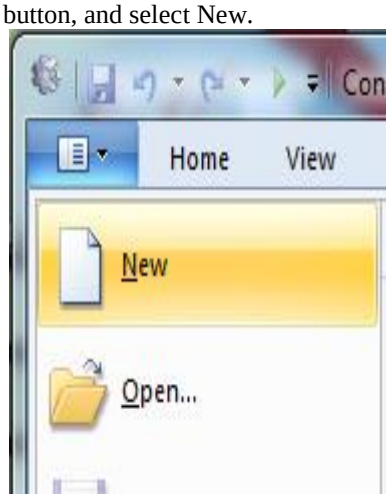
CONSTRUCT 2D TOOL

Installing Construct

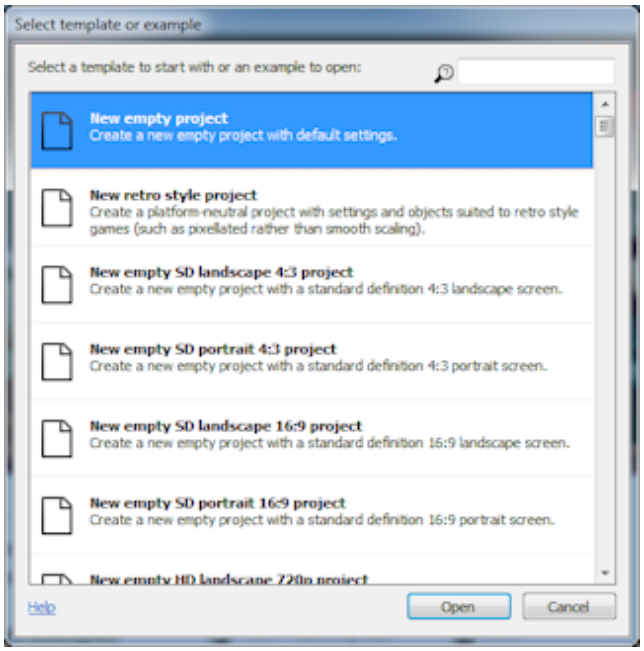
The Construct 2 editor is for Windows only, but the games you make can run anywhere, such as Mac, Linux or iPad. Construct 2 can also be installed on limited user accounts. It's also portable, so you can install to a USB memory stick for example, and take it with you!

Getting started

Now you're set up, launch Construct 2. Click the File button, and select New.



You will see the 'Template or Example' dialog box.



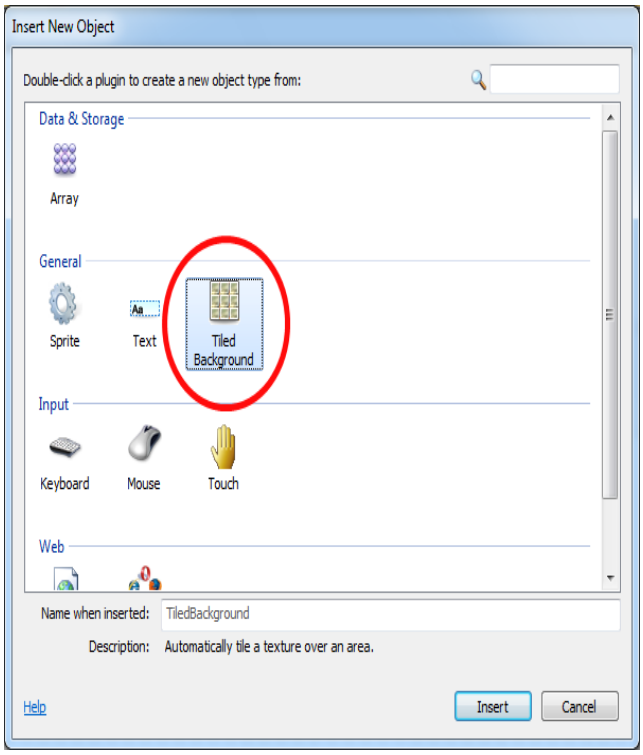
This shows a list of examples and templates that you can investigate at your leisure. For now, just click on 'Open' at the bottom of the box to create a blank, empty new project. Construct 2 will keep the entire project in a single .capx file for us. You should now be looking at an empty layout - the design view where you create and position objects. Think of a layout like a game level or menu screen. In other tools, this might have been called a room, scene or frame.

Inserting objects

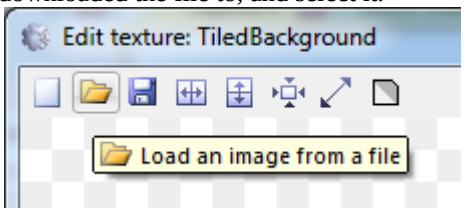
Tiled Background

The first thing we want is a repeating background tile. The Tiled Backgroundobject can do this for us. First, here's your background texture - right click it and save it to your computer somewhere:

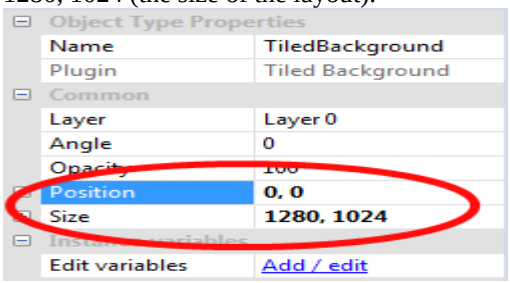
Now, double click a space in the layout to insert a new object. (Later, if it's full, you can also right-click and select Insert new object.) Once the Insert new objectdialog appears, double click the Tiled Background object to insert it.



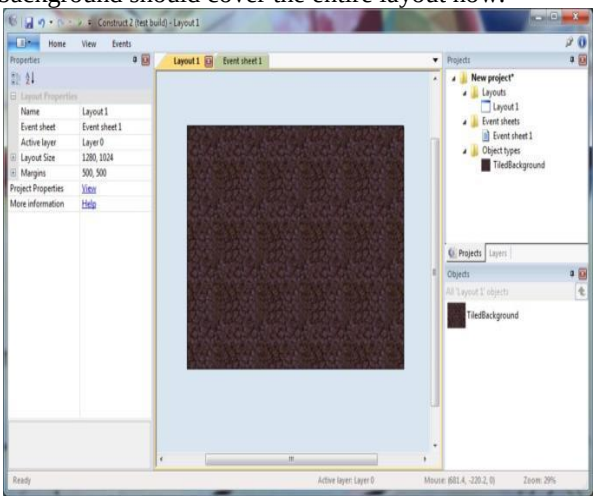
A crosshair will appear for you to indicate where to place the object. Click somewhere near the middle of the layout. The texture editor now opens, for you to enter the texture to tile. Let's import the tile image you saved earlier. Click the folder icon to load a texture from disk, find where you downloaded the file to, and select it.



Close the texture editor by clicking the X in the top right. If you're prompted, make sure you save! Now you should see your tiled background object in the layout. Let's resize it to cover the entire layout. Make sure it's selected, then the Properties Bar on the left should show all the settings for the object, including its size and position. Set its position to 0, 0 (the top left of the layout), and its size to 1280, 1024 (the size of the layout).



Let's survey our work. Hold control and scroll the mouse wheel down to zoom out. Alternatively, click view - zoom out a couple of times. You can also hold space, or the middle mouse button, to pan around. Neat, huh? Your tiled background should cover the entire layout now:



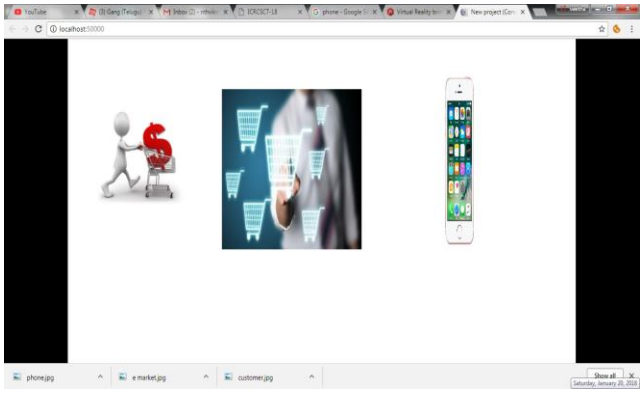
CONSTRUCT 2D AND AI

In Construct 2 video games, artificial, simulated intelligence is used to generate intelligent behaviours first and foremost in non-player characters (NPCs), over and over again simulating human-like brains, intelligence. The method used characteristically draw upon animate methods from the field of synthetic intelligence (AI)

II.EXPERIMENT CONDUCTED

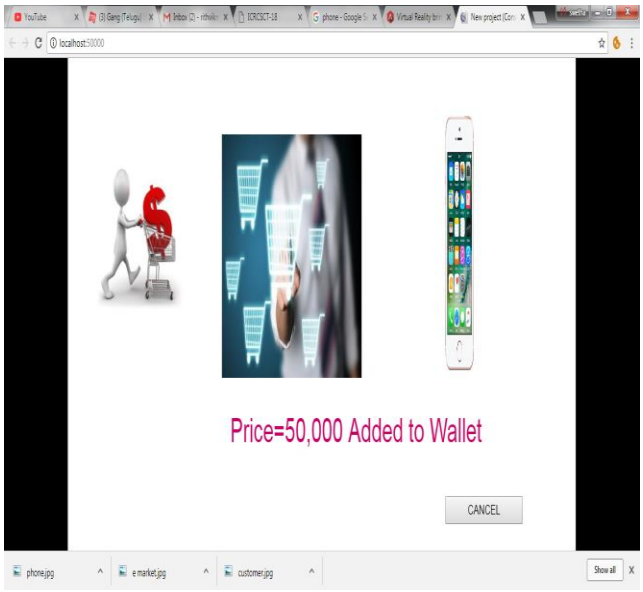
Here a customer went to market and select the particular products and this type of generation of a program is possible by using the CONJOIN APPROACH OF AI AND VR.

This ensembles in the generation of new technology and the implementation process of this idea is possible with the several tools that are coming in the market now a days here a brief idea on the design is shown in the below figure as follows.

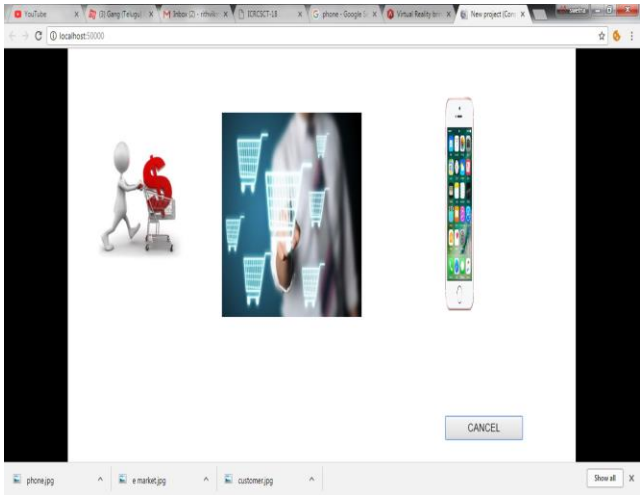


 ISBN: 978-81-937041-6-5

This screen shot resembles the integration of Technologies in a form of a design.This resembles that E Market is provided Virtually and the customer selects the products from the E Market virtually as soon as the selection process is completed the customer can identify the cost that is added to his or her account.



This screen shot explains that the customer selected a product and the cost of that product is being displayed in the below chat which is presented virtually to the customer and this means that selection and addition of products are done automatically where AI Works here.



The cancellation of the product is done by human mind because as the machine works a lot and perform a lot of things we might thought of cancellation of few items that are to be done by ourselves. So Cancellation is done by the customer itself. The above screen shots conveys a message that here is an integration of couple of technologies that makes the work faster and smarter.

CONCLUSION

In order to implement this sort of technologies in the forthcoming generations it's the thing that is much expensive to buy this software and implementing them in VR is much more costlier task even though we can implement the AI at any extent VR implementation is difficult.
But with the intervention of various new technologies VR App building is nearer.So with the help of new tools like Construct 3 this type of projects can be possible.

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Brainy Helmet: A life Saver using IOT

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Abstract:-- **A Brainy helmet is a great idea which makes motorcycle driving safer than before. This is implemented using GSM and GPS technology. The working of this Brainy helmet is very simple, vibration sensors are placed in different places of helmet where the probability of hitting is more which are connected to microcontroller board. So when the rider crashes and the helmet hit the ground, these sensors sense and gives to the microcontroller board, then controller extract GPS data using the GPS module that is interfaced to it. When the data exceeds minimum stress limit then GSM module automatically sends message to ambulance or familymembers. In the era of smart cities, Brainy Helmet will be a life saver for bike riders. According to a survey, two-wheelers without wearing helmet, exceeding speed limits, drowsy driving, drink and drive were the main causes for 74.28% of the Bike Riders in India. In this paper, we would like to develop an IoT based product called "Brainy Helmet" which is specifically designed keeping the safety of the user in mind. The user can only start a bike if he wears a helmet. The Brainy Helmet is connected to an ignition switch which turns off/on the bike through communication module. A drunken driver also cannot start a bike because of use of alcohol sensors which will turn off the bike through ignition switch. Another provision of Brainy Helmet is the Safety of the user when driving. Many different IoT sensors are used like Vehicle speed monitoring sensor for monitoring as well as reducing the speed of vehicle, Eye-blink sensor is to alert the user if he/she is in sleepy state, Vibration sensor to detect an accident and uses a GPS Module to track the accident location and send message to concerned members or emergency services through GSM.**

Keywords: Alcohol Sensor Detection, Gsm, Gps, Microcontroller, Pressure Sensor, Vibration Sensor, Brainy Helmet, IoT, Vehicle Speed Control, GPS.

I. INTRODUCTION

The thought of developing this project comes to do some good things towards the society. Day by day the two wheeler accidents are increasing and leads to loss of many lives. Accord to a survey of India there are around 698 accidents occurring due to bike crashes per year. The reasons may be many such as no proper driving knowledge, no fitness of the bike, fast riding of bike, drunken and drive etc. Some time the person injured, the accident may not be directly responsible for the accident, it may be fault of rider, but end of the day it's both the drivers involved in the accidents who is going to suffer. If accidents are one issue, lack of treatment in proper time is another reason for deaths. According to the survey India 698 accidents occur per year, nearly half the injured people die due to lack of treatment in proper time. The many reasons for this such as late arrival of ambulance, no persons at place where the accident occur to give information to the ambulance or parents.

This is a situation we observe our day to day life, a thought of finding some solution to resolve this problem come up with this idea of giving the information about accident as soon as possible and in TIME….!!!!Because after all time matters a lot, if everything is done in time, at least we can save half the lives that are lost due to bike accidents.

Considering three major factors for avoiding the accident causes such as I. Make wearing the helmet compulsory. II. Avoid drunk and drive. III. If person met with an accident, no one is there to help him. Simply leaving or ignoring the person he may die. In such situation, informing to ambulance or family members through mobile to rescue him for an extent.

The idea of this work is to give information about the rider wearing the helmet or not, whether the rider drunken or not and also, he met with an accident it gives an information about location where he is met with an accident through GSM module to mobile numbers family members, so I have chosen GSM technology to give the information by sending SMS, using GSM module which has SIM card slot to place the SIM and send SMS. Sending SMS alone can't help the driver, if we send and an SMS saying that accident had occurred where the ambulance will come without knowing the location of the accident. So to trace out the location where exactly accident occur using GPS module, and gives to microcontroller, then it sends the SMS which contains the latitude and longitude of a area to family members mobile numbers .For this we use GPS module to extract the location of the accident, the GPS data will contain the latitude and longitude values using which we can find the accident place.

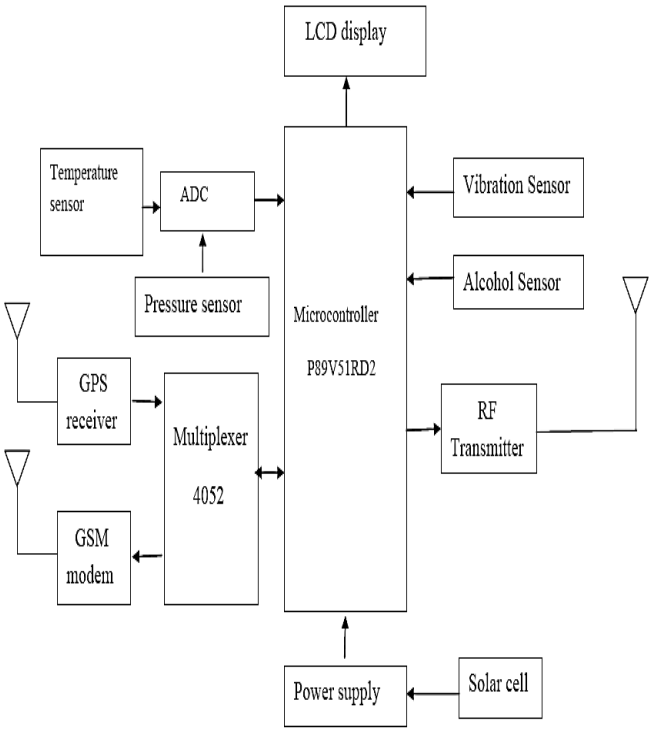


Fig: 1.1 Block Diagram of Brainy Helmet

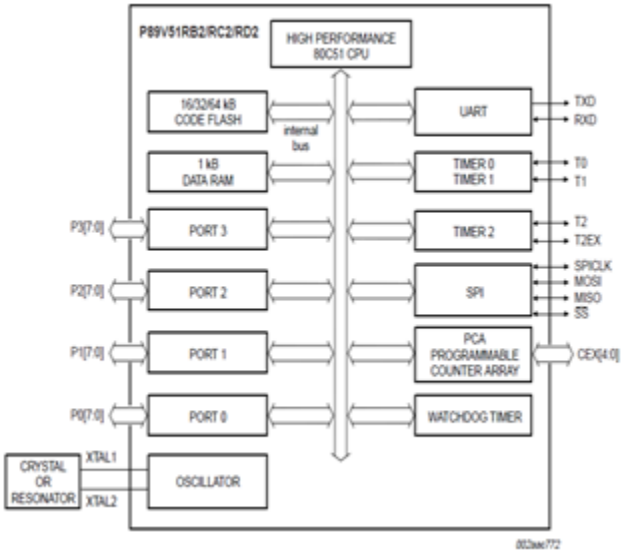
In this system P89V51RD2 microcontroller is used. `When the system is switched on, LED will be ON indicating that power is supplied to the circuit. The RF is used for start the two wheeler firstly it check whether the driver is drunken or not if drunken it will not allow to start two wheeler .The small voltage of ignition of the two wheeler is grounded. In normal condition when the helmet is wearied the pressure sensor is senses pressure and the RF transmitter radiates the FM modulated signal. The RF receiver is connected with the two wheeler which is receive the radiated signal and activate the relay .The relay is remove the ignition wire from the ground and connected with the starter switch now the two wheeler will start. When driver met with accident vibration sensor sends message to microcontroller. The GPS receives the location of the vehicle that met with an accident and gives the information back. This information will be sent to a mobile number through a message. This message will be received using GSM modem present in the circuit. The message will give the information of longitude and latitude values. Using these values the position of the vehicle can beestimated.

To run the GPS and GSM module, microcontroller is a very user friendly device which can be easily interfaced with any sensors or modules and is very compact in size.
Now some of the thoughts in our mind, how will send the SMS using the GSM module by keeping the GPS location in the SMS which is obtained from the GPS module. But when should all this is done? When accident occurs, how will the microcontroller detect the accident? This can be done by using a vibration sensor which is placed in thehelmet.

The vibration sensor is placed in the helmet such that it detects vibrations of the helmet. When the rider crashes, the helmet hits the ground and the vibration sensor detects the vibrations that are created when the helmet hits the ground and then the microcontroller detect the accident occurrence and it will send an SMS containing information about the accident and location of accident using GSM and GPS modules. Alcohol sensor sense the alcoholic content whether the rider drunken or not, if he drunken bike will not start showing as alcohol detected on LCD display. Use of pressure sensor, gives the whether the rider wear the helmet or not. If he not wears the helmet again bike will not start and intimate to rider to wear the helmet

Hardware Software Description

The P89V51RD2 are 80C51 microcontrollers with 64kB flash and 1024 bytes of data RAM. A key feature of the P89V51RD2 is its X2 mode option. The design engineer can choose to run the application with the conventional 80C51 clock rate (12 clocks per machine cycle) or select the X2 mode (six clocks per machine cycle) to achieve twice the throughput at the same clock frequency. The flash program memory supports both parallel programming and in serial ISP. Parallel programming mode offers gang-programming at high speed, reducing programming costs and time to market. ISP allows a device to be reprogrammed in the end product under software control. The capability to field/update the application firmware makes a wide range of applications possible.



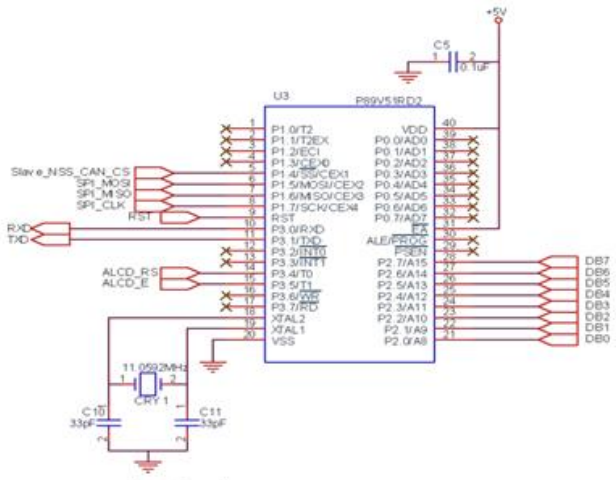


Fig: 1.2 Block diagram and schematic Diagram of P89V51RD2

LCD display

LCD (Liquid Crystal Display) screen is an electronic display module and find a wide range of applications. A 16x2 LCD display is very basic module and is very commonly used in various devices and circuits. These modules are preferred over seven segmentsand other multi segment LEDs.The reasons being LCDs are economical easily programmable have no limitation of displaying special & alphanumeric characters A 16x2 LCD means it can display 16 characters per line and there are 2 such lines.

Fig: 1.3 LCD display

Software required is keil's software for run the code and to dump the code into controller using flash magic. Using assembly language to write the code for the system.

ADC0809

ADC0809 is an 8-bit analog to digital converter. It is used to convert the analog voltage of temperature sensor and battery circuit. The reference voltage of ADC0809 is 5V. It is an 8 channel ADC. The temperature sensor is connected to channel 0 and battery circuit is connected to channel 1.The 8-bit A/D converter uses successive approximation as the conversion technique. The converter features a high impedance chopper stabilized comparator, a 256R voltage divider with analog switch tree and a successive approximation register. The 8-channel multiplexer can directly access any of 8-single-ended analog signals.

Vibration Sensor

This sensor buffers a piezoelectric transducer. As the transducer is displaced from the mechanical neutral axis, bending creates strain within the piezoelectric element and generates voltages. The Vibration Sensor Detector is designed for the security practice When Vibration Sensor Alarm recognizes movement or vibration, it sends a signal to either control panel Developed a new type of Omni-directional high sensitivity Security Vibration Detector with Omni-directional detection.

GSM Modem SIM 300

Designed for global market, SIM300 is a Tri-band GSM/GPRS engine that works on frequencies EGSM 900 MHz, DCS 1800 MHz and PCS1900 MHz SIM300 provides GPRS multi-slot class10 capability.

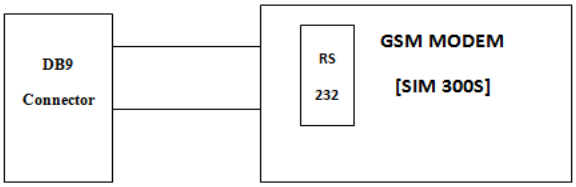


Fig: 1.4 GSM Modem Connector

and support the GPRS coding schemes CS-1, CS-2, CS-3 and CS-4. With a tiny configuration of 40mm x 33mm x 2.85 mm, SIM300 can fit almost all the space requirement in your application, such as Smart phone,PDA and other mobile devices.

RESULT

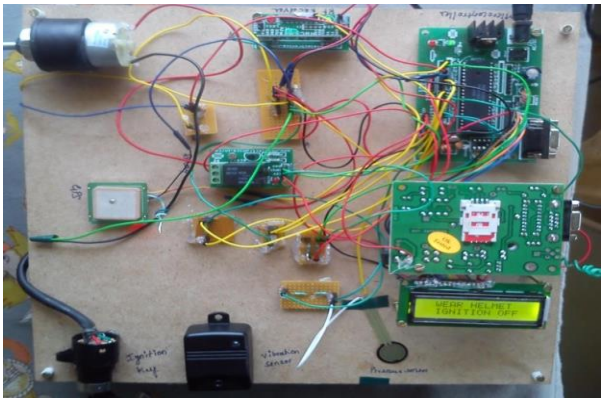


Fig: 1.5 Brainy Helmet Board

The Result of the Brainy Helmet Experiment is a s follows:

a. Output displayed on LCD if Driver Drunk:

b. Output displayed if driver not wearing helmet and no alcohol consumed:

c. Output displayed if Accident occurs to driver:

CONCLUSION

As the concluding part of this project, I would like to say that-- "Without proper action at proper time, danger awaits us with a bigger face." We must act on time when a person is injured. We must take care of person the way it is meant. Otherwise, a valuable life might be lost .We need to understand how precious lives of people are and what importance first-aid carries in saving these precious lives.

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International Conference on Recent advancement in Computer Science and Communication Technology
(ICRCSCT-18)

06th - 07th April 2018

Prediction of heart disease using hybrid algorithm

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***Abstract:*-- classification is normally supervised learning method and helps to classify the data into classes and design models, where the attribute of class plays a vital role in the construction of the classifier. Nearest neighbor (KNN) is more easy and simple, effective ,efficient and popular algorithm for classification.KNN a is a straight forward classifier and classification is done based on its nearest neighbour. For example clinical databases like that.Classification methods produce inaccurate results, hence this algorithm helps to produce accurate results for this.In India Heart disease is one of the leading cause.is 32% and in Canada it is 35%.By keeping in the view of all these considerations a perfect decision support system is required.Here we proposed a hybrid algorithm which is a combination of evolutionary algorithm Genetic algorithm in combination with KNN for good accuracy and perfect classification. GA can be used perform global search for fitness solutions and KNN used to classify them.**

Keywords: Data mining,Genetic algorithm,Heart disease,KNN algorithm,classification,accuracy etc.

International Conference on Recent advancement in Computer Science and Communication Technology
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06th - 07th April 2018

Business Intelligences using Power BI

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***Abstract:*-- For companies maintaining direct contact with large number of data, growing number of oriented application and create a new challenge. Real-time applications in integrating enterprise application. To learn from future, present, past, many companies are used in Business Intelligence systems and tools. Companies have importance goals defined through business intelligence concepts. It describes the role and requirement of real-time BI. These paper explore based on Business Intelligences concepts, Power BI feature, Benefits, components and BI techniques.**

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A Unique Framework for Establishment for Large-Scale IoT Distributions

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***Abstract*:-- Web of Things (IoT) gadgets are generally viewed as outer application conditions that lone give information or process and execute straightforward directions. The current development of IoT gadgets with inserted execution situations enables specialists to convey and execute custom application rationale specifically on the gadget. This approach on a very basic level changes the general procedure of outlining, creating, sending, and overseeing IoT frameworks. Be that as it may, these gadgets show noteworthy contrasts in accessible execution conditions, handling, and capacity abilities. To oblige this decent variety, an organized approach is required to consistently and straightforwardly convey application parts onto countless gadgets. This is particularly vital with regards to vast scale IoT frameworks, for example, in the brilliant city area. In this paper, we show the SFPIOT, a framework toolset that gives flexible provisioning of use parts on asset obliged and heterogeneous edge gadgets in expansive scale IoT organizations. SFPIOT underpins push-based and additionally pull-based organizations. To enhance versatility and diminish produced arrange movement amongst cloud and edge framework, we introduce a disseminated provisioning approach that sends SFPIOT neighborhood hubs inside the organization framework near the genuine edge gadgets. We demonstrate that our answer can flexibly arrangement expansive quantities of gadgets utilizing a testbed in view of a certifiable industry situation.**

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Mitigating denial of service attacks in search engines using OLSR Method

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Abstract:-- **The web administrations are executed in any web search tool with a specific end goal to distinguish the blacklist connects in the sites. The issue meaning of this venture is to make the sites in the internet searcher in the real position. Essentially programmers will be encroach in to the source code of the web and include their own particular web connect into the higher earlier sites, this makes the lower earlier web to wager the higher earlier web in the brief time of the time with the goal that for the most part notice related sites are establishing in the best level of the sites. With a specific end goal to defeat the above given issue here we are presenting the ddos technique keeping in mind the end goal to recognize the blacklisted joins from the first sites. This can be executed in web servers; this is on account of web servers can be interrelated with a large portion of the web indexes. With the goal that the site administrator can have an individual login to discover the blacklisted connects in their own site. In included with the administrator can ready to erased the blacklisted site and can ready to recognize the IP address of the blacklisted zone. If there should arise an occurrence of consistent blacklisted from the any IP address implies that can be blocked for all time by the web administrator. So the by utilizing this strategy internet searcher will demonstrates the provoke comes about as indicated by the client characterized seek and in addition ad and advancement sites can be kept away from in major. So that by utilizing this technique the earlier hit recorded sites will brings about the best position of the web index. What's more, utilizing the IP address the blacklisting destinations will be blocked forever.**

Index Terms— Denial of service attacks, Web attacks, Blacklisting, IP Blocking, Search engine, Keywords

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06th - 07th April 2018

Dr. House - Warehouse Manager

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***Abstract*:-- Dr. House is a website interface which helps user to track, control, monitor and maintain a warehouse. The website interface acquires from two types of IoT devices one for ambience control and the other asset tracking, with the help of http get and post requests.**

The main USP of Dr.House is it's online recommendation, which helps user to order good from online retail stores whenever times are urgent and adequate quantity of goods aren't available.

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Simple & Secure Mechanism for establishing connection between D2D Communication in 5G Scenario

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[1] Research Scholar, [2] Associate professor, [3] Research Scholar

***Abstract*:-- When the wireless technologies are moving from LTE to LTE-A, the high data rate is considered in D2D communication i.e. 5G. In a network, Network server and multiple devices play a major role in information exchange. There are several challenges faced by the users and also network such as information exchange by the intruders, authentication failure, data dissemination, etc. The paper focuses on the two approaches such as information exchange from the network to device and device to device i.e. D2D along with authentication establishment. One approach dealt with authentication and encryption scheme which is already used in LTE netwo rks. Our propose focuses mainly on the device to device based on network authentication and symmetric key exchange for secure access i .e. SIE protocol. For performance analysis, AVISPA is used as the protocol checker to verify whether the proposed protocol is safe or not. The results supports our claim and proves the protocol to be safe under the assumed scenario.**

Index Terms— LTE-A, Authentication, Information exchange, D2D Communication.

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Image Processing: A New Step to Security

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***Abstract:*--** **Image processing is a new step to Security where we leverage images for hiding information and for other security Objectives. Using image stitching and image steganography security can be provided to any image which has to besent over the network or transferred using any electronic mode. There is a message and a secret image that has to be sent. The secret image is divided into parts. The first phase is the Encrypting Phase, which deals with the process of converting the actual secret message into ciphertext using the AES algorithm. In the second phase which is the Embedding Phase, the cipher text is embedded into any part of the secret image that is to be sent. Third phase is the Hiding Phase, where steganography is performed on the output image of Embedding Phase and other parts of the image where the parts are camouflaged by another image using least significant bit replacement. These individual parts are sent to the concerned receiver. At the receivers end decryption of Hiding phase and Embedding Phase takes place respectively. The parts obtained are stitched together using k nearest method. Using SIFT features the quality of the image is improved.**

Keywords:Cryptography, image steganography, image stitching

International Conference on Recent advancement in Computer Science and Communication Technology
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06th - 07th April 2018

Influence of Drilling Parameters on Surface Roughness in Drilling Of Al6061-Sic Composite

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***Abstract:*-- Metal matrix composites find many applications in engineering field. They are used in engineering applications liken aerospace, marine, automobile and turbine compressor engineering applications, because of their light-weight, high strength, stiffness, and resistance to high temperature. In this experiment the thrust force and surface roughness is optimized for drill parameters (drill bit diameter, spindle speed and feed rates) in drilling Al6061-SiC metal matrix composite was experimentally investigated. The machining parameters considered were drill bit diameter (4mm, 6mm and 8mm), spindle speed (500 rpm, 1000 rpm, 1500 rpm), feed rates (20 mm/min, 30 mm/min, 40 mm/min). Using the above parameters thrust force and surface roughness in drilling Al6061-SiC metal matrix composite is experimentally investigated. The effect of drill parameters were analyzed using a L9 orthogonal array and signal-to-noise (S/N). Using Taguchi method, the interactions among factors are also investigated. In this experiment the obtained values for thrust force and surface roughness is optimized using signal-to-noise ratio (S/N) method and non-linear regression equation method. And it was found that optimization using non-linear regression equation method gives the better results than optimization using signal-to-noise ratio method. From the experiment the best result for surface roughness is obtained for the condition [1, 1, 3] in the L9 orthogonal array, that is diameter (4 mm), spindle speed (500 rpm), feed rate (40 mm/min).**

Keywords—Surface roughness, Thrust force, Drilling, Taguchi, optimization.

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06th - 07th April 2018

Assessment of the purity of silk and its mixed fabric using image processing in textile showrooms

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***Abstract*:-- In today's world where there is a lot of interest towards fashionable and expensive clothing ,the quality and purity of the material is expected to be of high standards. Especially when it comes to silk clothing, people always are doubtful about the purity of the material, due to the high costs people invest on such clothing. In this paper we aim at determining the purity of silk clothing by using image processing algorithms .We basically take a microscopic image of the fabric and compare it with a dataset of pure silk fabric images and hence determine the percentage purity in mixed fabric clothing**

Key words- mixed fabric clothing , purity , silk , image processing

International Conference on Recent advancement in Computer Science and Communication Technology
(ICRCSCT-18)

06th - 07th April 2018

Context Aware Personalised Travel Sequence Recommendation using Data Mining

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***Abstract:*-- A tailored travel sequence proposal from mutually supportive travelogues and community-contributed photos has been implemented through the project. Topical Package Space containing delegate tags, the Distributions of Cost etc. is excavated to overpass the lexis breach connecting user voyage predilection and trek courses. Famed directions are positioned higher by identifying its analogy amongst User Package and Route Package. Subsequently apex titled routes is optimized with auxiliary approaches with catalogues on alike users online.**

Index Terms—Personalised Travel recommendation, geo-tagged photos, social media, multimedia information retrieval, POI, Point of Interest, Travalogues, Community Photos

International Conference on Recent advancement in Computer Science and Communication Technology
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06th - 07th April 2018

Pinnacle Rise in Technological Improvement in Automobile Sector – An ANN Approach

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***Abstract:*-- ANN is an acronym for Artificial Neural Network which provides accurate results by the method of error reduction. In this study, feed forward algorithm along with sigmoid function is taken into account. Also cross comparison between artificial neural network and decision tree analysis is made in the automobile sector improvement. There is a correlation in obtaining viable results between ANN and decision tree approach. This unique correlation is observed in this paper. This paper will be vital tool for young researchers who work in this area.**

Index Terms— ANN, Feed forward algorithm, Sigmoid function, Decision tree analysis

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06th - 07th April 2018

Innovations in Future Technology – A Fuzzy Approach

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[2] Assistant Professor, Department of Electrical & Electronics Engineering, [1][2] SCSVMV, Enathur, Kanchipuram

***Abstract:*-- The present world is taking a strong 'U' turn towards different technological scenario. This is a pervasive in all fields right from finance, economics, automobile sectors, legal sectors, nano medicines, nano technologies in renewable power, encrypted currencies like bit coin, automated supermarkets and so on. This paper applies fuzzy rules to create rugged methodologies on the outcomes of this rapid growth. This paper analysis by applying fuzzy linguistic rules and proper membership functions outputs are obtained. Pros and cons of this growth are analyzed more technically. This paper will be much useful for the future researchers in the area of new technology and how to apply fuzzy in it.**

Index Terms— Pervasive, Fuzzy linguistic rules, Membership functions