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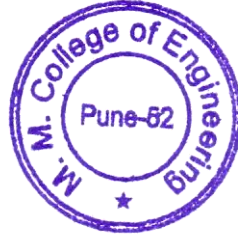
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## Criterion 3

### 3.3: Research Publication and Awards

#### 3.3.1 Number of research papers published per teacher in the Journals notified on UGC care list during the last five years

Sr. No.	Parameter	Academic Year	No. of Research papers
1	Research Papers	2021-22	85
2		2020-21	65
3		2019-20	71
4		2018-19	68
5		2017-18	22





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***Academic Year***  
**2019-20**

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## Title: Monitor and detect suspicious transactions with database forensics and Dempster-Shafer theory of evidence

**Authors:** Harmeet Kaur Khanuja; Dattatraya Adane

**Addresses:** Department of Computer Engineering, MMCOE, Pune, India ' Department of Information Technology, SRCOEM, Nagpur, India

**Abstract:** The digital investigators have now approached databases for investigating the cyber crimes. The illegal financial transactions on the web which goes undetected can now be revealed through database forensics. In response to this, we have proposed a methodology to detect the illegal financial transactions through database audit logs. The aim here is to monitor the database, detect the suspicious transactions and report the risk level of these transactions. Different databases are monitored to extract SQL transactions through their respective audit logs. The SQL transactions obtained are transformed and loaded in a standard XML format which contains financial records along with its metadata. Initially, we process the financial transaction records with rule-based outlier detection algorithm and classifies the transactions as per RBI rules. The suspected transactions obtained as outliers are marked with initial belief values. To verify the uncertainty of the suspected transactions we apply Dempster-Shafer's theory of evidence which combines various evidence of suspected transactions obtained through audit logs. The experiments performed manifest the risk level of suspected transactions.

**Keywords:** audit logs; database forensics; Dempster-Shafer theory; DST; money laundering; outliers; suspicious transactions.

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# Blockchain Technology in Education System: A Review

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## ABSTRACT

Blockchain technology can be used to solve many educational problems and can help educators as well as learners to monitor the learning outcomes. The data can be stored securely and tamper proof format when it's stored onto the blockchain network. The Blockchain for Education platform helps us to make the tamper-proof certificates and their correct and the overall permanent allocation of these certificates to learners, as well as verification of certificates. It can reduce the overall frauds and tampering of the degrees and certificates. Here smart contracts can be designed and deployed on to the Ethereum blockchain that can be designed using the solidity programming language. Blockchain can be applied to private, public and consortium sectors depending upon the usage and the scope of the blockchain. Education system can take benefit of this scalability of the blockchain and can be effectively useful in the

## Keywords

Blockchain, Ethereum, Distributed ledgers, Smart contracts, Solidity, POW, Consensus.

## 1. INTRODUCTION

We ask Blockchain can transform the traditional record storage of students and the staff over the distributed network. As the data is stored on the distributed system it is secure and more transparent. The overall data accuracy and immutability is preserved in the distributed blockchain environment. Generally blockchain consist of the various steps while deploying the data onto the blockchain network. Here each user has their own hash value associated which will help them to identify them uniquely over the distributed network. The time stamp is also added as the part of the hash value which is generally from random value. Issues in the current education system and different educational organizations can be resolved using the blockchain technology in the core area. It can be resolved using the blockchain technology in education system. Usually the verifying authorities and the central institutions take more amount of time for carrying out the operations which is a time consuming process. Using the blockchain technology we can eliminate the risk of the central server down time. As we are not relying on the central authority the process takes fewer amount of time. The data stored on the blockchain is tamper proof and cannot be modified once deployed on blockchain network.

## 2. LITERATURE SURVEY

The paper [1] depicts the potential application of the blockchain in the education system and organizations. Further explains the different issues in the current education system and different educational organizations can be resolved using the blockchain technology in the core area and how It can be resolved using the blockchain technology in education system. Usually the verifying authorities and the central institutions take more amount of time for carrying out the operations which is a time consuming process. It continues with the blockchain technology we can eliminate the risk of the central

server down time. As we are not relying on the central authority the process takes fewer amount of time. Considering that the data stored on the blockchain is tamper proof and cannot be modified once deployed on blockchain network and stored in the form of tamper proof smart contracts. The paper [2] provides the different approaches and ways to consider the consensus as adding the POW (Proof of Work) to the blockchain. Using this algorithm different parties reach to the consensus like to add the corresponding the transaction to the corresponding blockchain or not. Here the difficulty can be increased to solve the cryptographic puzzle and it can be made more challenging to solve by increasing the more number of leading zero's in the overall cryptographic puzzle.

Paper [4] describes how the peer-to-peer electronic cash can help users to send the money from one point to other point without involvement of the third parties. And also added the use of the Ethereum blockchain in the corresponding blockchain network. Further explains how the digital signature and digital certifications can help the educational institutions and disrupt the current centralized systems. Blockchain technology provides more security to the data compared to the central data storage, as we don't need to worry about server down time. Even if we want to hack the overall blockchain network we need to gain the access the 51% access of the network and which is quite impossible to perform. And blockchain is secured by many number of the active nodes in the blockchain network.

[5] Provides the information about the string of the knowledge is used that cryptographic token. Which generally refers to the creation and the transfer of the cryptocurrencies as well as the storage. Generally the cryptographic token refers to the string of the information which actually points to the knowledge having the initial data. [5] Ether is the fuel in the distributed platform based applications. It is used in the Ethereum blockchain. It further explains that it can be considered as the payment method generally preferred in the Ethereum blockchain network. As it is applied so that developers can develop the quality of the applications. [6]Provides the information regarding the Ethereum blockchain and how it can be implemented in the form of the smart contracts designed using the solidity programming language. [6]Explains the additional and innovative approaches that can be made possible using the quality attributes of blockchain technology for the educational systems.

## 3. BLOCKCHAIN TERMINOLOGIES

### 3.1 Transactions

Blockchain contains the shared and the distributed transactional database. When changes are made to data base we have to make a transactions and it has to be agreed and accepted by everyone in the network. The transactions on the network are always cryptographically signed and maintained uniquely.





# Implementation of Blockchain Technology in Education System

Akshay Karale, Harmeet Khanuja

**Abstract:** The Blockchain for Education platform helps us to make the tamper-proof certificates and their correct and the overall permanent allocation of these certificates to learners, as well as verification of certificates. It can reduce the overall frauds and tampering of the degrees and certificates. Blockchain technology can be used to solve many educational problems and can help educators as well as learners to monitor the learning outcomes. The data can be stored securely and tamper proof format when it's stored onto the blockchain network. Here smart contracts can be designed and deployed on to the Ethereum blockchain that can be designed using the solidity programming language. Blockchain can be applied to private, public and consortium sectors depending upon the usage and the scope of the blockchain. Education system can take benefit of this scalability of the blockchain and can be effectively useful in the educational institutions.

**Keywords:** Blockchain, Distributed Ledgers, Smart Contracts, Solidity, POW, Consensus.

## I. INTRODUCTION

Blockchain can transform the traditional record storage of students and the staff over the distributed network. As the data is stored on the distributed system it is secure and more transparent. The overall data accuracy and immutability is preserved in the distributed blockchain environment. Generally blockchain consist of the various steps while deploying the data onto the blockchain network. Here each user has their own hash value associated which will help them to identify them uniquely over the distributed network. The time stamp is also added as the part of the hash value which is generally from random value.

Issues in the current education system and different educational organizations can be resolved using the blockchain technology in the core area. It can be resolved using the blockchain technology in education system. Usually the verifying authorities and the central institutions take more amount of time for carrying out the operations which is a time consuming process. Using the blockchain technology we can eliminate the risk of the central server down time. As we are not relying on the central authority the process takes fewer

amount of time. The data stored on the blockchain is tamper proof and cannot be modified once deployed on blockchain network.

## II. LITERATURE SURVEY

The paper [1] depicts the potential application of the blockchain in the education system and organizations. Further explains the different issues in the current education system and different educational organizations can be resolved using the blockchain technology in the core area and how It can be resolved using the blockchain technology in education system. Usually the verifying authorities and the central institutions take more amount of time for carrying out the operations which is a time consuming process. It continues with the blockchain technology we can eliminate the risk of the central server down time. As we are not relying on the central authority the process takes fewer amount of time. Considering that the data stored on the blockchain is tamper proof and cannot be modified once deployed on blockchain network and stored in the form of tamper proof smart contracts. The paper [2] provides the different approaches and ways to consider the consensus as adding the POW (Proof of Work) to the blockchain. Using this algorithm different parties reach to the consensus like to add the corresponding the transaction to the corresponding blockchain or not. Here the difficulty can be increased to solve the cryptographic puzzle and it can be made more challenging to solve by increasing the more number of leading zero's in the overall cryptographic puzzle.

Paper [4] describes how the peer-to-peer electronic cash can help users to send the money from one point to other point without involvement of the third parties. And also added the use of the Ethereum blockchain in the corresponding blockchain network. Further explains how the digital signature and digital certifications can help the educational institutions and disrupt the current centralized systems. Blockchain technology provides more security to the data compared to the central data storage, as we don't need to worry about server down time. Even if we want to hack the overall blockchain network we need to gain the access the 51% access of the network and which is quite impossible to perform. And blockchain is secured by many number of the active nodes in the blockchain network.

[5] Provides the information about the string of the knowledge is used that cryptographic token. Which generally refers to the creation and the transfer of the cryptocurrencies as well as the storage. Generally the cryptographic token refers to the string of the information which actually points to the knowledge having the initial data. [5]

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# Implementation of QR Code for Sharing Files.

Anjali Pawar, Harmeet Khanuja



**Abstract:** QR code is a quick response code which is used to store information. In QR code, the information is stored in encoded form. To access information present in QR code, we need to decode information with the help of scanner. The information which is present in QR code is accessible to anybody. Private data is not safe in such scenario. This paper presents a visual secret sharing scheme to encode a secret QR code into distinct shares. Visual secret sharing scheme is a method of distributing secret amongst a group of participants. The secret message is recovered by XOR-ing the shares. Secret message can be generated only when enough number of shares are combined. This provides security for private message using visual secret sharing scheme. Proposed system provides higher security to messages and it also provides more flexible access structure. Computational cost of proposed scheme is low.

**Index Terms:** Division Algorithm,  $(k, n)$  Access, Quick Response Code, Visual Secret Sharing Scheme

## I. INTRODUCTION

QR code are used to provide information to customers and other individuals. In recent years, QR codes are used for multiple purposes. QR code are easy to use and having higher storage capacity. QR can store different types of data. QR code is machine readable label that contain information about the item to which it is attached.

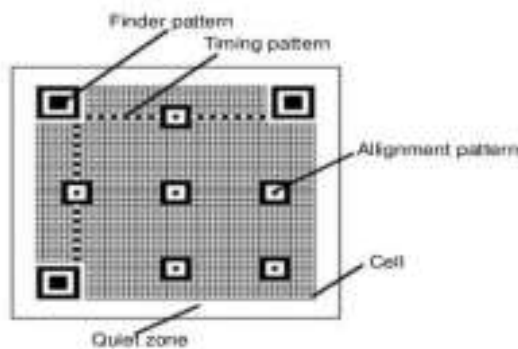


Fig 1. Structure of QR code

In above Fig.1 QR code structure is explained. QR code structure consist of position pattern, alignment pattern, timing pattern, version information and quiet zone. Position patterns detects position of QR code. Alignment pattern helps with orientation when QR code size is exceeding the limit. Timing pattern which is represented by dotted lines is used to determine the size of data matrix. The format information regions contain error correction method. When QR code size is large then alignment pattern helps with orientation. Different versions of QR code are used and version information in Fig.1 detects the version of QR code. Quiet zone is used for scanning purpose. Error correction bits are stored within version information. Actual data is present in data and error correction bits. QR code provides different kind of features which are listed below.

- QR code can handle all type of data
- It can store information in a very small amount of space and it is robust to distortion.
- QR code can be restored if some damage happens to QR code .
- It allows direct labelling on a product.

Visual cryptography secret sharing technology that is used to generate shares. The security provided by visual cryptography is better than traditional system. Secrets are nothing but the QR code which is divided into number of images. Sender specifies the number of secrets and threshold value. After generating secrets sender sends secrets to receiver. But at receiver end, secrets should match with secrets which are present at receiver end. If secrets are of same type then only receiver will get the original data. This method includes simplicity of secret rebuilding. Visual secret sharing method improve the security of existing system.

Motivation: To provide security for private messages in QR code by using visual secret sharing scheme is the main motivation of the work. To improve sharing efficiency of the system. It raises the storage capacity of classical QR code.

## II. LITERATURE SURVEY

The paper [1] includes visual secret sharing scheme. Number of shares are generated by using secret sharing scheme. XOR-ing operation is used to combine shares. It provides low computation complexity. Watermarking technique is used which embeds watermark data into image. Shares are nothing but the image of QR code. The paper [2] compares XVCS and OVCS where XVCS stands for XOR based visual cryptographic scheme and OVCS stands for OR based visual cryptographic scheme. OR based operation diminishes the visual quality of image.

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# Document Sharing Using QR Code With Visual Secret Sharing Scheme

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**Abstract**—QR code stands for quick response code. QR code is used to store information. Anyone can get access to the data present in QR code. They are unsuitable for storing secret data. This paper represents a visual secret sharing scheme to encode a secret QR code into distinct shares. Visual secret sharing scheme is a method of distributing secrets amongst a group of participants. The secret message is recovered with the aid of XOR-ing the shares. Secret message can be generated only when enough number of shares are combined. This provides security for private message using visual secret sharing scheme. Proposed system provides security to private messages and generates QR code. Experimental outcomes discover that the proposed scheme is feasible and computational cost is low. Proposed schemes high sharing performance is likewise recommended in this paper.

**Index Terms**—Division Algorithm, Error Correction capacity, High Security, (k, n) Access Structure, Quick Response Code, Visual Secret Sharing Scheme

## I. INTRODUCTION

In recent years, the QR code is broadly used. In daily life, QR codes are utilized in an assortment of situations that incorporate information storage, web links, traceability, identification and authentication. QR code are easy to use and having higher storage capacity. QR can store all types of data.

As represented in Fig. 1, the QR code has a unique structure for geometrical correction and decoding. There are three position tags in QR code. Position tags are used for detecting position of QR code. QR code consists of timing pattern which is used to determine the co-ordinate. Furthermore, the format information regions contain error correction level and mask pattern sample. When QR code size is large then alignment pattern helps with orientation. Version information identifies the QR code version that is being used.



Fig. 1. Specific QR Code Structure

TABLE I QR Code Structure Information

Pattern	Description
	Version Information
	Format Information
	Data and error correction keys
	Required Patterns
	Position tags
	Alignment Patterns
	Timing Patterns
	Quiet Zone

Quiet zone is used to differentiate QR code from its surrounding. Error correction bits are stored within version information. Data and error correction keys hold actual data popularity of QR codes is primarily due to the accompanying highlights:

- QR code can handle different type of data.
- It has high storage capacity.
- It allows direct marking on a product.
- It is in small size and robust to geometrical distortion.

Visual cryptography is another new secret sharing technology. It provides better security as compare to traditional technology. At receiver side we get required share only when adequate number of shares are placed together. The condition for share is that shares at senders side should match with shares at receivers side. It has the benefits of concealment, safety, and the simplicity of secret rebuilding. The method of visual cryptography protects QR code against diverse security attacks and provides higher security. It is simple to generate value in enterprise applications. In this paper, proposed system improves security of QR code using visual cryptography.

The paper [10] describes the details about QR code print-and-scan process to retrieve message details at fast rate. The paper [1], [2] studies the details about visual secret sharing and experimental performance analysis on division algorithms for secret sharing schemes on QR codes.

**Motivation:**

The motivation of work is to provide security for private messages in QR code by using visual secret sharing scheme. It increases storage capacity of classical QR code. The storage capacity can be improved by increasing textured pattern size.



# Proposed Design for Data Retrieval using Efficient Algorithm



Kajal Kokane, S.M. Chaware

**Abstract:** Data mining is used for finding patterns from large amount of data which is in raw format. These patterns are then analyzed to gain useful information from them. There are many branches of data mining, one of the most interesting branch is frequent item-set mining (FIM). FIM deals with finding items that are frequently brought together by customers. Like for example, if a customer purchases a mobile phone, he also tends to purchase mobile cover, ear phones etc along with it. But such kinds of patterns are not always useful to all stake-holders. Such patterns do not emphasize on the profit obtained of sale i.e. the utility obtained from product. In order to overcome this problem, the concept of high utility item-set mining (HUIM) came into existence. HUIM is used to find the utility or profit obtained from the items in transaction data. There are various algorithms for HUIM, TKU (Top K Utility) and TKO (Top K in one phase) are two well known algorithms of HUIM. The detailed study and practical analysis of these two algorithms show that there are certain drawbacks assigned with them. TKO algorithm gets executed in very less amount of time but it gives incorrect output. Whereas TKU algorithm gives accurate results when applied on database, but its execution time is very high. Hence in order to enhance the performance of these two HUIM algorithms a hybrid algorithm i.e. TKO with TKU algorithm is proposed in this paper. The two algorithms when combined give accurate result and also get executed in considerable less amount of time

**Keywords:** High Utility Item-set, (mining Top-K utility in one phase) TKO, (mining Top-K utility item-sets) TKU, Data mining.

## I. INTRODUCTION

### A. Background

High utility item-set mining is the next step to frequent item-set mining. FIM deals with finding frequent and continuous patterns in the database. Frequent item-set mining has proved to be very useful in many industrial applications like the market basket analysis. There are various algorithms for finding the frequently bought items like ECLAT, FP-Growth, Apriori etc. These algorithms use the parameter called as min-sup for all the calculations. But FIM is not always useful in all aspects of research. Consider if some customer buys a product of very less price, like a packet of pen, and also the customer buys some other expensive item like a wrist watch. The FIM algorithm considers items, pen and wrist watch as having same weightage or same utility. So such kind of transaction gets un-noticed and the profit constraint gets completely omitted.

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Also if a customer buys one single item like one single pen and also the customer buys 15 pens together, yet these two transactions are considered as same.

The quantity of product is not considered in FIM. Thus, FIM may find patterns that are not of any use to the stakeholders. Uninteresting patterns from business and industrial perspective may be detected. Also certain patterns which are of high benefit to the organization can be missed. To get such useful patterns from the transaction database which can find out highly profitable transaction the concept of HUIM is considered. HUIM are capable of finding such items which can be of high use and produce more and more profit for the organization or industry.

### B. Motivation

Frequent item-set mining algorithms like Apriori are quite famous, but they have many limitations. One of the limitations is, count of number of items bought is not considered [14]. Other major drawback is that all items are viewed as having the same importance or utility of weight [10].

Hence to overcome these limitations, High utility item-set mining concept can be used. The two algorithms of High utility item-set mining are TKO and TKU. But these algorithms are not efficient. They have their own drawbacks like incorrect output and extremely high time for execution. So in order to improve the efficiency a hybrid algorithm has been proposed for mining high utility item-sets accurately.

### C. Objectives

- 1) To implement the hybrid algorithm TKO WITH TKU for improving accuracy of high utility mining.
- 2) Reduce time taken by algorithm to get executed by providing output of one algorithm as input to other algorithm.
- 3) Improve the efficiency of high utility mining.

## II. REVIEW OF LITERATURE

Frequent item-set mining is the study of finding out which items are purchased hand in hand with each other. FIM is a very wide branch of data mining and has many different algorithms for finding the set of frequent item-sets which belong together in the transactional database. Various algorithms like FP-Growth, ECLAT i.e. Equivalence Class Transformation, Apriori etc are used for mining of frequently together occurring items. These three algorithms show different performance when compared with respect to time and space [1]. Apriori algorithm requires highest time for execution but at the same time it requires least storage space. FP Growth algorithm requires least time for execution and moderate space complexity, Whereas Eclat algorithm requires moderate time of execution but highest space complexity if all three algorithms are compared.





# Stress Detection Methodology based on Social Media Network: A Proposed Design



S. M. Chaware, Chaitanya Makashir, Chinmayi Athavale, Manali Athavale, Tejas Baraskar

**Abstract:** Mental disorders can be recognized by how a person behaves, feels, perceives, or thinks over a period of a lifetime. Nowadays, a large number of people are feeling stressed with the rapid pace of life. Stress and depression may lead to mental disorders. Work pressure, working environment, people we interact, schedule of the day, food habits, etc. are some of the major reasons behind building stress among the people. Thus, stress can be detected through some conventional medical symptoms such as headache, rapid heartbeats, feeling low energy, chest pain, frequent colds, infections, etc. The stress also may reflect in normal behavior while carrying out day-to-day activities. Individuals may share their day-to-day activities and interact with friends on social media. Thus, it may be possible to detect stress through social network data. There are many ways to detect stress levels. Some of the instruments are used to detect stress while there is a medical test to know the stress level. Also, there are apps that analyze the behavior of the person to detect stress. Many researchers had tried to use machine learning techniques including the use of various algorithms such as Decision Tree, Naïve Bayes, Random Forest, etc. which gives a lower accuracy of 70% on average. In this paper, we are using a closeness of stress levels with social media data shared by many users. In our proposed system design, Facebook posts are being accessed using a token. Further, we recommend the use of machine learning algorithms such as Conventional Neural Network (CNN) to extract Facebook posts, Transductive Support Vector Machine (TSVM) to classify posts and K-Nearest Neighbors (KNN) to recommend nearby hospitals. With the help of these algorithms, we predict the stress level of the person as positive, negative. Thus, we are expecting more accuracy to detect the stress along with the preventive recommendation. We have proposed a methodology to detect stress because severe stress may lead to self-harming activities and also it may affect the lives of people around us. Thus, stress detection has become extremely important and we are expecting that our proposed model may detect it with more accuracy.

**Keywords:** Social Media, Mental Disorder, Conventional Neural Network, Transductive Support Vector Machine, K-Nearest Neighbors, Facebook

## I. INTRODUCTION

Mental disorders are threatening people's health.

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They are considered to be a major factor of change the mood of a user and the user goes into a depression.

Nowadays users can be stressed due to social interactions of social networks. The rapid increase of mental disorders or stress has become a great challenge to human health and quality of life. It is difficult to timely detect mental disorders or stress for proactive care. Thus, there is significantly important to detect mental disorder before it turns into severe problems.

Our proposed design join hands to detect stress to avoid further consequences such as going into depression, self-harming acts, etc. Once stress is detected, people can take the help of stress management methodologies such as meditation, 'smile and laugh', reading motivational books, etc. A person can also follow proper treatment suggested by doctors, consultants. But for this, there is a need to suggest nearby hospitals so that a person gets help as quickly as possible.

There are also some techniques that are implemented to detect the mental state of mind using different machine learning algorithms. For this, real-world social media data has been analyzed. But algorithms like Decision Tree, Naïve Bayes, Random Forest failed to achieve expected accuracy. These algorithms gave an approximate accuracy of 70%.

## II. LITERATURE REVIEW

Nowadays people are constantly using social media to reflect their lives over the internet. Social media platforms like Facebook, Twitter, Snapchat, Instagram, LinkedIn, Tumblr, Pinterest, etc. engage people more than one-to-one human interactions. Though social media has provided a platform to facilitate the sharing of thoughts, feelings, career interests, etc. on the internet, unfortunately, it's overuse leads to addiction to social media and stress.

Research says that symptoms of mental disorder can be noticed from interactions over social media so that delays in treatment can be avoided. The emphasis is on Cyber-Relationship addiction, Net compulsion, Information overload to detect social network mental disorders [1]. Features like social relationships, self-disclosure or self-esteem, loneliness, bursting temporal behavior, etc. are analyzed. To build the SNMD-based Tensor Model, the Transductive Support Vector Machine (TSVM) is used that gave an accuracy of 84.3%. Mining online social behavior provides an opportunity to detect mental disorders based on features extracted from data logs of online social networks [1]. The main emphasis of previous studies is on the classification of emotions of tweets, posts gathered from social media platforms like Twitter, Facebook. This is because these platforms are the most frequently used platforms. Preprocessing includes classification of a dataset into a training dataset and testing dataset to carry out tokenization further [2].





# Proposed Algorithm for Smart Traffic Control using Ultrasonic Sensors

Sandeep Chaware, Trushita Chaware



**Abstract:** In India, the concept of smart city has evolved since last few years. Smart city includes smart electricity distributions, smart parking, smart lighting on streets, smart water distribution, smart drainage system, smart pipe gas system, smart traffic control system etc. All smart systems listed need smart use of technical solution so that all systems will play critical role in making city as smart. As far as smart traffic control is concerned, there were few solutions suggested and implanted such as sensor with CCTV, camera with IR sensor and tags etc. The technical solution may include software, hardware, communication models, networking, usage of data and of-course data analytics. As large amount of data may be generated by the objects/components involved in the system, it must be analyzed properly. The data may be in structured or un-structured format. In this paper, smart traffic control system with efficient algorithm has been proposed with data analytics to control traffic, which controls the timing of the signal dynamically. At a junction, there is need to control the traffic and signal timing such that air and noise pollution also will be monitored and controlled. In this model, IoT system has been proposed with ultrasonic sensors to control the traffic. The signal timing will be dynamically monitored and adjusted with traffic density within a region. This will give solution to control, monitor the traffic at every signal in a city.

**Keywords:** smart city, ultrasonic sensors, digital camera, traffic density, traffic signal

## I. INTRODUCTION

In India, cities are growing in leaps and bounce with all public facilities. But there are many limitations and hurdles in overall development of cities, especially in India. Smart traffic management and control plays an important role in the development of smart city. We the citizen of this country must follow the ethics in all parts of our life. When we are travelling in a city must follow the traffic rules. But, there are many persons who use to break the traffic rules or travel very rubbishly. This may create chaos or traffic jam which leads to many problems like accidents, damage to vehicles, loss of fuel, increase in air and noise pollution etc. This all causes due to our approach not following traffic rules.

This may happen especially at junction or at signal where there is no traffic police to monitor or signal is not working. This is routine work almost in all cities of India including metro cities. There is need of automated system which will monitor the traffic and dynamically control it. We are in a need of this system since number of vehicles and so the traffic is increasing day by day in all cities. In this paper, the proposed suggested model will work to solve many problems listed earlier. Full implementation of this system can solve many issues mentioned above and can help in reducing traffic problems, which will ultimately help in making city smart.

## II. REVIEW OF WORK

There are many technical solution suggested in order to regulate the traffic in city. Some of them are discuss here: The count of vehicles has been done once it passes through a PCB with inductance loop [1]. A committee led by the chairman of MSRDC, traffic police, transport and IT department suggested an intelligent traffic monitoring system on Mumbai-Pune Expressway in 2016 in order to avoid accidents. As the number of vehicles reaches to the threshold, it stops the traffic with some predefined timer. The controlling of traffic depends on vehicles passed. This give simple solution but the main drawback is the system is static. There is wastage of signal timer when there is no enough vehicles passed through. In this, CCTV is used to monitor and control the traffic with some sensors and microcontrollers along with communication unit [2]. There is proposed traffic and road condition monitoring system in 2008. A GPS-based tracking system has been proposed with SMS facility in case of emergency [3]. In this, a system consists of camera, IR sensor, RFID tags and reader, GSM unit with IoT microcontroller. The vehicles are being monitored by RFID tags and reader and in case of violation of traffic rules, a message is being sent through GSM module to the offender to pay fine [3]. In this, there is uniform organization of traffic flow with certain rules like small vehicles, heavy vehicles, light vehicles will be in a particular lane in order to avoid accident [4]. An emphasis is given to design of road and vehicle to avoid accident. In this, the density of vehicles will be count as per their size, type and weight. Once they reached the threshold, the traffic will be blocked with some predefined timer [4]. In this, Fuzzy expert system uses the traffic patterns at particular location. Traffic data is being collected as patterns and their waiting period. Based on patterns, traffic is being controlled [5]. In IIT Kanpur, research model had been proposed where images of traffic are being captured in regular intervals, process all images and output is given to controller which controls the traffic signal by comparing with the threshold value [6].

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# Proposed System of Enhancement in Accuracy for Fire Detection System using Machine Learning Algorithm



Anjali Pathak, M. Chaware

**Abstract:** *The video surveillance system has become an important part in the security and protection of cities. The Video surveillance has become an important factor in the cities, since smart monitoring cameras mounted with intelligent video analytics techniques can monitor and pre-alert system by capturing abnormal activity such as fire events. The current world is completely under CCTV for make the various areas secure. The video recorded is unable to find out fire detection at early stage of fire event. After event happened this video sequence is used to find out causes of an event/fire but problem is after event happened system are unable to save loss by that event or accident, so there is need to such system is able to help us in early event detection and pre-alert generation system. Motive behind this proposed work is to invent pre-alert generation system without any hardware as well as sensor. Accuracy of this proposed system may be approx.85-90% or more which is better than existing system.*

**Keywords :** *Closed Circuit Television (CCTV), intelligent video surveillance (IVS), conventional neural network.*

## I. INTRODUCTION

Alarms are significant in light of the fact that they can give you an early sign to fire occasions that could be sparing heaps of lives. A fire alarm alerts is very essential to make you alert when you are sleeping. In current system does not available any application which detect fire and alert system. The accuracy directly impacts on human lives. So it is very crucial task of implementation in surveillance networks. Video surveillance system has become an important part in the security and protection of modern cities. Recent years, more and more video surveillance devices are deployed as the increasing demands on public security and smart city. Now a day's million monitoring cameras have been equipped for surveillance systems in all over world. So implement focus on video surveillance by giving video contents containing early fire events detection. To overcome existing drawbacks of post investigation techniques of video surveillance systems by providing pre alert generation system.

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Our work is based on machine learning techniques for video analysis with better performance and event detection with advantages of alert generation.

## II. LITERATURE SURVEY

Shin-Juh Chen [1] state that fire detection systems located in aircraft cargo compartments are currently based only on smoke detectors. They produce around 200 bogus alerts for each year for U.S. enlisted flying machine. The quantity of bogus cautions is developing as more planes are equipped with smoke alarms and air travel grows. Also, the survivability of an air ship in a fire situation relies upon the early location of the fire. A fire location framework is created dependent on the concurrent estimations of carbon monoxide, carbon dioxide, and smoke. The mix of the paces of ascent of smoke and either carbon monoxide or carbon dioxide focus gives a potential alarm calculation to build the dependability of flying machine smoke alarms, and to lessen an opportunity to caution. The fire recognition framework with the alert calculation identified fires that were not frightened by smoke sensors, and frightened in shorter occasions than smoke sensors working alone.

Khan Muhammad et.al [2] proposes a secure surveillance framework for IOT systems by intelligent integration of video summarization and image encryption. Right off the bat, a productive video rundown strategy is utilized to extricate the enlightening edges utilizing the handling capacities of visual sensors. At the point when an occasion is distinguished from key casings, an alarm is sent to the concerned authority self-rulingly. As a ultimate choice about an occasion principally relies upon the separated key casings, their change during transmission by aggressors can bring about serious misfortunes. To handle this issue, propose a quick probabilistic and lightweight calculation for the encryption of key edges preceding transmission, considering the memory and preparing prerequisites of compelled gadgets which increment its reasonableness for IOT frameworks. Qingjie Zhang et.al [3] proposed a deep learning method for forest fire detection. They train both a full image and fine grained patch fire classifier in a joined deep Convolutional neural networks (CNN). The fire recognition is worked in a fell manner, for example the full picture is first tried by the worldwide picture level classifier, if fire is identified, and the fine grained fix classifier is pursued to recognize the exact area of fire patches. Our fire fix identifier acquires 97% and 90% location precision on preparing and testing datasets individually of different fire identifiers in the network, to fabricate a fire discovery benchmark.



# Video Object Detection through Traditional and Deep Learning Methods

Sita M. Yadav, Sandeep M. Chaware

**Abstract:** Object detection in videos is gaining more attention recently as it is related to video analytics and facilitates image understanding and applicable to . The video object detection methods can be divided into traditional and deep learning based methods. Trajectory classification, low rank sparse matrix, background subtraction and object tracking are considered as traditional object detection methods as they primary focus is informative feature collection, region selection and classification. The deep learning methods are more popular now days as they facilitate high-level features and problem solving in object detection algorithms. We have discussed various object detection methods and challenges in this paper.

**Keywords :** Video Object Detection, Deep Learning Methods

## I. INTRODUCTION

Computer vision is a field in which, object detection from the video sequences is an interest point for many vision based application like, video surveillance, traffic controlling, action recognition, driverless cars and robotics. The task of object detection includes localization and classification. From video frames data is extracted to predict the objects in which task of drawing a bounding box around one or more object is called localization and task of assigning label is classification. The object detection from video sequences can be based on feature, template, classifier and motion. Various papers have discussed about role of moving camera and fixed camera in object detection. But object detection in videos which capture using moving cameras is less and work is still going on. Object detection becomes primary requirement for computer vision which helps in understanding semantic of images and videos.

## II. LITERATURE SURVEY

In [1] the author introduced method based on single deep neural network for detecting objects. The approach is based on SSD which use aspect ratio and scales for feature map, performance can be improved by using RNN. In [2], the authors have proposed a Region Proposal Network (RPN) which work on detection network with full-image convolutional features, hence gave cost-free region proposals. This paper showcases a deep learning based object detection method which achieves speed of 5-17 fps. [3] have proposed a framework by using object detection, classification and semantic event description. The event is

analyzed by integrating the object detection and scene categorization. The system can be improved by automatic scene learning methodologies.

The authors of [4] have proposed methods and architectures to understand videos. The architecture is given for automatically categorization and caption in the video. The system implemented on temporal feature pooling (TFP), 3D Convolution, frame majority and LSTM for classification. Microsoft multimedia dataset used, the output is the predicted video categories and video captioning. Better dataset cleaning is required along with focus regions. One frame per second extracted from video which may probably missed some important information. The various detection algorithms are explained using given algorithm but accuracy of detection is not discussed. [5] proposed a system to detect moving objects using background subtraction, edge detection and geometrical shape identification. If the object is moving in speed then this system does not give accurate result. [7] Suggested pedestrian detection method which separates the foreground object from the background by utilizing image pixel intensities. The foreground edges are enhanced by high boost filter. [8] the authors put forward object detection system using CNN. The neural network algorithms are able to handle the occlusions and camera shake problems, with use of frame difference method. However, proper analysis of training model is required. [9] introduces BMA (Block matching algorithm) for moving object detection. This method divide the video frames into non-overlapping blocks then matching is done in reference frame. The computational time for BMA is low and robust. However, further study is required for lossless compressed video based Background Subtraction (LIBS) method is used. [14][15] have given state of art region based object detection methods.

## III. FACTORS AFFECTING OBJECT DETECTOR

The object detection requires to identify the features that impact performance of detector with framework. Based on literature survey the various factors which affect detector performance are feature extractor, threshold decision for loss calculation, boundary box encoding, training dataset, data augmentation, localization factors and feature mapping layers.

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# Detection of Defective and Non-Defective Fuse Configurations of the Fuse Boxes used in Wiring Harnesses in Automobiles with Deep Learning

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**Abstract :** The fast and accurate automated quality visual inspection is increasingly gaining importance in manufacturing and product quality control for product efficiency. To effectively detect faults or defects in products, main methods focus on hand-crafted optical features. An important part in all automobiles is the fuse box which provides protection to all electronic devices in a vehicle such as headlights, AC, radio, indicators, etc. The fuse box contains on several fuses placed in their position with the help of color coding and ampere rating. The current practice is to conduct manual inspection, which leads to high production cost and other quality issues. Our approach focuses on use of a Convolutional Neural Network to extract powerful features with less prior knowledge about the images for defect detection. This can improve the quality of the fuse boxes shipped for final assembly of the vehicle and reduce its cost of manufacturing and testing. In this report, we suggest a method for Implementation of Convolutional Neural Network to classify the fuse box configurations into correct and wrong classes based on color coding of fuses which can be extended in a similar way to other manufacturing quality control problems.

**IndexTerms -** Convolutional Neural Network, Feature map, Fuse, Regressor, Softmax, quality inspection.

## I. INTRODUCTION

Computer vision has become one of the critical fields of study, and the industrial applications that are driven by the use of computer vision methodologies are becoming a huge part of industry. The precision and speed at which images taken from cameras are processed and classified have evolved over decades. Deep learning plays a major role as a computer vision device as the well-known boy in town.

With the advent of deep learning image processing technology we found a deep learning approach with some advantages over conventional computer vision techniques. The problem with a traditional image classification approach to extraction of features is that you have to choose which features to look for in each image. The principal difference in computer vision's deep learning approach is the idea of end-to-end computing. Defining the features and doing feature engineering is no longer required. The neural is doing the same for you. Our approach focuses on using a Convolution Neural Network to extract powerful features for identification of defects, with less prior knowledge of images.

Production quality control is a crucial field for evaluating the value of a product. Fuse boxes are designed for shielding the car's electrical circuits from exposure to the elements to prevent damage and short circuits. Fuses are made to control and safeguard electrical currents which flow into electrical components via wires. When fuses are blown, drivers may experience problems with the radio, dome lights, and other electrical components inside the vehicle. The fuse box provides color coding and ampere rating on different fuses put in their location. Inside the fuse case, fuses come in several different shapes, colors and sizes. They are often used to stabilize the electrical current which flows through wires, protecting devices from damage due to electrical overload. Most fuses in vehicles today are either rectangular or cylinder shaped. Rectangular fuses come with two push-in-connectors which are connected by a fuse wiring covered by a plastic cover that blows when overloaded. Fuses are the protectors of the electrical devices in your car. Relays within the fuse box help safeguard passengers from the high voltage that the battery and alternator produce. Therefore, it is important that no mistakes are made when mounting the fuses in their frames.

The standard method is manual testing, which leads to high cost of production and other quality problems. Both the fuse boxes cannot be exhaustively checked in manual inspection. There is a reduction of upstream labor, consumables, plant capacity as well as revenue if a defective component is found at the end of the manufacturing line. At the other hand, if an undetected bad component gets into the final product, there will be both customer impact as well as market reaction. It could actually do irreparable harm to the reputation of the organization. We suggest an automated system for the testing phase before fuse boxes are assembled in vehicles to save time and increasing the manufacturer's productivity.



# Performance Based Adaptive Personalized eLearning System



Swati Shekapure, Dipti D. Patil

**Abstract:** Step by step eLearning is developing pattern in industry. To the extent, learning technique is concerned it has been seen that conventional learning strategy, for example, instructor and learner as well as chalk and duster swings too inventive learning. Because of innovation in technology each one started learning by utilizing web. If learner is asking for particular learning material sometimes they are not getting relevant result. So there is need to acquire certain data of learner. This data incorporates their learning style, foundation learning, Knowledge level, learning interest, age and so forth. This proposed system tends to use retrieve, reuse, revise and retain phases of CBR. For construction of customized eLearning there has been identification of various list of features. In light of list of features there has been task of assignment of priorities according to need of it. Before retrieval process standardization of features set process is carried out. Job of K-nearest neighbour strategy to recognize impeccable k factor for better examination. Because of dynamically incremental dataset this work identifies which classification algorithm has more suitable for the dataset. Eventually eLearning saves time, enhance learning experience and provides academic success.

**Index Terms:** Adaptive learning, Case Based Reasoning, K nearest neighbor, Learning Style

## I. INTRODUCTION

First generation of learning was tutor based system [1], which basically class room teaching. In traditional teaching approach teacher's role was to explain concepts to learners. It required equal participation of students and teachers during learning. Whereas this process comprises dependability of each other. Due to the concept of distance learning second generation web-based E-Learning systems [2] comes into existence where these systems used artificial intelligence techniques to support new functions beyond content presentation. In recent years e-learning is an asynchronous or synchronous accomplishment. Everyone can learn by utilizing their time, what is necessary for them to learn and when it is needed for them to know it. It has a global reach. It can be accessed by people around the world.

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For learning, mobile devices [3] and computers can be used, and so online courses are in the hand of the world and can be used at any time.

It is distributed electronically to thousands instead of offering to in-person preparation. Online Learning results in cost reduction of organization which replace their traditional instructor commanded teaching. Online resources maintain consistency and quality in delivering content. The subject of personalization is carefully identified with the move from an instructor focused point of view of educating to a student focused, competency-arranged one. In opposite to regular e-realizing which will in general treat students as a homogeneous substance, customized e-learning perceives students as a heterogeneous blend of people. A few points that ought to be thought about when choosing [4] to customize an eLearning background include,

Customize the student

Make the course "individual" to the student. Catch his/her name as a feature of the enrolment procedure, as opposed to utilizing a nonexclusive "Understudy An." Ask your students to sign on with their name, and after that utilization the name all through the course.

Customize the environment

Give students a chance to figure out what their web based eLearning situations should resemble. Give understudies a chance to pick symbols to speak to either themselves or their "facilitators." Where conceivable, let the students pick voices (male/female) for audio contents.

Customize the content

At whatever point conceivable, consolidate content from students' close to home condition and mirror students' perusing propensities and inclinations -, for example, Blogs, Social Media destinations or other pertinent content sources.

Customize the path

Cultivate "curiosity" by enabling students to investigate different pieces of the contents, regardless of whether they aren't at present or effectively examining/learning it. This will enable enthusiastic students to investigate fragments they find specifically fascinating - simply like they would do in the event that they were perusing a course book

Customize the media

A few students adapt rapidly on the off chance that they watch a short video, others have to peruse a printed PDF record instead of survey a similar report on the web. Giving decisions, for example, "View", "Tune in" or "Print" will take advantage of every student's individual learning styles and inclinations.



# Enhanced e-Learning Experience using Case based Reasoning Methodology

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**Abstract**—In recent year's improvement in innovation includes new limits for verifying data that will incite essential changes in eLearning. The user can see e-learning material subject to the reference given to them and select the best approach to see the resources. This proposed system addresses retrieval, reuse, revise and retain phases of CBR. For building personalized e-Learning, this work identifies different feature set such as learning style, learning object, knowledge level, and problem list. For constructing this model used case-based reasoning along with a k-nearest neighbour. Role of the K-nearest neighbour method is to identify the perfect k factor for better analysis for calculation of accurate retrieval process. There is further addition of new cases based on the simulation of new user history limit to a certain threshold value. This model acquires dynamically incremental dataset for classification. Further, there is time and accuracy comparison on dataset done by K-nearest neighbour, decision tree and support vector machine. Eventually, eLearning spares time, upgrades the learning knowledge and gives scholarly achievement.

**Keywords**—K-nearest neighbour method; eLearning; learning objects; learning style; case based reasoning

## I. INTRODUCTION

The world has changed generously over the most recent 100 years, and instruction needs to change also to guarantee our youngsters are completely arranged Today, a customized learning approach that utilizes innovation in the class room to pace guidance to coordinate student's needs and tailor figuring out how to their interests function for the both students and instructors [4].

Instead of passively accepting and emphasizing data, students' in 21st century customized learning situations play a functioning job in their training and adds to their very own learning. They can work with instructors to set learning objectives [1] for themselves, and can move in the direction of them through mixed getting the hang of, consolidating face to face collaboration with their educator and the utilization of training innovation.

## II. CASE BASE SYSTEM

The term case-based reasoning [8] comprises of three words: case, experience, and problem. A case is an experience of previously occurred problems which are stored in a case base. The representation of cases would do in many ways. A case base is nothing but a collection of represented cases. Store cases are a primary foundation for reasoning. The reasoning to be done in a CBR system is different from an

argument in logic and databases. CBR is not based on true rulebooks and accurate decisions. Applying CBR is approximate reasoning. It may happen that the solution in a recorded case was reasonable for its original problem, this would not be the case for a new-fangled problem. This option is created on the universal fact that the condition in the noted knowledge may not be accurate or similar to that in the new-fangled problem. The result of the reuse of similar case depends on the similarity of previous experience to a new challenge.

### A. CASE

The evidence documented historical knowledge will be essential, be subject to the area of the inventor, it is called problem space. In the design of a problem-solving a CBR system, the particulars will generally comprise the requirement of the problem and the appropriate characteristics of the situation that are the conditions of the problem. The dynamic part of the case is the explanation that was functional in the previous state. CBR system solution may include facts of the solution or process that are involved in obtaining the solution. It also consists of the attained measure of success in the case explanation, if the cases in the case base have reached different grades of success or failure. When an assessment finished amongst the information stored in a model/rule-based system, and that warehoused in a case base, it seems that the evidence in the case base is of a further detailed nature than that of the model/rule-based system. Although the information in a model/rule-based system has preoccupied so that it related in the broadest diversity of circumstances as possible, the information controlled in case base residues precise to the case in which it is stored. [6] Since the accurate information of a case base, it has been discovered that associated information and knowledge relevant in a particular condition warehoused in neighboring contiguity. Therefore, relatively illustrating information from an extensive net, the information desired to answer a precise unruly instance can establish a cluster. The case base in the CBR structure is the recollection of all earlier warehoused cases [14]. Three broad areas have to consider when creating a case base.

- The construction and illustration of the instances themselves.
- The recollection prototype used for establishing the entire case base.
- The choice of keys which are used to categorize every case.



# Machine Learning Framework for Detection of Psychological Disorders at OSN

Punam B. Nalinde, Anita Shinde

*Abstract: Now a days attractiveness of social networking sites indications to the problematic habit. For this reason, researchers devised stress detection systems based psychological disorders in social networks. In this work, we propose a system of psychological disorders detection (PDD) that can provide online social behaviour extraction. It offers an opportunity to identify disorder at an early stage. These PDD system are made a different and advanced for the preparation of disorder detection. Propose system a machine learning approach that is detection of psychological disorders in social networks and social interaction features from social network data for detect with precision possible cases of disorders detection. We perform an analysis of the characteristics, and we also apply machine learning classifier in large-scale data sets and analyse features of psychological mental disorders. After classification results show that user are in stress or not, will be detected by PDD system is used to recommend hospitals on a map and at the same time admin will send mail of precaution list to user for users healthy and happy in life. The proposed method could help in developing a social network diagnostic tool for stress detection. It is useful in the diagnosis of psychological disorder detection in social platforms.*

*Index Terms: PDD (Psychological Disorder Detection), OSN (Online Social Network), SNMD (Social Network Mental Disorder) Classifier, feature extraction.*

## I. INTRODUCTION

With the explosive growth in popularity of social networks, messaging applications and online social networks (OSN) they have become part of the daily life of many peoples. Psychological stress is turning into a risk to individual's well-being these days. The research on the extraction of social networks focuses on the discovery. The knowledge behind the data to improve people's life while OSNs seem to expand the capacity of their users increasing social contacts can actually diminish Interpersonal interactions face to face in the real world [1],[18]. Psychological stress is a leading cause of several psychophysiological disorders. For example, it increases the likelihood of depression, stroke, heart attack and cardiac arrest [17]. User social interactions on social networks contain valuable prompts for pressure identification. It is not easy to detect user psychological disorder in an early time to protect user.

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In proposed system, we find that users disorder state is closely related to friends in social media, and we work a facebook dataset from real-world social platforms to systematically study the correlation of users disorder states and social interactions. Psychological confusion itself is non-clinical and common in our life, extreme and perpetual issue can be rather harmful to people physical and mental health. User social interactions on social networks contain valuable prompts for pressure identification. The advance of informal organizations like Twitter, Facebook a consistently expanding number of individuals will share their consistently occasions and mind-sets, and connect with companions through the interpersonal organizations. We can group utilizing machine learning structure. Because of use both Facebook post content attributes and social communications to improve Psychological confusion discovery. Utilizing some related and previous work, we systemize a group of features as attributes to construct the detective models we proposed.

The contribution of this paper are as follows:

- Today online disorders are usually processed late. To actively identify possible cases of disorders, we propose an innovative approach, disorder detection practice, extracting data records from OSN users as an early detection system.
- We develop a machine learning framework to be detected Psychological disorders detection (PDD). We also design and analyse many important features to identify OSN disorders, such as disinhibition, parasociality, self-revelation, etc. The proposed framework can be implemented to provide a timely alert for potential patients.
- To improve the accuracy using advanced naive bayes algorithm and it is simple to recognize. The proposed framework provides a better results and make predictions for these reasons alone you should take a closer look at the algorithm.

## II. LITERATURE SURVEY

Chun-Hao et al. [2] have introduce a research on mental disorders on social media networks. Author used predictive models for data collection process, using subconscious crowdsourcing. This study, B. Saha et al. [1], the proposed technique can help to classifying online mental health related communities. Author are extract two type of feature 1) STL (single task learning 2) LIWC (linguistic inquiry and word count) features from online social media for depression patients to analyze their outlines.





# Security and Confidentiality of the Data using Block Level in Health Care System



Saudamini Deshmukh, Geetha R.Chillarge

## 1.1 MOTIVATION

**Abstract:** Nowadays rapid development of cloud computing in smart healthcare system has significantly improved the quality of health. However, data security and user privacy are a major concern for smart healthcare systems. These days any kind of data can be used for malicious purposes. Many harmful entities constantly try to gain access to the personal data of internet users. This data includes sensitive information that doctors store of patients and is often stored using some kind of third party cloud providing service that is not very secure. To take care of this issue, in this paper, Symmetric Balanced Incomplete Block Design (SBIBD) is utilized for key Security so that unauthorized client can't get access to the data easily. It also allows the patients immediate and easy access to the data using unique user ID. This system makes use of double encryption using Blowfish algorithm to ensure maximum security of data and the concept of block level is used where data is stored using multiple blocks.

**Index Terms:** Cloud storage, Data security, healthcare Key management, Block level.

Every day, we come across news related to hacking of data. High level security is one of the best solutions for solving these issues in today's age of growing technology. As we all know that health plays a vital role in each and every human being's life and therefore the security of health records is also very important. The existing systems for health record security are vulnerable. To overcome this, SBIBD (Symmetric Balanced Incomplete Block Design) is proposed.

## 1.2 OBJECTIVE

The System presents a model of secure Smart healthcare system using a simple approach of block level. The system provides security by simply using single secret key. The System provides data security using double encryption technique.

## I. INTRODUCTION

In cloud computing, data sharing empowers various members to share the information gathered from different sources which broadly enhances the proficiency of work. To guarantee the security of information available on the cloud is very difficult as it is open to all. Secret keys and encryption techniques have played an essential role in secure and effective data hiding. To take care of this issue, in this system Symmetric Balanced Incomplete Block Design (SBIBD) is utilized for key security. Unapproved client can't get access to the data which has been gathered from various sources. SBIBD scheme uses a basic structure for producing the basic key 'K' for different participants. The structure  $(v, k+1, 1)$ , which is a square structure is utilized to store information. This system stores information from dynamic gathering. Data is partitioned in multiple blocks so that whole file cannot be accessed at one place. Hence, better system performance is achieved as compared to existing systems. It also helps for best calculations using RSA and Blowfish for encryption.

## II. REVIEW OF LITERATURE

This system introduces a new type of IBE scheme [1]. This is called Fuzzy Identity-Based Encryption. In Fuzzy IBE author defines set of descriptive attributes. This scheme uses a private key for an identity, and decrypt a cipher text which is encrypted. Anytime a biometric identity is sampled it will have some noise. The results shows that fuzzy IBE scheme is used to enable encryption as it mainly has error tolerance properties. Here, the MD5 algorithm is used for security purpose and system defines that Fuzzy-IBE can be used for applications that term "attribute-based encryption". For fault tolerance Scheme the Error tolerance property is used. This system focuses on the encryption of data based on the attributes [2]. More and more confidential information is shared and stored by third-party sites on the web every day. Therefore there is a need to encrypt data that has stored at those sites. In this system a new system of cryptography is developed for easy sharing of encrypted data that we can say Key-Policy Attribute-Based Encryption (KP-ABE). This system has cipher texts. These cypher texts are tagged with sets of attributes. Private keys are linked with access structures. These access structures have control of cipher texts. The user can decrypt these access structures. The fully homomorphism encryption algorithm is introduced and the system demonstrates the applicability of author's construction to share the audit-log information and broadcasts the encryption. Author's construction helps proper distribution and assigning of private keys which absorbs HIBE, coarse-grained level encryption and generated the private key but private key is not secure.

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# A Survey on Secure Log Schemes for Cloud Forensics

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## ABSTRACT

Cloud Computing is becoming so popular because of simplicity, large storage, availability, Easy maintenance, Automatic system, on-request self-service, pay per use & so on. Companies also used the cloud to store their data because they do not require any local infrastructure setup. Digital forensics is a subcategory of cloud forensics. Implement all the processes of digital forensics within the cloud environment being called cloud forensics. Investigators play a necessary role in cloud forensics, but there is an absence of assist for cloud forensics. User activity logs play a major role during cloud forensic investigations and also, secure the trustworthiness and honesty about this type of logs are important. Logging scheme plays a critical role within cloud forensics so lots of schemes introduced to secure log have been devised. This paper considers various techniques and schemes for secure log in cloud computing.

**Keywords**— Cloud Computing, Types of cloud, Service models, Cloud Forensics.

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## I. INTRODUCTION

Cloud computing can be defined as a model in favor of about enable ubiquitous, useful, on-request network accessibility toward a shared pool about configures computing assets it can be quickly provided as well as launched about minimum managing efforts or else service carrier interaction[4]

Cloud-based computing offers unlimited resource access as well as less-cost computing. Consequently, cloud-based computing is very famous computing within the latest years. Today, companies are widely using cloud-based computing because it's not necessary any kind of local infrastructure setup. Cloud-based Computing is an essential interchange in how we save data as well as run applications. In place of runnable programs as well as data on the desktop computer, everything is hosted over the cloud, as well as all your document & data can be access from anywhere. Cloud- based computing offers unlimited framework resources very commodious pay-per-use service as well as less-cost computing. Cloud-based computing is based upon internet technology it is utilizing

hardware as well as software as computing resources to give service through the internet. Cloud computing usages are increasing nowadays allowing the end-user to create as well as use software from wherever at any moment. Every entry of log includes details related to a specific incident such has happened inside a system otherwise within a network. The logs have been used to troubleshooting problems, such as optimized the system, to look at the execution about the network, record the activity of users, as well as provide valuable data for find suspicious activity. Cloud computing mostly useful for business and IT organizations. Malicious activity easily exploits the security of cloud-based computing. An attacker can make the malicious activity on applications running within the cloud. These problems are the essential point of Cloud Forensics so forensic experts are devising new approaches for digital forensics.

A Distinct variety of cloud

- A. Public Cloud
- B. Private Cloud
- C. Hybrid Cloud
- D. Community Cloud



# Property Registration and Ownership Transfer using Blockchain



Reshma Ravindra Pawar, Geetha.R.Chillarge

**Abstract:** The high-value property like Land, Home, related to real estate it is essential to have exact records that recognize the present proprietor and give evidence that he is surely the proprietor. Such a record can be utilized to protect the owner's privileges, prevent sale fraud and to make sure that the ownership is correctly transferred to a new owner after sale.

Thus it is essential to maintain correct and complete information and prevent illegal or unjustified, fraudulent changes. Many efforts have been taken already for providing data security to sensitive information. Blockchain is the technology that gives high security to the data. Blockchain technology can store an immutable history of transactional records, so no one can ever doubt the authenticity; records are permanently linked to the system so no one can ever interfere with a record of their own.

This paper gives a comprehensive system on blockchain technology as it can not only be used in financial assets but anything which has some value.

**Keywords :** High Value Property, Property Registration, Blockchain Technology, Ownership Transfer, Digital Signature, Authentication.

## I. INTRODUCTION

A huge impact in the developing world is that to uplift the poor and Backward society and that uplifting will be possible by stopping frauds, changes in system which fails to stop corruption and so much more. The corruption and fraud is in every field we can see. The civilian sector is also not exception. The civil sector includes the construction, selling, Buying, deals etc. who has the High value that should be record properly in the system. The educated people or the people who has knowledge about proprietorship, they can take care of property and maintain their records But what about Illiterate people? The illiterate people don't have much more knowledge about their property status and about frauds. Property frauds like double spending will be avoid using Blockchain Technology. Also, Today's property registration System using paper base process for documentation and after that the records maintain on local server. The registration offices make records in the form of paper. If the Earthquake or any disaster devastate whole system or country then the recovery of the system is very difficult in fact it's not possible,

same case happened in Haiti, after the devastating earthquake back in 2010 there were thousands of plots of land where the rightful owner could not be identified and in many instances ownership were in dispute. So, whenever like this situation come the best solution for the permanent records maintain is the Blockchain which has the capability to maintain or preserve the transactions or records. Blockchain works in Distributed manner so; single point of failure will be avoided. Such as history of transactional records are immutable, so no one can ever doubt the authenticity. The records are linked each other via a hash so no one can ever tamper data. Blockchain Technology eliminates the all drawbacks from Today's property registration system and enhance the security level with its features.

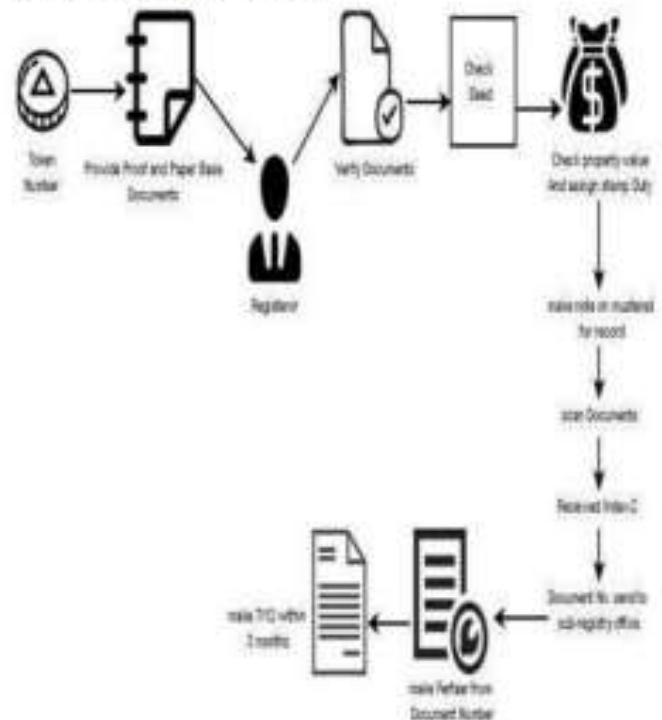


Figure 1: Today's Registration system

## II. LITERATURE REVIEW

MiroslavStefanovic et al.[1] discussed about blockchain Technology and the implementation scope in blockchain also mention about it's features where as it's one of the important feature is smart contract which is used in real estate registration in land administration systems (LASs). Suhan Jiang et al. [6] presented the Data Market cooperate search scheme using Blockchain where the smart contract and gas system is very important and ideal aspect in Ethereum. Here this aspect used to separate a query Cost.

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# Smart Meeting Assistant

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**Abstract:** It often happens that the people participating in a meeting, in the hurry of jotting down the key points tend to miss out on important points that are being discussed in the meeting. Smart Meeting Assistant is being developed to solve this problem. It will assist the people by making a summary of the meeting. It will be possible to review what happened in the meeting after it ends. With the smart meeting assistant, the participants of the meeting can worry less about taking the notes and can focus more on what is more important, like building client relationships, brainstorming ideas or taking business decisions. The smart meeting assistant comes under the domain of Artificial Intelligence and Machine Learning. Natural Language Processing, Voice Recognition API can be implemented to develop this assistant. Forming a summary of the meeting can be done by text mining. The data that will be generated will be unstructured. Hence, determining the definite patterns and trends to examine a textual data is the biggest issue in text mining. Text mining helps in obtaining fascinating patterns from unstructured texts. Information retrieval, summarization, categorization, information extraction, categorization, clustering are different techniques of text mining.

**Index Terms** – Artificial Intelligence, Machine Learning, Voice Recognition, Natural Language Processing, Text mining, Summarization.

## I. INTRODUCTION

Meetings have become an important part of our life. Moreover, it may happen that people attend more than one meeting in a day. It becomes tedious and overhead to remember all the important points, topics discussed in meetings. Thus, the agenda of Smart Meeting Assistant is to help people analyze their meetings in summarized format and get ready document of the same. This application will help the people by providing a summary of important topics, discussion occurred during the meeting. The system will take the voice of the participants as the input. [1] As the meeting will be recorded, speaker diarization will be done. After speech to text conversion, summarizing the meeting for further analysis of the key points being discussed during the meeting, text mining will be done and suitable document will get ready.

Thus, the assistant will help the participants of the meeting by summarizing the meeting and providing the summary in the document format and save their time required in taking notes during the meeting.

## II. EXISTING SYSTEM

In traditional video conference systems, we need to remember everything that we discussed during conference. This involves pen and paper work. Users attending video call need to write down important topics, decisions, ideas to have them recorded with them. As paper work is involved, further-more it can cause important data loss. Missing attention on such important topics causes problems while decision making. Though some system provides mechanism of "Conference Recording", it becomes time consuming to play the recording and review the meeting.

Highlighting important points become overhead. The disadvantages of current system can be overcome in an automated, Artificial Intelligence based tool which will help users to review what happened in the meeting after it's ended. So, you can worry less about taking notes for later, and focus on what's really important in the moment – whether that's building client relationships, brainstorming ideas, business decisions



# Fake News Detection on Social Media using Machine Learning Techniques



Shivani Suresh Nikam, Rupali Dalvi

**Abstract:** Web based life administrations, as Facebook and Twitter, Renren, Instagram, and linkedin have recently become an enormous and persistent supply of day by day news. These stages give a huge number of clients and give numerous administrations, for example, content arrangement and distributing. Not all distributed information via internet based medium is dependable and exact. Numerous individuals attempt to distribute fake and mistaken news so as to control general conclusion. Counterfeit news might be intentionally made to advance money related, political and public premiums, and can lead to unsafe effects on people convictions and choices. In this paper we examine different systems for recognizing counterfeit information via internet based networking medium. Our point is to locate a dependable and right model that arranges a given article as fake or genuine. For identification of fake articles we use machine learning algorithms.

**Keywords :** Fake News, Misinformation, Disinformation, Social Media, Machine Learning.

## I. INTRODUCTION

Social medium has become an indispensable methods for huge scope data sharing and correspondence in all occupations, including promoting, detailing, open affiliations, and the sky is the limit from there. This change in spending practices is because of some novel highlights, for example, versatility, free, and intuitiveness. In any case, the low consumption, simple access, and quick communicating of data of social medium draw a gigantic crowd and empower the broad spread of false information, i.e., information with purposely bogus data. For instance, in 2016, millions of individuals read and "liked" fake news stories proclaiming that Pope Francis has endorsed Donald Trump for U.S. president. When the Pakistani defense minister mistakenly believed a fake news story, he threatened a nuclear war with Israel. These examples clearly show that fake news stories are tricky not only for the trustworthiness of online journalism, but also due to their damaging genuine-world consequences, resulting in violence or influencing election results. Therefore, it becomes more and more important for policy makers to control and discourage the creation of fake news, for online business to identify and stop fake news, and for people to secure themselves from fake news.

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Counterfeit talk via web-based networking media presents extraordinary difficulties. In the first place, fake tattle is purposefully made to mislead editors, which makes it nontrivial to perceive only subject to content. Second, web based life records is enormous scope, multi-modular, for the most part client created, once in a while puzzling and boisterous. Third, the supporters of web-based social networking originate from various foundations, have various inclinations or necessities, and utilize online networking for shifted purposes. At long last, the negligible exertion of making online life accounts makes it simple to make noxious records, for instance, social bots, cyborg customers, and trolls, all of which can become predominant wellsprings of engendering of fake news.

Although the significance of the problem, our understanding of fake news is still incomplete. For example, we want to identify why people create fake rumor , who creates and publishes it, how fake news disseminate, what characteristics differentiate fake news from genuine news, or why some people are more vulnerable to fake news than others. Therefore, we suggest to understand fake news with disciplines such as journalism, psychology, and social knowledge, and distinguish the unique characteristics for its detection. Establishing a superior perceptive of fake news will allow us to come up with algorithmic solutions for detecting fake rumor and control it before fake rumor is broadly distributed.

Since counterfeit talk endeavours to increment bogus cases in news content, the most basic methods for remembering it is to authenticate the reliability of critical cases in a report to pick the information veracity. Counterfeit news acknowledgment on regular news media generally depends on investigating news content data. News substance can have a few modalities, for example, content, picture, video. Study has investigated various ways to deal with discover highlights from single or joined modalities and develop AI models to group counterfeit gossip.

## II. LITERATURE SURVEY

H. Ahmed et al.[1], proposed a false rumor recognition model using n-gram analysis. In this system author uses Term Frequency (TF) and Term Frequency-Inverted Document Frequency (TF-IDF) for feature extraction. Author uses six machine learning algorithm for the classification of news. The accuracy of the system is 92%. Ghaith Jardaneh et al.[2], uses content and user correlated attributes, and utilize sentiment analysis to generate new attributes for the finding of fake Arabic news.



# Linguistic-Based and user-Based Recommending Posts using Two-Level Clustering Methods



Sayali Joag, Rupali Dalvi

**Abstract:** Online social networks have produced bunches of online social groups where individuals can collaborate and shuffle their thoughts. In spite of, the real problems that conflicts with the user security and convenience are confidentiality break, groups without inception, confusion created from various groups of which user is a member of and difficulty in moderating groups. This can be moderated to an extent by an automated filtering method required to categorizing group members based on their response patterns. This paper proposes clustering of group posts on stylistic, thematic, emotional, sentimental and psycholinguistic methods and members of the group are categorized based on their responses to the posts belonging to different clustering methods. The categorization affords security just like the conflict associated with irrelevant notifications received from more than one groups, via recommending the users, posts which might be probable to be of interest to them. It also helps to identify the group members meant closer to spreading posts that violate group policies. The categorization post shows increased performance where there are large numbers of members in a social group by performing linguistic clustering. The contribution work is to implement location-aware personalized posts recommendation using users' behavioral patterns and their geographic location. Another, important work is to implement text-to-speech system converting English text into speech using speech synthesis technique. The system gives rating to the users who shares posts depending on clustering. Also system provides read later functionality to the user side. The system has been tested on Twitter API group data where a significant solution to an unaddressed problem associated with social networking groups is offered.

**Keywords:** Emotion analysis, Multi-level clustering, Psycholinguistics, Sentiment analysis, Stylistics Clustering.

## I. INTRODUCTION

The most popular social networking site Twitter has groups with over 100K members in it. Thus, it becomes difficult for the admin to track the members violating group policies. This shows that there exists a need for a measure to categorize the posts made by members in it based on acceptability and group behavior.

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A community is a fraternity that seeks a platform to discuss subjects that relate to the common cause that motivated the establishment of the group. The members within it enjoy discussion with regard to the purpose of the group. This is especially applicable in the case of academic and interest groups. Thus posting articles irrelevant to these groups can create unnecessary clutter that affects the comfort of the members within the group. Unnecessary advertisements and marketing matters targeting a different audience should be avoided from a group. There is no existing method to deal with this.

A method to control the influx of irrelevant messages within a community is very much essential for the smooth functioning of a social networking group. The existing policies of popular social networking site Twitter enable the administrator of a group to delete and monitor posts made by the members of a community. To screen all the messages posted by the members of a heavily populated group is very difficult. The existing settings provide no option for automated notification for group admin with regard to the members involved in posting articles that do not match the general interest of the group. Our proposed method aims at providing an automated notification to the group moderators regarding suspicious members who frequently post articles that appear to gather negative response from the members within the group. This novel approach has been experimented to account for the hypothesis that, though members may be socially connected; there might be disparity in their likings, thoughts, sentimental orientation and thematic inclination.

### Motivation

To provide an automated notification to the group moderators regarding suspicious members who frequently post articles that appear to gather negative response from the members within the group.

## II. REVIEW OF LITERATURE

The paper [1] proposes a new content based method for personalized tweet recommendation, based on conceptual relations between users' topics of interest. The Concept Graph is a way to exploit logical relations between topics of interest in order to provide interesting and efficient tweet recommendations. Advantages are: Provides a social media user with a new timeline that contains messages that strongly match ones interests and that are not necessarily posted by ones followings. This model is effective and efficient to recommend interesting tweets to users. Disadvantages are: The recommender still recommends some tweets that were not retweeted by the user.





# Cloud Based Portable Biometric Solution

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**Abstract:** There are various biometric solutions in the industry currently. Fingerprint identification is one of the most popular methods and proven one of the most accurate of them. This paper suggests a fingerprint based biometric solution hosted on a cloud-based system to facilitate personnel identification. The identification of an individual will be done with the help of the individual's fingerprint impression, which will act as the entry point in the system.

**IndexTerms -** Fingerprint sensor, NodeMCU microcontroller, fingerprint image, fingerprint template, biometric, cloud

## I. INTRODUCTION

Modern forensic analysis has been using fingerprints as a person's identification owing to its uniqueness. This property has kicked off a wide variety of applications in the domain of identification and access management systems. Even our phones have an inbuilt fingerprint sensor these days. It can be used to unlock phones and even authorize digital payments.

Forging the fingerprints of an individual is very hard and hence can be used in IAM systems. These fingerprints serve as a secure and viable option to maximize security in given systems. Making such systems portable and easy to use is the real challenge in an active working environment.

The recent growing need for biometric systems has been the incubator for newer implementations. Such implementations have eased digitization of records and reduced the management of such records.

## II. AIMS AND OBJECTIVES

The aim of this system is to implement a system for fingerprint minutiae extraction and identification for individual identification. The system will provide a digital base for identification of an individual in the system.

Along with identification part of the system, the system is to be made available as much as possible, hence the use of cloud.

The main aim of this system is to digitize the identification process of an individual in an environment like classrooms or offices. It will reduce human efforts required to do the same as compared to its manual counterpart and achieving portability.

## III. PROJECT SPECIFICATION

### 3.1 Problem Statement

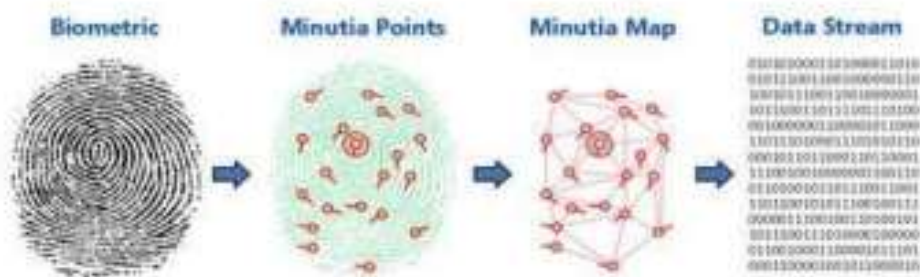
The goal is to design a portable identification system through fingerprints. The project idea is to design and implement software for integration and use with various compatible hardware components like fingerprint sensors. The fingerprint sensor can be used to register and identify fingerprint templates.

The software base can be provided by any programming language which has support for serialization. Java can be used for this purpose along with any database application to serve as backend of the system.

### 3.2 Tasks

#### 3.2.1 Fingerprint Registration

Using a fingerprint sensor, an impression has to be registered as a template into the system for the system to know that a person can be identified by his/her fingerprint.



Conversion of fingerprint image into template based on minutia points

#### 3.2.2 Fingerprint Identification

Using the known templates into the system, the input impression has to be checked against them and verified if record exists or not.

#### 3.2.3 Hardware interfacing

The hardware needed has to be interfaced with the backend software of the system in order to make it usable and readable for the system.

#### 3.2.4 Software designing

The software has to be designed in such a way that it can accommodate the hardware and make sense of the incoming data from it. It should act as a framework upon which our operations can be done upon.



# Face Recognition Using Local Binary Pattern Histogram (LBPH)

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**ABSTRACT:** The Face recognition is the process of comparing and identifying the captured image with the help of the Local binary pattern histogram (LBPH). This system mainly divided into two phases i.e Face detection and Face recognition. Primary Face is detected using Face detection algorithms like HAAR cascade classifier and after that LBPH is used for Face recognition purpose which creates and compares histograms. In LBPH it basically uses parameters like radius, neighbors, grid x and grid y. Firstly it divides that particular pixel into 3x3 matrix and assign a threshold value to each block. Each assigned value is compared with central threshold value. After some more computational steps histogram is created and combined histogram of each pixel is get compared with the histogram stored in database and respective result is displayed.

**KEYWORDS:** Face detection, Face recognition, LBPH, Histogram comparison.

## I. INTRODUCTION

The Face recognition is method used for identification or recognition of the person from his facial characteristics. It has become very popular in the last two decades with the rise in quality of videos/cameras. It is now used for main purposes like home security, device protection.

The first step of the recognition system is face detection which checks whether human face is present in the captured image or not. For this we use HAAR Cascade classifier which extracts the features from the captured image. For feature extraction we apply different haar features like edge features, line features. If face is detected then and then only next step that is face recognition starts otherwise process will be terminated.

After successful face detection next phase that is face recognition starts. There are many different face recognition algorithms are present. For example PCA, HMM AND AMM are some of popular algorithms. For face recognition Along with face detection opencv is best option. Opencv is one of the best open source –machine library. Opencv For face recognition we have used Local Binary pattern Histogram(LBPH) as it can be easily understand and computationally simple with minimum difficulties.

This algorithm uses four measures like GRID X, GRID Y, neighbours and radius. With the help of radius circular LBP is generated which denotes the radius around the central pixel and generally set to 1.

Neighbours are the total sample points present around the central pixel. Total blocks present in horizontal direction are denoted by Grid X and Grid Y gives the block present in vertical direction. If number of cells is high then with respect to that dimensionality increases. With the help of this parameters Face recognition is done.

## II. RELATED WORK

There are many algorithm are developed to recognize human face efficiently but still there are some errors and also each algorithm has some disadvantage.

Author prof. Gondole and Prof. P. A. Salunkhe proposed a paper which uses LBP operator to detect and fetch the





# Resume Classification using Machine Learning

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*Abstract: Nowadays searching for jobs is a difficult and tedious process for both the employees and the employers. The traditional method for classifying resumes is very time consuming and the concerned authorities need to go through every resumes sent by the large number of candidates. This process becomes very complicated because there are millions of engineering graduates passing out every year runs for getting a job. For making the process easier there needs to be match between qualification, experience and many more criteria of candidate and company expectation. In our proposed system ,candidates will be sending resume and Classification will be done using Machine Learning.*

## I. INTRODUCTION

Traditional recruitment methods have being used by employers across the world. There are different traditional methods for hiring such as, paper advertisement ,internal hiring ,referrals and word-of-mouth, however this methods within hiring and recruitment are simply not enough to get the talented candidate. In this era of technology, recruitment process has become more smart and easier at the same time. However, there are more than enough applicants for a single job, and it is very difficult and time consuming for an employer to go through each resumes and select one candidate. To solve this problem there are automated hiring processes where candidates have to upload their CV/Resumes to respected company and then system classifies the resume according to company criteria. Our Proposed system is initially concerned with the I.T sector where machine itself classifies the resumes according to criteria. Classification will be done using Machine Learning (NLP) on the basis of criteria, job profile, experience & specialization.

## II. LITERATURE REVIEW

Proposed system is developed by Mr.Yadav A.B, Pooja Bhosale, Bhumika Gardi, Sajid Pawaskar, where resumes are generated from portal provided to student. Candidates have to provide information that is asked in form. In this system there are two modules 1. Generate Resume 2.Sorting. When candidates provide information the resumes get generated in structured manner. Then they get sorted according to scores of candidates or required criteria to company.[4]

Proposed system is developed by Vishnunarayanan, R, Shreekrishna Prasad, Krishnan, A. N, Palanivel, S, Umamakeswari, A, where process of resume screening is performed in order to qualify and disqualify the candidates according to the requirements of company .As during the hiring process various rounds are performed for filtering the deserving candidates in every round .In resume screening various filtration algorithms are used to do the same, this mainly aim in reducing the number of resumes in the corresponding/subsequent rounds of hiring they explored the importance of making the process as cost effective as possible .the study also says that this process should be like an investment, insted of expense. The primary difficulty that was faced in automating the hiring process is that a resume does not clearly specify how prolific the candidate may be.This can be determined only through human intervention which can be done through an interview. Thus it can be said that there is a need for automation of the hiring process that is robust but there is a trade-off involved, means the resumes should be classified and filtered and after that the selected candidates should be interviewed personally so that the candidates are not eliminated completely.[1]

Proposed system is developed by Juan Zhang, Yi Niu, Huabei Nie,where web document classification using fuzzy K-NN and SVM methods are used. With an increasing amount of datasets, it has become very important to retrieve the relevant data from huge web data. Web document classification is important part of web mining. web pages classification he been studied since internet has become huge dataset. Many algorithms have been adapted for classifying this huge data ,for example support vector machine(SVM) ,KNN, decesion tree etc. most of web document classification techniques considered classes of mutually exclusive concepts. few took the concept of overlap of classes so the classification result wasn't very [good.in](#) this algorithm of fuzzy KNN was used for classification of web document. Some experimental results illustrated that classification performance of fuzzy KNN is better than k-NN and SVM, but the speed of classification for their work has a bit slow than k-NN.They also plan to design scientific measures to select vector seize and the value of k in k-NN dynamically according to the characteristic of source web documents.[2]

Proposed system is developed by Swapil Sonar, Bhagwan Bankar where

# Customer Relation Management (CRM)

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**Abstract :** The implementation of CRM systems has become very necessary for organizations in order to effectively manage their relationships with the customers. Unfortunately, it has faced various failures in different industries. Besides, the existence of implementation methodologies or frameworks that guide the successful implementation of CRM systems are still lacking. In response to that, this paper aims to critically review the methodologies of the existing implementation of CRM system and to comprehensively suggest a set of principles and guidelines for the successful implementation plan of CRM systems.

**IndexTerms -** Software service industry, CRM implementation, Key drivers, Case study investigation.

## 1. INTRODUCTION

Customer Relationship Management (CRM), aided by technology, integration of technology with business and the process has evolved and adopted faster due to the change in focus of marketing organisations. CRM can be defined as a revolving process during which companies interact with their customers, thereby generating, aggregating, and analysing customer data, and employing the results for service and marketing activities. CRM is a tactical business tool that helps marketing departments identify and target potential customers and help set marketing goals by assisting the team to generate increased sales. It can also enable better customer relationships, ensuring that the highest level of service is provided to them.

The CRM goal is to improve the customer's experience of how they interact with the organization. Successful companies in the future will use customer information wisely to build a relationship with their customers; on the level that customer prefers and will work towards developing a long term relationship through retaining customers by delivering delight customers.

## 2. OVERVIEW

The theoretical base of CRM is relationship marketing, customer retention, profitability, lifetime value, and satisfaction created through business process. The business objective of CRM is increased profit and revenue. Having an effective CRM system in place can add value to the brand while reducing general costs, since it helps organise resources more efficiently. In addition, with reduced costs of sales, productivity efficiency is increased while the better flow of relevant information also adds value to customer interactions, helping to shorten sales cycles. An efficient CRM system has a string database which will support and help establish closer customer relationships, again enabling closer customer loyalty. Effective CRM programme provides some significant benefits such as improved customer satisfaction, greater revenue growth, and increased competitive advantage, as a result of long-term customer retention. CRM often restructures a company's focus - changing investments in winning new customers to retaining existing ones. CRM helps in improving the processes related to customer management, placing customers at the centre of the organisation creating a "customer centric" structure.

Companies need to focus on uniform and customised customer interactions across all customer touch points, as well as the ability to forecast customer needs in order to cross-sell and up-sell products and services to specific customers. There is a skewed and incomplete understanding of CRM by the industry, the topic offers huge scope for investigation. Marketing academics have attempted to study CRM from different perspectives and found that there has been no deliberate attempt to consolidate the conceptualisation into a holistic understanding.

## 3. CRM IMPLEMENTATION

The first step for a good CRM implementation is the strategic decision to change or improve business processes in the organisation. Of course, there is the little matter of investing in an improved information system, so the critical first step is top management buy-in and the support of an efficient Project Manager (PM). The project manager needs to be extremely knowledgeable about the internal environment of the organisation as well as the external industry environment, to be able to gauge precisely what he and his organisation are up against. He or she has to be very clear on the customer scenario in their industry- the demands, anticipations, opportunities and threats on the market. Being the point of contact between the software solution supplier and the end users - employees, the PM needs to supervise the project, coordinate the education of the end users and keep the motivation levels high. He or she needs to have the overview of the entire project in order to be able to understand and communicate the development phase of the project, and the tasks in the next development phase of CRM project.

There are certain things that have to be borne in mind even before the implementation is started. Organisations need to be aware of where the implementation can go wrong and plan accordingly. Failures could be triggered by overestimating the functionalities of the implementation, inability to integrate the systems vertically so if customers need some data from the back-office, the system cannot help, thus cutting down communication channels. And of course, the biggest threat is the top level management that is not



# REAL TIME BIDIRECTIONAL COMMUNICATION INTERPRETER FOR DEAF COMUNITY

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*Abstract- Sign Language research field based on real time hand gestures called sign samples and recognition unit of computer. The sign language is the only way to used for deaf and dumb community communication platform. In this system, we are working on the American Sign Language(ASL) dataset (A-Z) alphabet recognition followed by our word recognition dataset of Indian Sign Language (ISL). Sign data samples to be making our system more accurate with help of Convolutional Neural Network (CNN). Today, much research has been going on the field of sign language recognition but existing study failed to develop trust full communication interpreter. The purpose of this system is to represent a real time two-way communication interpreter based on Indian Sign Language (ISL) with higher accuracy. Indian Sign Language (ISL) used by Deaf people's community in India, does have acceptable, meaningful essential and structural properties.*

**Keywords- Artificial Neural Network, Indian Sign Language, Hand Gesture Recognition, Deaf community.**

## I. INTRODUCTION

There are so many languages in India used as officially and locally. Such large diversity country has more challenges to maintain uniqueness in language interpretation. In languages have its challenges when it used to communicate over different areas, societies and states. Indian Sign Language (ISL) is one of the living languages in India used by the Deaf community peoples. But as we seen there is not any standard language available till date. So we are working on different sign language dataset to invent Indian sign language as a interpreter. We are going to implement two way communications for Sign language is used for the people who are deaf or hard of hearing and also used by them who can hear but cannot physically speak. Our motive behind this implementation is to create complete language which involves

movement of hands, facial expressions and gesture of the body. The Sign language is not universal standard so we are making our contribution towards sign language development. Every country has its own native sign language like American Sign Language work for alphabet recognizer. Each sign language has its own rule and semantic meanings. The problem comes when deaf and dumb people want to communicate or trying to say something there is not any language for them. So it becomes necessary to develop an automatic language interpreter to assist them for their fluent communication. They people want something more helpful which makes their communication universal and easy. Another one is based on computer vision based gesture recognition, which involves image processing techniques. Consequently, this category faces more complexity. Our motive to develop this system based on real time signs. This system captures hand gesture images of ISL with system camera for feature extraction. The analysing phase, pre-processing unit is used to the noise removal, grey scale conversion by using Gaussian filter, binary conversion of images done by using OTSU's method followed by feature extraction. In our system, Convolutional Neural Network (CNN) is going to used for future recognition in which we having the input unit of training data set of images. Next we have hidden unit which acts upon this training dataset to evaluate the output unit results train model. This entire CNN works by considering the factors namely matrix feature of images for drafting into a train model for real time sign recognition. The working with real time sign language we know that the dataset need to be large and rich in processed features.

## II. LITERATURE SURVEY

SharmilaKonwar et.al [1] states that is used to design an automatic vision based American Sign Language detection

# LITERATURE ON CLOUD BASED CONTACTS MANAGEMENT SYSTEM WITH EASY DATA COLLECTION AND RELEVANT DATA RETRIEVAL TECHNIQUES

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**Abstract :** Evolving technology has given a boom to the seminar sessions being conducted all over the cities. People are more eager and find it more comfortable way to gain knowledge through the seminar sessions. This lead to an increase in the contact details of the participants taking part in seminar. Traditionally the feedbacks regarding the seminar and participant's details are taken manually i.e. on paper. Managing a large number of contacts manually is becoming a very tedious and time-consuming task for the organization. Participants find filling feedback forms lengthy at the end of the seminar and hence this results in less response of feedback. To make the process of collecting information more convenient, the proposed system is developed using the cloud for accessing the contacts and other details virtually and making the analysis of data more efficient. The participants details are stored on cloud database for easy access and retrieval.

The proposed system can be used for educational institutes for managing student data as well as in organizations for managing meeting details and employee data.

**Index Terms -** Cloud Computing, Data Mining, Prediction Algorithms, Suggestive Search Algorithm, QR Code.

## I. INTRODUCTION

Frequency of arranging seminar sessions and workshops is increasing and it is becoming tedious for the facilitator/organizer to handle the contacts of large number of participants. Digitalizing this tedious process is the main concern, to overcome this, survey of various research papers to implement this digitalized product was conducted. Use of cloud to store and access data easily looks promising in implementing the product. Many cloud platforms are available in the market to choose from, depending upon various factors like reliability, security, availability.

Including predictive analysis in the product will help in certain way, for example arranging workshops in the future. Prediction algorithms like partitional clustering, hierarchical clustering, fuzzy clustering, density clustering and model clustering are compared to decide which algorithm will best suite our working environment.

The proposed system will be a GUI based system, brief idea about the architecture, process flow and expected result is discussed further.

## II. LITERATURE REVIEW

Decision trees deprivation is local optimal solutions and over-fitting which is overcome by Random Forest Algorithm. The construction of random forests consists of two steps : (I)Bagging sampling technique is used to generate training set for each tree.(II)Each tree is built from training set. The term of data increase or data gain rate in the base classifier is recreated with similarity. A characteristic with the significant similarity is selected as a division credit to portion an informational index. To confirm the exactness of the calculation three data-sets are utilized. Result of the test shows that, the proposed calculation has higher exactness than the traditional random forest algorithm. When dealing with large data, the training speed increases and hence increasing the performance [1].

A movie recommender system is proposed and built using the K-Means Clustering and K Nearest Neighbor algorithms. Proposed system is better than the existing method and achieving the same values with less number of clusters. The number of clusters is formed using Clustered Sum of the Squared method, after which K-means clustering is practiced. Movie recommendation system starts by taking user details like age, user id, pin code, gender as input. The data collected is raw data and is preprocessed and further K-means clustering is practiced on this data. After applying K-means clustering, a utility clustered matrix is built which defines the average rating on each cluster given by user and then the similarity between the users is calculated. To predict the movies for input user KNN is used along with the utility clustered matrix with similarity. The whole system uses collaborative filtering to measure items through the sentiments of other users [2].

The comparison between two popular techniques of clustering i.e CLARA(Clustering for Large Applications) and k-mean. Clustering validation is used to compare between CLARA and k-means. CLARA relies upon examining way to deal with handle huge informational collections i.e it draws a little example from the informational collection and applies the PAM calculation to create an ideal arrangement of mediods (delegate objects of an informational index ).The silhouette technique provides a brief graphical representation of how well each



# Digital Immunization Registry

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**Abstract:** India has an alarming infant mortality rate and currently ranks amongst the lowest in the sub-continent [12]. Urbanization of India is developing faster and alongside it, digitization of data is expanding. As of now, urbanization has been expanding with India's change to quicker monetary development. Although, this isn't reflected in the Healthcare segment. Vaccinations have played an important role in saving children's lives than any other medical intervention in the last 50 years or so. Hence an effective immunization approach is important in bringing down the current infant mortality rate and in eradication of diseases. In the proposed paper we are intending to digitize the immunization records through basic android applications. The present framework is really tedious to work with because of issues such as misplaced records, no proper track of vaccination history, illegible handwriting and poor searching mechanism at the time of record retrieval. The proposed framework beats these issues through digitization of records, access to records with Digital Vaccination Card ID or via looking by Aadhar, Name, Telephone number. The information accumulated from this framework will be analyzed by various data mining algorithms and will be accessible for the Department of Health for examination so as to take further decisions and diminish infant mortality rate in India.

**Index Terms** – NFC, Public healthcare, RFID, Android, GraphQL, Warehousing, ROLAP, Data mining, Mobile Cloud Computing, Mobile device, RESTful API, Digital vaccination card.

## INTRODUCTION

The innovation in medicinal services offers a chance to dispose off the paper based framework and improve the quality of data management. The fundamental inspiration of this venture is to overcome the issues with physical framework by Digitization of medical records. Dealing with paper records isn't a simple activity. Paper records can get lost or damaged and scheduled appointments don't go very as arranged. Following the schedule and on time immunization is hard to accomplish through paper records. Our framework permits digitization of the information and helps the patient follow the schedule due to computerized updates.

The framework uses Near Field Communication (NFC) labels that are enlisted to each infant's ID. The framework can be gotten to by means of devoted android applications or via an API for non-Android Mobile Devices. The system provides functionality to track the schedule of new-born's vaccinations, and remind the parents on a timely basis, as well as alert the hospitals and clinicians, at the time of each of the new-born's doctor visits, during its first year of life.

As about half of Indian population has cell phones and 75% have cell devices, this system is developing quickly and can be utilized successfully through proposed framework. The current paper based System in India has a ton of downsides, indecipherable handwriting, rot of paper records, misplacement of the records being among them few as found in fig (1) and fig (2). There are not many applications in the market that give a practical answer for this, however every one of them are business items and focused on private clinics and Health Maintenance Organizations (HMOs).



Fig. 1 & 2 Existing paper based Immunization Record System.

Our proposed framework, Digital Vaccination Card, is created to be utilized in each city, town and over the nation, actualizing the Infant vaccination projects financed by the government. Intentions of digitizing the vaccination program are reduced infant mortality, improved future, limiting Healthcare costs, reaching all income groups, managing regional Pandemics. The approach of Data Mining is extremely significant in drawing genuine meaningful patterns based on the large volume of data existing in the databases [1]. The vast field of Healthcare withholds huge amounts of data that can be further utilized to draw out meaningful patterns/relationships related to various diseases and further use appropriate machine learning techniques for successful decision making [2]. This framework also plans on applying data mining on the collected big data and help decision makers reach their conclusions.





## Automation of Multiple PCs Using NLP and Slack API

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**Abstract:** Automation has taken a larger stance in technology. Thus, we intend to propose a collaborative platform and automation that lets a person plan, track, and manage the processes, content, and individuals that are connected to the network. This will be beneficial for the individuals who manage the network system. Also, this will allow all types of activity alerts to be fed directly to Slack's channels, making it easier for the network manager to remain informed and communicate with others when certain events take place in a centralized system. The idealistic notion is to ease the work of the network controller and to optimize the automation system and seemingly improve its accuracy.

**Index Terms:** Slack API, Automated workflows, Centralized System, Collaborative platform, Natural Language Processing, Machine Learning.

### I. INTRODUCTION

Automation is the technology by which a process or procedure is performed with minimal human assistance. We are building a centralized Slack API based application to manage automation tasks on interconnected PCs. The parsing for user level queries will be done through Natural Language Processing (NLP). These queries must be interpreted on respective individual PCs and sent it onto the job queue for automating the task. The detailed result of the task performed will be reverted back to the user device.

The main objective behind this application is to provide ease in team collaborations and reduce human efforts. Our project will bring a new level of comfort especially when there are a number of computers connected to a server. For example, lab assistants will not have to manually shutdown each computer, rather they will instruct using the Slack app to shut down all PCs of a particular lab. This provides a different, better and a simpler approach to deal with automating computer related tasks in a particular organization.

The application provides a perfect place for any organization or a team to chat, discuss, maintain records in forums, schedule activities, and as well as chat with our Bot, which is responsible to automate each task, right from shutting down, restarting, monitoring and troubleshooting, to file handling, installations, etc. It will be beneficial in each and every aspect in an organization.

The literature survey showed various applications working on similar technologies. In "Bringing Automation to the Classroom: A ChatOps-Based Approach" they present the design and implementation of a chatbot-based virtual assistant called LTKA Bot. Its main function is to streamline and to automate manual and administrative tasks while supporting other course related activities. It differs from other recent approaches in that it is based on the ChatOps paradigm instead of on some AI-based schemes. In "Fahem : Explaining URLs to people using a Slack bot" it has been presented as a Slack bot, named Fahem, which assists users in identifying potentially fraudulent URLs while also teaching them about URL reading and common malicious tactics. Study in "Can slack curb slacking?: Examining the importance of team communication in reducing social loafing" examines how the use of a team communication application, Slack, influences communication quality and social loafing.



# PESTICIDE DETECTION ON BANANA

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**Abstract-** It is commonly known that toxic pesticides have a negative influence on the production process and ultimately on the product quality of many industries. Therefore, it is reasonable to consider pesticide detection a crucial task in these production procedures in order to make relevant pesticide management decisions. However, the challenge here is the localization and classification of healthy and unhealthy fruits due to high similarity in features between them. Inspired by the achievement of the Deep Convolutional Neural Network (CNN), this project identifies a method of making predictions based on available images.

**Keywords-** Banana, Deep Convolutional Neural Network, Pesticides Detection

## I. INTRODUCTION

It is a machine learning android application which is trained by a Banana dataset. The user inputs its specific Banana image to get the prediction whether it is healthy for consumption or not. The algorithm will calculate the percentage of presence of pesticides in Banana and classify as healthy or unhealthy. The result will be displayed on the android app itself. The working of these algorithms has been explained in the sections ahead. The algorithms have been trained using the data set obtained from University of California, Irvine. 75 percent of the entries in the data set have been used for training and the remaining 25 percent for testing the accuracy of the algorithm. Furthermore, some steps have been taken for optimizing the algorithms there by improving the accuracy. This system introduces a practical and applicable solution for detecting the class and location of diseases in banana plants, which represents a main comparable difference with other methods for plant diseases classification. These steps include cleaning the dataset and data preprocessing. The algorithms were judged based on their accuracy and it was observed that the CNN was the most accurate out of the three

with 64.4 percent efficiency. Hence, it was selected for the main application. The main application is a web application which accepts the various parameters from the user as input and computes the result.

## II. PROBLEM STATEMENT

To reduce the consumption of unhealthy produce. To give unique solution for multiple produce. To provide higher accuracy over manual detection of pest. To give most promising tool that can be acceptable by all farmers and common people

## III. LITERATURE SURVEY

Nguyen Tuan Nam and Phan Duy Hung [1] state that It is regularly realized that lethal irritations impact the creation procedure and eventually on the item nature of numerous ventures. Consequently, it is sensible to consider bother discovery a urgent undertaking in these creation strategies so as to settle on applicable vermin the executives choices. In any case, the test here is that limitation and order of various creepy crawly species are genuinely troublesome because of high comparability in highlights among them, and it is considerably additionally testing when especially managing those as of now got on traps. Roused by the accomplishment of the Deep Convolutional Neural Network (CNN), this paper proposes a strategy for recognizing different kinds of caught creepy crawly species by making expectation dependent on accessible pictures. Utilizing a database of 200 pictures (from a candy parlor plant) including around 3,000 bugs of 6 sorts, the precision paces of identification and grouping are about 84% and 86% separately

Farhana Sultana et.al [2] proposed that Right now, have talked about the progressions of CNN in picture arrangement assignments. We have



## Vehicle Cyber Security

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**Abstract** - Technology has revolutionized the world changing the lives of people dramatically. There has been no time in history where the lived lives of people had experienced this greatness that technology has made to the automobile sector. Due to the idea of smart cities and technological advancements, we have seen a revolution in the way we drive our vehicles. Vehicle cyber-security consists of the security of vehicles, its networks and communications, and steps taken to avoid the exploitation of the software, hardware and the communication networks which are within the vehicle.

Vehicles are no longer mechanical devices. Earlier, the entire control of the vehicle was the driver's responsibility but their functionalities can now be handled via software's. We are also seeing that the software companies are now developing software's for the automobile companies for providing automation. As automobile companies are growing more concerned with embedding smart technologies in the modern vehicles, it is giving rise to more vulnerabilities which allow entry of hackers into the vehicle's system which can take control from the driver which may lead to serious and irreversible threats. If it is a software or any product or a device, it has its own disadvantages and defects which can be hackable. Examples of some threats to the vehicle are Engine Shutdown, Locked Doors, Human loss, Loss of money, etc. In order to exploit the system, the hackers need to stay in the same network the car is operating on. But nowadays, it is also possible to hack the system even if the attacker is miles away from the system. This topic is now restricted to four wheeler vehicles only but maybe in the near future, same problems may be evident for airplanes or satellites leading to more devastating problems the world will experience. The problems we will face in the near future will be more but we cannot be reactionary to the technological advancements. Rather, we must find a way to overcome the problems.

### Key Words:

ABS(Anti-Lock Braking System), ESP(Electronic Stability Program), ECU(Electronic Control Unit), CAN(Controller Area Network), IDS(Intrusion Detection System), OTA(Over the Air), CVC(Connected Vehicle Cloud)

### 1. INTRODUCTION

Nowadays, there has been a shift in the choice of vehicles that people buy. Earlier, people used to buy low cost vehicles which could suffice their purpose of travel. It had very less technologies or sometimes absolutely no technologies, but in these days people prefer buying high end vehicles which provide more security and are safer. There has been a change in the mindsets of people. They are becoming more concerned about safety. A lot of technologies have been introduced in these vehicles. Recently, Google had launched a self driving car which is completely automated and is driver- less. Security requirements for road vehicles and especially a driver-less car are more. Active safety systems provide various functionalities which have definitely reduced the road fatalities. Active Safety System such as ABS and ESP are some of the common features in most of the high-end vehicles. ABS and ESP are technologies which helps reduce accidents. Earlier, before ABS, whenever the driver applied brakes, the car used to stop immediately increasing the threat of skidding and accidents. But, in ABS, whenever brakes are applied by the driver in order to completely stop the vehicle, internally the brakes aren't applied instantly but in series of intervals of milliseconds. This avoid skidding and indirectly accidents. Secondly, before ESP, driving a car on a curvy road was dangerous because there were greater chances of the rear part of the car to get displaced or carried away by the curvy road. But, with ESP, this problem is avoided. This feature is mandatory in Sports Utility Vehicles. We can definitely say that these technology and many other have improved Road safety. Decrease of road traffic accidents need to be



# Intrusion Detection System : A survey

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**Abstract :** Now days, information security is the major focus area of every organization because every organization moving towards Computer and Automation. Networks are open and distributed in nature that is more vulnerable to intruders. Along with these challenges, the number of attacks are also increasing exponentially due to the attack surface increasing through numerous interfaces offered for each service. . So to provide security there are different security approaches provided like firewalls, anti-virus etc. To provide security for network only firewall and antivirus is not sufficient so we need something which gives more security to the network so Intrusion Detection System is used. This literature review aims to provide researchers with a survey of existing dataset, Intrusion Detection Systems (IDS) and techniques capabilities and assets.

**IndexTerms – Intrusion Detection, Network Security**

## I. INTRODUCTION

Intrusion Detection System (IDS) is most useful technique to identify harmful things which affect operations in the network. It is very crucial part of the network. Intrusion Detection System performed analysis of attacks[19].

Intrusion Detection System (IDS) is used to detect attacks on Network, Cloud, IOT devices. This research paper provides an overview of different intrusions in the network . Then, this analyze some existing intrusion detection systems (IDS) with respect to their type, detection technique, data source and attacks they can detect.

Depending on the type of analysis carried out , intrusion detection systems are classified as either signature-based or anomaly-based[1]. Signature-based schemes(also denoted as misuse-based) defined patterns, or signatures, within the analyzed data. To find attacks in the signature based IDS , a signature database of known attacks is prepared. Anomaly-based detectors is kind of IDS system where it matches predefined threshold of the "normal" behaviour of the system, and generate an alarm whenever it exceeds a predefined threshold. It will generate alarm while finding "abnormal" behavior of the system. The main differences between these methodologies are inherent in the concepts of "attack" and "anomaly". An attack can be defined as "a sequence of operations that puts the security of a system at risk". An anomaly is just "an event that is suspicious from the perspective of security". Signature-based system is used to detect specified, well-known attacks because it will be finding from signature database. Disadvantage of this system is they are not capable of detecting new, unknown threats, even if they are built as minimum variants of already known attacks. On the other side, the main benefit of anomaly-based detection techniques is that they are able to detect previously unknown attacks.

On the basis of the analysis performed, intrusion detection systems are classified as either signature-based or anomaly-based.

### Functionalities of IDS [11]

1. Monitoring and analyzing both user and system activities.
2. Analyzing system configurations and vulnerabilities.
3. Assessing system and file integrity.
4. Ability to recognize patterns typical of attacks.
5. Analysis of abnormal activity patterns.
6. Tracking user policy violations.

### Threats [28][29]:

Intrusion causes availability , confidentiality , and integrity issues to cloud resources and services.

- Insider attack : Authorized cloud user may attempt to gain (and misuse) unauthorized privileges; insider may commit frauds and disclose information to others. This poses a serious trust issue.
- Flooding Attack : Attackers tries to flood victim by sending huge no. of packets can be of type TCP, UDP, ICMP or a mix of them. This attack may be possible due to illegitimate network connections. It affects the service's availability to authorized user
- User to Root Attacks: An attacker gets an access to legitimate user's account by sniffing password . This makes him able to exploit vulnerabilities for gaining root level access to system
- Port Scanning : Port scanning provides list of open ports , closed ports and filtered ports. Throughout scanning , attacker can find open ports and attack on services running on these ports.
  - TCP Scanning
  - UDP Scanning
  - SYN Scanning
  - FIN Scanning
  - ACK Scanning
  - Window Scanning



# Multi Disease Detection and Predictions Based On Machine Learning

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**Abstract-** Chronic diseases such as heart disease, cancer, diabetes, stroke, and arthritis are the leading causes of disability and death in India and throughout the world. As compare to other diseases these types of diseases having high rate of deaths, so there is need of promising solution over chronic diseases. Medical data growth in healthcare communities, accurate analysis of medical data benefit early disease detection, patient care and community services. However, the analysis of patients is depending on accuracy of diagnosis and then treatment as well. The wrong diagnosed patients lead to deaths in chronic type diseases. So the high risk of diagnosis there is need of accurate diagnosis aid for chronic diseases. So we are proposing diagnosis system based on machine learning for giving promising solution with high accuracy. The proposed system consists of many diseases such as lung cancer, brain tumour, heart disease detections and stages predictions. High rate of deaths due to chronic diseases such as heart disease, lung cancer, brain tumour need to develop proper diagnosis system which helps to doctors. The wrong diagnosis leads to human deaths so we need to work on accurate diagnosis of multiple diseases. Many works is already carried out for different diseases but there is not any promising solution found that gives accurate diagnosis for all in one. The proposed system consists of many diseases such as lung cancer, brain tumour, heart disease detections and stages predictions. We are trying to develop system for multi disease detection and stages predictions gives early detection and saves lots of life's by reducing death rate by chronic diseases.

**Keywords-** Multi Disease Detection, Heart Disease, Training.

## I. INTRODUCTION

Now day's heart diseases are growing rapidly by busy and stress full life. All type of age groups is under heart diseases so need of early detection of heart disease by using symptoms or reports. Due to large amount of smoking and air pollution around the world, lung cancer has become one of the most common and deadly disease in recent decades. It is one the most dangerous disease among men and women and early identification and treatment is the best available option for the infected people. Main objective behind to develop a system helps the doctors to cross verify their diagnosed results which gives promising solution over existing death rates. By using our proposed work try to invent unique platform and most promising solution for early diagnosis of multiple diseases. Existing work analysis accuracy is reduced when the quality of medical data is incomplete. Moreover, different regions exhibit unique characteristics of certain regional diseases, which may weaken the prediction of disease wrong. So we are giving more accurate solution by using machine learning and Convolutional neural network to detect diseases and make predictions. The proposed system consists of many diseases such as lung cancer, brain tumour, heart disease detections and stages predictions.

## II. LITERATURE SURVEY

Animesh Hazra et al. [1] proposed Heart diseases when irritated winding path out of hand. Heart diseases are convoluted and remove loads of lives each year. When the early side effects of heart diseases are overlooked, the patient may wind up with uncommon outcomes in a short length of time. Stationary way of life and over the top worry in this day and age has exacerbated the circumstance. On the off chance that the diseases are distinguished early, at that point it very well may be monitored. Be that as it may, it is constantly prudent to practice every day and dispose of undesirable propensities at the soonest. Tobacco utilization and undesirable





# Wearable Device Providing Personal Assistance to Alzheimer Patients using Raspberry Pi

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**Abstract:** Alzheimer's disease may be a serious disease occurring in most of the population. Taking care of the patients with Alzheimer disease are often both physically and mentally demanding. At an equivalent time, it's also important to permit the patients to measure on an independent life. the foremost widely known sort is Alzheimer's infection, which delete the individual's memory that creates the well-known encompassing new for them. handling the overall population with Alzheimer seems to be exceptionally troublesome and trying for his or her family, this infection regularly prompts to wandering which may be a stern sympathy toward numerous families who stress that the patient could be lost or stroll into slippery conditions. To affect such situation, this autonomous device will provide a private assistance to the patients affected by Alzheimer.

**Keywords:** Alzheimer Disease, wearable technology, Dementia, amnesia, Health care, forgetfulness, face recognition, etc.

## I. INTRODUCTION

Dementia is that the commonest neuropsychiatric disorder that have an impact on an outsized portion of the elderly population across the world. It mainly affects cognitive functions and memory. Alzheimer's disease is taken into account a more specific sort of Dementia because it mainly affects the memory of the individual. amnesia or forgetfulness is merely few of the various symptoms that indicate the start of Dementia or Alzheimer's disease. a possible explanation for injury to elderly individuals is that the increased risk of falling. Falls at such an age cause fractures which may eventually to rapid degradation of health and even death in some cases. An elderly individual who is affected by Dementia or Alzheimer's disease will presumably be under the care of family or a home nurse within the case that the individual is at their own residence. Elderly individuals affected by Dementia or Alzheimer's are going to be disoriented and confused when left alone. a tool which will address these issues is that the need of the hour. Various devices already alive utilize technologies that are either complicated or highly unreliable. The proposed system is aimed to be reliable and price effective in comparison to existing systems. the value cutting is achieved using already existing software and hardware infrastructure and mixing it to service our requirement within the most reliable way. The system will contains only a Raspberry Pi , and a transportable power supply unit for the Raspberry Pi.

## II. LITERATURE REVIEW

This is often overview of research paper for Alzheimer's disease which describes that within the early stages of this disease, the patient will have difficulty in remembering names of friends and relations, along side increased forgetfulness. the center stage involves difficulty in remembering the recently learned information and problems with sleep. Language problems increases due to shrinking vocabulary. because the disease progresses to an next stage the patient becomes increasingly paranoid. there's complete loss of speech, with an increased sense of disconcert and confusion, also as a bent to reply poorly to attempts by the caretaker to speak and supply needful care. because the disease may be a heavy burden on the patient also because the caregiver as around the clock care of the patients is required. In most cases, the caregiver has got to hand over a profession or means of livelihood so as to require care of patients, resulting in heavy financial problems. In paper[1] Another proposed method involved locating wireless devices and determining whether a tool has entered or exited a pre -provisioned 2-dimensional or 3-D dimensional geographic zone and alerting the caregiver whenever they're outside the geo fenced area. In paper[2] author have described about the products for patients with Alzheimer disease , wearable technologies are found useful to watch the track prisoners, children with Autism and youngsters with mongolism. In paper [3] author have described about Wearable Sensor Health Technology (WSHT). The term "Wearable" indicates a versatile and mobile sensor which will be worn constantly on the patient's body and used reception independently without the help of a physician and therefore the word "Sensor" represents some quite sensor technology twich measures and collects vital parameters of the user.

The paper[4] provides the overview of research into the utilization of technology for people aged 65 and over with mild cognitive impairment and also the prototype solutions developed and tested.



# IoT Based Smart Parking Reservation System

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**Abstract:** The main aim of this paper is to present an innovative parking system that can register the vehicle and owner details to book a slot for parking in the targeted areas such as malls, events, hospital employee parking, etc. In current systems, while entering the parking places, there are long queues due to the slow processing of manual payments. Proposed system overcomes the problem of finding an empty parking slot in commercial areas. Along with that it reduces the disadvantages in the current parking management, and will help to minimize the involvement of humans in the overall process. The project aims to automate the tasks at the parking system with great efficiency and fast operations which will help the user to park their vehicle on the desired spot as per their time schedule.

**IndexTerms – IoT, Image Processing, Android, RESTful API, OCR, Smart Parking.**

## I. INTRODUCTION

Parking is one of the most common problems that everyone faces almost every day in day to day lives. Due to the ever-increasing population and ever-increasing demand for transportation, there has always been a huge gap between the number of vehicles and the parking spaces available. In countries like India, this problem is even severe leading to many traffic management issues like finding a parking slot at a particular time. In public places like shopping malls, hospitals, Movie Theater etc., parking spaces are readily available but people tend to waste a lot of time finding the free parking slots. Moreover, the payments at such public parking places are manual. Hence, it takes a lot of time for a human to collect the payment manually from each vehicle owner that enters the premises. Many slots remain vacant or are not used efficiently. To overcome these common problems with an increase in the need for parking slots at public places effective and efficient parking management system is proposed in this paper which will automate the whole process of Parking Management.

## II. RELATED WORK

The conventional parking systems are simple but require considerable manpower, cost, and management. Many times people park their vehicles on the road because parking slots are either already full or at the crowded places like malls, movie theaters having the dedicated parking slots for their customers, due to the peak hour's people are forced to wait in line to get slot vacant. For efficient management of vehicles, parking stations must have an intelligent solution that will automate the work. This vehicle safety is achieved, and overall wastage of time and money is reduced. As proposed by H. K. Khanuja et al. [1] they have used RFID tags for identification of each individual vehicle and REST API for integrating IoT and Android. [2]Rakesh Kumar Lenka and team proposed a Real-time navigation service to the parking space along with a probabilistic emptiness value based on your Estimated Time of Arrival (ETA) to the location and can be accessed from your personal devices. This intelligent system reroutes you to the next nearest parking space if the desired one gets filled midway of your journey. [3]As proposed by Ibai Lana, Javier Del Ser, Manuel Velez, Eleni I. Vlahogianni, the design of a smart parking system is introduced Using Image Processing and Artificial Intelligence. Cameras and ultrasonic sensor were deployed in locations to recognize the license plate numbers, ensuring ticket-less parking. Big data analysis and neural network will be included in the algorithm to provide related parking information and user recommendations. [4]S. Sunmathi et al. has implemented system using a mobile application that is connected to the cloud. The system helps a user know the availability of parking spaces on a real time basis. [5]The System proposed and developed by Jiang Ruili, Wang Haocong, Wang Han, Eoin O'Connell, Sean McGrath is an effective cloud-based smart parking system solution based on the Internet of Things. It constructs each car park as an IoT network, and the data that include the vehicle GPS location, distance between car parking areas and number of free slots in car park areas will be transferred to the data center. The data center serves as a cloud server to calculate the costs of a parking request, and these costs are frequently updated and are accessible any time by the vehicles in the network.



ગુજરાત સંશોધન મંડળનું ત્રિમાસિક



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## Digital Agriculture System for Crop Prediction & Disease Analysis Based on Machine Learning

Mrs. Shubhada P. Mone et al.

### Abstract

Agriculture is the primary source of livelihood for about 58 per cent of Indias population and is the most crucial part of GDP. Indian farming is based on economic benefits from crop yields, but now days agricultural era has failed to proven best crop selection methods and to increase crop yield in all over India. So, decrease in crop yield increases the problem in farmers financial health conditions. So, it becomes the most trending problem for our agricultural field to invent such noble method to recommend best suitable crop for a particular region. To achieve best suitable crop selection for regions based on parameters like soil conditions, rainfall and weather we have implemented machine learning approach. Secondary problem is lack of knowledge or absence of guidance while farming. Lack of guidance in Indian farmers may follow wrong farming techniques or inefficient traditional methods. Most of farmers are uneducated and non-technical backgrounds so they are relying on traditional crop selection and farming methods which falls them into economical loss. With the help of disease analysis system, we predict the crop disease prediction and suggest the precaution from those diseases. Last and most important problem is no proper market analysis while cultivation of any particular crop, which may also lead to an economical loss of farmers.

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# Intelligent Video Surveillance System Based On Machine Learning

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**Abstract-** Now a day's million monitoring cameras have been equipped for surveillance systems in all over world. So we have implemented video surveillance by giving video contents containing early fire events detection, abnormal activities and smart parking system and crowd estimation. We have overcome existing drawbacks of post investigation techniques of video surveillance systems by providing pre alert generation system. Our work is based on machine learning techniques for video analysis with better performance and event detection with advantages of alert generation. Video surveillance system has become a important part in the security and protection of modem cities. Since Video surveillance system has become a critical part in the security and protection of modem cities, since smart monitoring cameras equipped with intelligent video analytics techniques can monitor and pre-alert system by capturing abnormal activity and events. Recent years, more and more video surveillance devices are deployed as the increasing demands on public security and smart city.

**Keywords-** Intelligent Video Surveillance, Fire Detection, Deep neural network.

## I. INTRODUCTION

To intensive task of monitoring surveillance regions as well as explore richly valuable information from the big surveillance data, researchers seek the advanced computer vision algorithms to develop intelligent video surveillance (IVS). Motive behind proposed work is to parsed meaningful structured information from the raw non-structured video. The Video Surveillance and Monitoring has become the richest source of security and investigation. In which motion detection, object recognition, tracking, and some are higher level analysis modules for specific applications, e.g., people counting, activity recognition etc. The current world is completely under CCTV or video surveillance systems. The video recorded is used to find out robbery investigation, crime investigation and abnormal activity detection. After event happened these video sequences are used to catch criminals. But problem is that after event happened we are unable to save loss done by that



# Machine Learning Approach for Crop Prediction & Disease Analysis

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**Abstract-** Agriculture is the number one source of livelihood for approximately 58 percent of India's population and is the most crucial part of GDP. Indian farming is based totally on economic advantages from crop yields, but now day's agricultural generation has failed to verified satisfactory crop choice techniques and to boom crop yield in all over India. So, lower in crop yield will increase the trouble in farmer's monetary health situations. So, it will become the maximum trending hassle for our agricultural region to invent such noble technique to advocate super appropriate crop for a particular region. To reap high-quality appropriate crop desire for areas primarily based on parameters like soil conditions, rainfall and weather we have got applied gadget studying method. Secondary hassle is lack of understanding or absence of steering even as farming. Lack of guidance in Indian farmers may follow incorrect farming strategies or inefficient traditional strategies. Most of farmers are uneducated and non-technical backgrounds so they'll be relying on conventional crop choice and farming techniques which falls them into reasonable loss. With the assist of disorder assessment tool, we predict the crop disease prediction and propose the precaution from the ones illnesses. Last and most essential hassle isn't any right marketplace assessment at the equal time as cultivation of any unique crop, which can also reason a cheap lack of farmers.

**Keywords-** Crop Selection, Disease analysis, Prediction, SVM

## I. INTRODUCTION

Indian farming is based on financial advantages from crop yields, but now day's agricultural technology has didn't demonstrated high-quality crop selection strategies and to growth crop yield in throughout India. So lower in crop yield increases trouble in farmer's economic fitness conditions. So it becomes most trending hassle for our agricultural area to invent such noble approach to suggest excellent appropriate crop and need of on-line market place. Crop recommendation is absolutely based totally on environmental factors like soil, weather and rainfall for particular region. So there's want of device mastering techniques like guide vector gadget and Convolutional neural community for classification and clustering dataset. We recommend excellent suitable crop for precise location based totally in this nearby parametric environmental facts. Our contribution will solves crop choice hassle and ultimately boom the price of yields and allows improving monetary health of our farmers. As properly as we are going to provide guidance by technical strategies from cultivation to yields



# A Novel Approach for Classification of Mammograms using Longest Line Detection Algorithm and Decision Tree Classifier

A. M. Solanke, Manjunath, D. V. Jadhav

**Abstract:** Cancer is a second leading cause of mortality in a world. Approximately 9.6 million deaths are occurred due to cancer till 2018. As per the World Health Organisation, breast cancer is the major reason of mortality among women. Many lives can be saved by reliable detection and diagnosis of breast cancer in primitive stage. It is difficult to classify normal and abnormal mammograms accurately because of noise, dense breast tissues, unwanted parts such as labels and pectoral muscle. The methods based on Computer Aided Detection (CAD) can address these problems. These methods provide diagnosis assistance to radiologists and doctors for detection of cancer. Human errors can be reduced with the help of Computer Aided Detection algorithms. In this work mammogram images are preprocessed using longest line detection algorithm to remove pectoral muscle. Then texture and statistical features are extracted from preprocessed mammograms. Finally decision tree classifier is used to classify mammograms as normal and abnormal categories. The proposed methodology is applied to 322 mammograms. The performance analysis resulted into improved accuracy of 98.14%, sensitivity of 99.1% and specificity of 97.63%.

## I. INTRODUCTION

Breast cancer is main reason of death in world. According to World Health Organisation out of 9.6 million cases of cancer, 2.09 cases are of breast cancer till 2018. Gender, family-history, gene mutations in BRCA1 and BRCA2, age, overweight (specifically after menopause), and consumption of alcohol are the few causes of breast cancer [1]. There are many imaging techniques for breast cancer screening such as mammography, ultrasound, Magnetic Resonance Imaging (MRI), thermography and elastography. Mammography is famous and commonly used screening technique for detection and clinical evaluation of breast cancer [2]. Masses, architectural distortion, calcifications and bilateral asymmetry are the indications of breast cancer. Masses are irregular in shape with rough boundary. Masses appear as dense tissues on mammogram, therefore distinction between masses and tissues with our eyes is a challenging task.

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Specially women with dense breasts may suffer from false diagnosis. Normal breast structure gets distorted and seen as speculated lines from one source point in architectural distortion. Calcifications may appear as single spots or in clusters. Calcifications may appear as single spots or in clusters. Asymmetry of fibro-glandular tissue density between right and left breast is bilateral asymmetry [3][4]. Different CAD techniques are proposed for spotting abnormality on mammogram. Major steps of CAD system are preprocessing of mammograms, extraction of significant features and classification. These steps are implemented to focus on region of interest by removal of unnecessary information and extracting features [5]. Preprocessing is implemented by using series of morphological operations, median filter, thresholding, histogram equalization techniques, different edge detection techniques [6][7]. Region of interest is enhanced by contrast image enhancement techniques such as histogram equalization, convolutional mask, fixed neighbourhood, statistical enhancement, region based enhancement [8]-[10]. Separation of mammogram is carried out by features extraction of enhanced images. Specifically for mammogram, features extracted are related to texture properties, statistical properties, wavelet transform, Gray Level Co-occurrence Matrix (GLCM) and intensity properties. Further classifiers like Support Vector-machine (SVM), Bayesian, Artificial Neural Network (ANN), K Nearest Neighbour (KNN), Convolutional Neural Network (CNN) and Decision Tree (DT) are preferred for classification of mammograms [11]. CAD techniques are proposed to detect breast cancer accurately. Mammograms have fatty or dense background. Elshinawy proposed a technique to separate dense and fatty mammograms using Local Binary Pattern and SVM classifier [12]. Naveed proposed bagging ensemble method for mammogram classification by combining ANN, KNN, SVM and Bayesian classifiers and improved the accuracy as compared to individual classifiers using DWT features [13]. Nithya developed algorithm for classification of non cancerous and cancerous mammograms of DDSM database. Overall accuracy of 96% is obtained by using GLCM feature extraction and Neural network classifier [14]. Ohmshankar formed two sets of mammogram images. One set includes normal images and another set contains images with mass and calcification as abnormal images. These sets separated using texture features and KNN classifier as normal and abnormal mammograms with 92% accuracy [15].





## CLASSIFICATION OF MASSES AS MALIGNANT OR BENIGN USING SUPPORT VECTOR MACHINE

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### Abstract

Cancer is leading cause of death. There are several types of cancers such as lung, breast, rectal, stomach and skin. According to World Health Organisation breast cancer is the main cause of death among women worldwide. Awareness of the disease, availing medical facilities for treatment and accurate diagnosis may save the lives of women. Among all screening techniques, mammography is most recommended technique by doctors and radiologists. Reading and analysis of mammogram is important part of treatment. Computer aided detection (CAD) techniques are used as a helping assistant for analysing mammograms. Mammograms are analysed for detection of calcifications, masses, architectural distortion and bilateral asymmetry. In this paper, mammogram is classified as normal or abnormal. Further abnormal mammogram is analysed for mass detection. Mass is classified as benign mass or malignant mass using Support Vector Machine classifier.

### 1. Introduction

According to World Health Organisation (WHO) cancer cases are increasing every year. Cancer cases and death statistics is shown in Table1. New cancer cases of Breast and lung are 11.6% which is more as compared to other cancer cases such as rectal and stomach in 2018. Number of deaths due to breast cancer are 6.6% worldwide [1]. Deaths

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2010 Mathematics Subject Classification: 68U10, 62H35, 68U07.

Keywords: Breast cancer, Computer Aided Detection, Mass, Support Vector Machine.

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## PC BASED GAUGING SYSTEM USING ARM MICROCONTROLLER

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**Abstract:** This system provides dimensional measurement of machined automobile components. The system is based on the field of Metrology which has numerous industrial applications dealing with machined parts. Another exclusive feature provided by this system is the SPC analysis. This includes live plotting of various statistical graphs such as Run chart, Individual chart, Moving Range chart and histograms, for each dimension. Basic parameters such as standard deviation ( $\sigma$ ), process capability ( $C_p$ ) and process capability index ( $C_{pk}$ ) assume a great importance when categorization of any process as capable or stable is considered.

**Keywords**—Gauging, LVDT, LPC1114, AD698, SPC Analysis.

### I INTRODUCTION

Dimensional measurement is the measurement of geometric features of an artifact. This may involve measuring the size, distance, angle, form or co-ordinate of a feature on an artifact, and the artifact itself may be anything at all - the height of a person, the diameter of a beer barrel, the length of a truck, the radius of a ball and soon.

In manufacturing, dimensional measurements are vital in monitoring and controlling the variations inherent within any manufacturing process. Simple things like tool wear can be picked up as a drift in size of a turned component within the allowable tolerance band, corrective action can be taken in good time.

More complex interactions may require a more detailed measurement process – such as periodic assessment of a whole car body from an assembly line. It is possibly not necessary to measure every car body, but if you measure every feature on every fiftieth body then you have some statistical control of the process.

### II LITERATURE REVIEW:

Some of the systems which are being widely used in industries are summarized as follows:

#### 1) MARPOSS [5]

MARPOSS provides gauge makers the components they need to build gauging stations and fixtures. The system is shown in the following figure.



Figure 1 MARPOSS Gauging System [5]

Components provided by this system are:

- Probes and measurement transmission elements: mechanical components and sensors





# OPEN ACCESS INTERNATIONAL JOURNAL OF SCIENCE & ENGINEERING

## AUTOMATIC NURSERY SEED SOWING MACHINE

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**Abstract:** India is the second-largest producer of vegetables in the world. A major portion of the area under vegetable cultivation is now sown with costly hybrid seeds, for higher yields and quality. Since hybrid seeds are costly, it is necessary to achieve maximum germination with healthy plants. This is achieved by growing vegetable seedlings in plug trays and then transplanting them in the field. In this method, growing media is filled in trays and one seed is manually placed in each slot. After seeding, the trays are regularly watered. The main objective of our project is to bring low-cost automation in the seed sowing process in nurseries, to reduce labor. The seeds are sowed automatically by the machine in the individual slots in the tray. This is done using the Infra-Red sensor and other actuation mechanisms. The tray is placed in the conveyor which is operated by the motor and at a certain position of the tray on the conveyor, the cocopeat is filled up to half in each slot through a hopper. Then the tray is held there and the seeds are dropped from the top by a seed feeder arrangement. Then the remaining cocopeat is added.

**Keywords:** vegetables, cultivation, nurseries, seed sowing, low-cost, reduce labor, automation, tray, sensor, actuation, cocopeat

### INTRODUCTION

A nursery is a place where plants are propagated and grown to the desired age. Some species of plants should be grown in a plug tray and after desired growth they are transplanted in the field. Manual System for seed sowing in nursery is inefficient in production. Additionally, for tray-based seed sowing, skilled labor is required which makes this process costly. There are existing mechanisms for seed sowing in trays but they are: bulky, require technical skills to operate and maintain, expensive, and usually need to be imported.

It is known that electronics makes any process accurate as well as efficient. We are going to tackle the existing challenges as a project under the Mechatronics domain. The machine performs stepwise operation in which the empty trays are put on a transmission mechanism i.e. a conveyor. These empty trays are filled with the potting mixture, then seeds are added. In the end some more amount of potting mix is added. This is achieved through a mechatronics based machine consisting of actuating motors, sensor,

microcontroller and some mechanical components Farming is a huge sector in India but lacks automation & technical advancements. We want to contribute to its development. Small scale Nursery industry and farmers will greatly benefit from this project.

**Challenges can be summarised as:**

- For plants having very small seeds like chilly, tomato, etc. sowing is done in trays.
- The labor cost for this process is high.
- Manual sowing is slow.
- Wastage of seed, water, potting mixture.

**Scope of the project:**

- Designed for small scale nurseries, farmers.
- Compact and affordable.
- Seedling quality can be controlled.
- Transportation cost can be avoided.
- Easy to maintain.





# OPEN ACCESS INTERNATIONAL JOURNAL OF SCIENCE & ENGINEERING

## WI-FI BASED HOME SURVEILLANCE BOT USING PI CAMERA & ACCESSING LIVE STREAMING USING YOUTUBE

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**Abstract:** This project presents a modern approach for surveillance at remote and border areas using multifunctional robots based on current IOT used in defense and military applications. This robotic vehicle has the ability to substitute the soldier at the border area to provide surveillance. The robotic vehicle works both as autonomous and manually controlled vehicle using internet communication medium. This multisensory robot used to detect presence of enemy capture it in camera and give the live streaming to the authorized person Surveillance is major role while we working on border area for this there is robot for surveillance purpose. This paper presents a smart surveillance robot for military application by using Raspberry Pi for security purpose. An field Raspberry pi sends a wireless command which is received by an Authorized person on the web Page and accordingly the robot moves. The Video Streaming is done using a Raspberry pi camera. The Raspberry pi programming is done in python language. The experimental result shows that the video streamed up to 15 frames per second.

**Keywords:** Raspberry pi 3, Ultrasonic sensor, Raspberry pi camera, Gas Sensor MQ6, Servo motor, DC motor.

### I INTRODUCTION

There are various surveillance systems such as cameras, CCTV etc. In these systems, the person who is located in that particular area can only view what is happening in that place. The main advantage of our proposed system is to use it for security purposes. The other advantage is that it is a very simple circuit. The operating system used here is Raspbian Operating System. Gas leakage is one of the most frequently observed parameters, and it is extremely harmful. So, proposed a system capable of monitoring this value indefinitely without any delay and without putting any harm's way. Our proposed system is implemented on Raspberry Pi and interfaced with a gas sensor and with controlling the device also live video streaming is implemented for quick actions. The Raspberry pi and all the devices are mounted on the robot. The camera is mounted to the front side of the robot to capture the video. We are using an android app to change the direction of the robot from anywhere as well as to monitor the live stream. For that we will require the internet connection to both the Raspberry pi and mobile. Through the app we will change the firebase database, which is continuously monitored by the Raspberry pi. According to the database the robot will change its direction. The pi camera is used to capture the live video. For accessing the video we are using the YouTube live stream. The YouTube live stream is accessed through the app to monitor the video.

### II HARDWARE DESIGN:

#### 2.1 BLOCK DIAGRAM

According to the survey, majority of the people of security force are using IP based installation rather than The analog This is because IP based system provide ideas better picture quality, and it is also beneficial in terms of mobility, scalability and flexibility. Due to the cost, people are less interested in taking advantage of IP based systems. So, it is very much clear that IP based system overcome some of the limitation over the analog but still the camera, complex operation and expensive sensors are still a drawback of these system[2]. This paper contains the information for controlling the robotic system through internet web browser or android apps. This is only possible when the raspberry pi connects with internet connection. Other sensor like Ultrasonic sensor are used to enhance the performance of the smart spy system. The circuit diagram shows the component are interfaced to the raspberry pi and L293D driver is use to interface DC motor. Motor, Ultrasonic sensor and camera are the main interfacing devices for security point of view because the camera is able to send continuous picture or video information.





# Sanitary Napkin Vending and Disposal Machine

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**Abstract:** Educating and creating awareness for the use of Sanitary Napkins is of prime need. The proposed system combines both dispensing and disposal machines for sanitary napkins. This system can meet the menstrual emergence conditions. The main purpose of this system is to design a cost-effective vending and disposal machine using Arduino. The dispense machine consists of four parts, they are, Coin Acceptor-Coin Sensing unit, the motor unit, the coin rejection unit and the pad dispensing unit. The disposal machine consists of relay, furnace, filter and ash tray. The whole operation works on Arduino module. The automatic fault detection and intimation mechanism identifies the nature of fault occurred in the system and automatically intimates the service personnel about the fault.

**Keywords:** Arduino, Coin acceptor and coin Sensing unit, Dispensing and Disposal machine.

## I. INTRODUCTION

Human actions create waste, and it is the way these wastes are collected and disposed off, which can cause fatal effects on the environment and public health. Every month, 1000 of women's and adolescent girls dispose off the menstrual waste which results in accumulation of the same. For e.g., consider 40 female employees work in a private organization, the menstrual waste generated every month or perhaps even every week is to be collected by the trash pickers which results in affecting their health due to the persistent foul smell and improper disposal methods used. Hence, the management of the generated waste while maintaining a proper hygiene is of prime importance in our country. In order to overcome this problem, sanitary napkin incinerators are used. Incinerators are used at a certain temperature level ranging from 800-900 degree Celsius. Along with, the persisting problems of the sanitary napkin vending machines is resolved in proposed system. In the sanitary napkin vending machine, the issue of the jittery behavior of the coin acceptor is provided with an alternative option by implementing cashless transactions using UPI payment. The system aims at combining both the sanitary napkin vending and disposal machines for the convenience of the users. The proposed system is flexible enough to be installed at school, institutions, private organizations and even at community libraries. The problems arising due to improper disposal of sanitary napkins are as follows:

Lead to transmission of infections like hepatitis B and hepatitis C.

### A. Motive

To teach and create alertness of use of sanitary napkins and suggest easy access to sanitary napkins by installing Simple Vending Machines with replenishment program in Rural Schools and Colleges so that Girls/Women get familiar to use this Sanitary Napkins for their better health care. Secondly, to solve the problem of sanitary napkin disposal by mounting incinerators which shall decrease spread of infection, reduce environmental pollution due to non biodegradable sanitary napkins and reduce clogging of public drainage system due to spongy nature of napkins.

## II. LITERATURE SURVEY

The health hazards associated with unsafe disposal of napkin have been presented. Almost 90% of a sanitary napkin is plastic. The thin uppermost layer on napkins, known as the dry-weave top sheet, is made of polypropylene (a plastic polymer). The padding is wood pulp merged with super penetrable polymers and the leak-proof sheet is made from an impenetrable polyethylene. The plastic used in sanitary napkins, which is non-biodegradable, is not only injurious for health, but also has negative consequence on the environment. Since it is non-biodegradable, the soiled napkins remain in the landfills for about 800 years. The informal practice of burning soiled napkins in the open emit toxic gases like dioxins and furans. Hence safe disposal of napkins is very important. \*

The previously proposed system of sanitary napkin disposal aims at reducing both air and soil pollution. Solar power is utilized for working of this system. When the sanitary disposal system is turned ON, a voice system prompts the user to place the napkin in the tray provided for the purpose. When the napkin is sited in the tray, the IR sensor detects the napkin and sends a signal to raspberry pi. The raspberry pi in turn gives command to turn ON spider coil. The spider coil burns the sanitary napkin into ashes. The collected ash can be flushed out via the drain of the toilet. The carbon dioxide emitted from this system is absorbed by a CO<sub>2</sub> filter. The entire process is controlled by the Arduino [1].





## INDUSTRIAL AUTOMATION BY USING CAN PROTOCOL WITH LABVIEW

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**Abstract-:** When we consider an industry of large area the monitoring, controlling of each section involved in the industry is a big task. It involves a large amount of man power and time consumption. To overcome these above factors we developed this technology to make single person for monitoring and controlling the entire network. This can be achieved using controller area network (CAN) bus network, Arduino Uno and LABVIEW software. Industrial automation greatly reduces the need for human sensory and mental requirements as well. Most complex industrial automation processes and systems can be automated. A major advantage of industrial automation and process control is the increased emphasis on flexibility and convertibility in the manufacturing process. The main aim of this project is to provide more safety to industry machines by avoiding operating from over temperatures.

**Keywords-** *Arduino Uno, CAN protocol, LABVIEW, etc.*

### 1 INTRODUCTION

Industrial automation improves productivity and quality while reducing error and wastage of material. It also increases safety and adds flexibility to the manufacturing process. The CAN bus provides an ideal platform for interconnecting modules and LABVIEW software provides good monitoring of system.

CAN allows each module to communicate with any other module. A networked system which requires fast and robust communication and where data should maintain high integrity, CAN can be used. The CAN protocol is robust and uses sophisticated error checking and handling. Using CAN protocol we can send data from one node to other node.

Here we are having two nodes. In first node we are interfacing temperature and ultrasonic sensors with Arduino Uno, in second node heater and motor are interfacing with Arduino Uno. Node 1 will measure the water level and temperature and send these values to node 2 through CAN bus. This node 2 will control the motor and heater according to the data it received. All the system will be monitored through the LABVIEW. LABVIEW provides single view status of the system. Data like temperature and water level, on/off state of pump and heater, change in range of parameters are displayed on LABVIEW.

We use MCP2515 CAN module. The MCP2515 CAN Bus Controller Module is very helpful. The MCP2515 CAN Bus Controller is a simple Module that supports CAN Protocol version 2.0B and can be used for communication at 1Mbps. In order to setup a complete communication system, we will need two CAN Bus Module. This particular module is based on MCP2515 CAN Controller IC and TJA1050 CAN Transceiver IC. The MCP2515 IC is a standalone CAN Controller and has integrated SPI Interface for communication with microcontrollers coming to the TJA1050 IC, it acts as an interface between the MCP2515 CAN Controller IC and the Physical CAN Bus. MCP2515 IC is the main controller that internally consists of three main subcomponents: The CAN Module, the Control Logic and the SPI Block. CAN Module is responsible for transmitting and receiving messages on the CAN Bus. Control Logic handles the setup and operation of the MCP2515 by interfacing all the blocks. The SPI Block is responsible for the SPI Communication interface. Coming to the TJA1050 IC, since it acts as an interface between MCP2515 CAN Controller and the physical CAN Bus, this IC





## SMART ROOM

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**Abstract:** In our project we are trying to make a home more smarter than what is it now-a-days. We have developed a system that will take care of opening and closing of curtains according to ambient sun-light. We have developed an alarm that sprays fragrance in the room as per time set. Apart from that we have also developed a system that will control speed of fan and light intensity.

All these tasks are done with the help of IoT, so that user can control system from remote place and monitor it too.

**Keywords:** IoT, Home appliances, Sensors.

### I INTRODUCTION

Home automation is commonly called smart room/home. It involves the control and handles the things like Light, Fan, Door, Alarming, Freshening (rooms, kitchens and bathrooms) and Windows for certain remainders, security purposes etc. All the things are connected to the internet and all of them can be accessed at any place and any time. The web server is simultaneously updated by sensing the status of the things which are connected to the network. The status of the appliances is controlled by the switch it either ON or OFF using the computer technology. It also provides the security, energy efficient, and ease of use, hence it is more adopted. It helps in controlling and monitoring on web browser. The main objective of the project is to help handicapped people and aged people by alerting in the critical situations. All the devices can be used in our own sitting place itself. The problem overcome by this paper is about that smart room is generally implemented by using WIFI through our PC. Pin check algorithm is used to implement this set-up by using the cable network other than the wireless communication. The device ESP8266, which is the embedded device used to access the cloud. We are using PIR sensor, IR sensor and proximity. Where the devices in IOT is used for controlling or nominating the devices where all of them are far away from this. MQTT and TCP protocols are also used to implement

the ESP8266 Wi-Fi module. The potential IOT applications develop the environment that covers all together the applications, command, control and routing process and security of the node and system. All the IOT devices include various objects like personal computer, smart phones, tablets, which gives the communication between the things and people and also the things between them [6]. To reduce the need for the home intervention, we are used to control the smart room through the use of control systems.







## IoT BASED WATER FLOW MONITORING AND CONTROLLING SYSTEM

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**Abstract-** IoT is global network of things. In IoT things refers to devices like sensors, actuators and these things are connected together to generate some meaningful results. In IoT each of these "things" has independent identities and can be connected over a network for data sharing. This paper proposes a water monitoring and control system for water utility to reduce the current water wastage problem. This approach will help utilities controllers improve low cost water management systems, by using growing technologies and IoT is one among them. The Internet of Things (IoT) could convince be one among the foremost important methods for developing more utility-proper systems and for creating the consumption of water resources more efficient.

**Keywords:** Water Flow Monitoring, Arduino UNO, sensors, Node MCU, Internet of Things

### I INTRODUCTION

IoT based liquid flow monitoring and controlling system has emerged as a basic distribution infrastructure allowing an efficient water supply. Thus, the pipeline is a significant way to transport water from water sources to consumers for short or long distances and in different conditions. Despite this tremendous growth of such system, it can be contaminated by different events such as pipe bursts and pervasive leakage problems which cause a catastrophic water loss. Consequently, this system becomes a significant challenge for structural monitoring and requires continuous control process. For that, water utilities are mainly concerned to overcome the water losses by studying the different water services such as privatization to maintain water supply carefully like it is highlighted. Other works in the industry domain are interested on defining water system resources,

equipment, devices and their best geographical distribution to be efficiently exploited. Accordingly, it is very important to maintain a continuous flow monitoring of liquid to save the environment from various disasters. Furthermore, the emergent use of pipelines in industrial domain for reliable water transmission requires a serious monitoring and immediate reaction in the case of problems to reinforce the system robustness.

### II METHODOLOGY

The main aim is to design and develop a system which can remotely control the water supply through a pipeline and also monitor the rate of water flow. The system consist of Arduino UNO Board as main controller, ESP8266 is Wi-Fi module used to send data to cloud server, Flow meter is present at the input side to measure the rate of flow of water for monitoring purpose, it measures the water flow rate and send the data in digital pulses to the controller. The solenoid valve is installed in system for ON/OFF control of water supply. To measure the level of water at the tank present at the outlet the level sensor is interfaced with controller, it detects the level of the water in tank continuously and sends data to controller. The 12V power supply is also design to provide power to the system.

### III RESEARCH

The research is the most important stage in development of any system. This study discusses the planning and current development of system having a low cost to watch real time values and also to regulate the system using IoT. To measure various parameters of the water, many sensors are included in the system. The parameters which can be measured are like the flow rate and level of the water. Microcontroller can process the value measured from the sensors. The Arduino Uno board can be used to control the system and to access the sensor data on the internet, cloud computing can be used.





## IoT BASED SMART MIRROR USING RASPBERRY Pi 4

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**Abstract:** In the morning it is an important time to prepare you in front of the mirror, which is often slow and time-consuming. This Smart Mirror is able to handle a variety of problems in doing business in the same time. Just using the word "ALEXA", this voice service system will analyze questions and instructions from users. Smart Mirror is a design based on the Raspberry Pi 4 that is equipped with high technology and innovative applications and is the latest design in place of the mirror that we use today. In this era of modernization, we've all been exposed to many things that lead to the development of the country and abroad. Usually, an individual becomes difficult to find enough time in the day to accomplish all the tasks that are part of life, so multitasking becomes necessary. The problem lies in identifying ways to control all the factors that can affect a person individual to prepare us for each day in addition to performing all the tasks those are important just in front of the mirror with more efficient.

The basic goal of this project is to create a product called smart mirror that meets the needs of common person and receive the general information like news, time, weather and also other needy information. This mirror is designed with the ability to collect this information during the preparation of a morning daily life in order to more efficiently and easily. To make this more interesting mirror, we can develop our products to include a variety of control methods, as well as music and other entertainment. In future we hope that the project based on smart glass will enhance a innovative and modern way of life. The face recognition feature will improve the application level of the mirror.

**Keywords:** *Raspberry pi 4; Smart Mirror; IoT; ALEXA; Voice services; Amazon*

### I INTRODUCTION

Nowadays, IoT is the major concept regarding all the devices and projects. The use of internet can be seen everywhere. It is estimated that by the year 2020, there will be up to 21 billion devices across the globe connected with 'Internet of Things' means every man can carry 7-8 IoT devices which will be continuously connected to the Internet. Our lifestyle is all connected to the Internet in other words Internet has become the essential need of human life. The growth of IoT will result in accumulation of special data which will need to be processed and analyzed. Internet of Things offers limitless opportunities to enhance communication between devices and data sharing but this same feature makes it highly vulnerable from the point of view of security. It is a wall mounted mirror it displays information such as news, weather, calendar and other things related to our needs.

A common goal for building a smart mirror is to use a high quality one-way glass, a LCD monitor, a frame to

hold the glass and monitor, and a motion sensor to detect a person and a web browser called flash with python to provide the software features like 'Alexa' and drive the display further.

This paper will discuss about the design of smart mirror. Smart mirror comes with Amazon ALEXA application which is a voice service that responds to our questions. The smart mirror is also able to perform face recognition using pi camera.

### II LITRATURE SURVEY

Research has been made on projects which are related to smart mirror project. Here are some projects about smart mirror discussed about their work.

In 2003 Phillip unveiled their Mirror TV that was built using the same principles that of smart mirrors. Their product was a normal TV that was put behind a two way mirror so that the TV would appear as a mirror when turned on and as TV when turned on. They also had a option to





## OVERVIEW ON IEEE 802.11AX WI-FI 6 TECHNOLOGY

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**Abstract:** *IEEE 802.11 standard is the base of WLAN. Previous generations of Wi-Fi made improvements which more focus on capabilities such as larger bandwidth, high speed, higher capacity, and high efficiency along with the reduction in congestion of networks. This paper aims to provide an overview of 802.11ax Wi-Fi technology going to be used will give a new perspective for communication in wireless networks. 802.11ax i.e. Wi-Fi 6 is also called as HEW. There are many features which Wi-Fi 6 provides like productivity, flexibility, portability, very low installation cost. Wireless deployments provide mobility to all the connected nodes and devices in the network.*

**Keywords:** - *Wi-Fi 6, Wireless, Network, Access point, Augmented Reality, Internet of things, 802.11ax.*

\*\*\*

### I. INTRODUCTION

The objective of this paper is to provide an insight into recent developments in the Wi-Fi technology. Now a day's everyone is connected to internet through different network devices. In communication networks wireless technology is become key medium for connectivity of almost every device in the world. As data traffic is increasing day by day the speed and bandwidth should also be increased according to the need that's why new inventions are taking place in the wireless networking. Upcoming standard of Wi-Fi is 802.11ax known as Wi-Fi 6. The main intent of Wi-Fi 6 is to provide wide bandwidth alongside with high speed rate.

#### Wi-Fi Evolution

Wi-Fi standards evolved rapidly after 1999 to offer higher throughput by providing speed to users and improved high performance.

#### 802.11n (Wi-Fi 4)

802.11n was the first standard to specify MIMO, which is approved in October 2009 and has an option of 2.4GHz and 5GHz frequencies, with speeds up to 600Mbps. To deliver data across these two frequencies "dual-band" term is used by WLAN

#### 802.11ac (Wi-Fi 5)

Wi-Fi 5 uses MIMO, which has multiple antennas on sending and receiving devices to increase speed and reduce errors. Data rates up to 3.46Gbps will be

supported by this standard of Wi-Fi. Some vendors include technologies that support the 2.4GHz frequency via 802.11n, providing support for older versions of devices that may have 802.11b/g/n, for improved data rates it also provides supplementary bandwidth. Current home wireless routers are mostly 802.11ac managed and operated on the 5 GHz frequency.

	802.11n (Wi-Fi 4)	802.11ac Wave 2 (Wi-Fi 5)	802.11ax (Wi-Fi 6)
Released	2009	2013	2019
Bandwidth	2.4GHz & 5GHz	5GHz	2.4GHz & 5GHz, spanning to 1GHz - 7GHz eventually
Channel Bandwidth	20MHz, 40MHz (40MHz optional)	20MHz, 40MHz, 80MHz, 80+80MHz & 160MHz (40MHz support made mandatory)	20MHz/40MHz @ 2.4GHz, 30MHz, 80+80MHz & 160MHz @ 5GHz
FFT Sizes	64, 128	64, 128, 256, 512	64, 128, 256, 512, 1024, 2048
Subcarrier Spacing	312.5kHz	312.5kHz	78.125kHz
OFDM Symbol Duration	3.5ms (short guard interval) 4ms (long guard interval)	3.2ms (0.4μs 8ms cyclic prefix)	12.8ms (0.31μs/3.2ms cyclic prefix)
Highest Modulation	64-QAM	256-QAM	1024-QAM
Data Rates	Ranging from 64Mbps to 600Mbps (max of 4 spatial streams)	433Mbps (80MHz, 1 spatial stream) 693Mbps (160MHz, 8 spatial streams)	600Mbps (80MHz, 1 spatial stream) 960Mbps (160MHz, 8 spatial streams)
SU-MIMO-MIMO-OFDMA	SU-MIMO-OFDM	SU-MIMO-OFDM Wave 1, MU-MIMO-OFDM Wave 2	MU-MIMO-OFDMA





# Web Based Tool for Measuring Coupling in Object-Oriented Software Modules

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**Abstract:** Coupling measurement in object-oriented software is becoming an important area day by day from the software quality evaluation point of view. Coupling is an interdependence relationship between classes (modules) of object-oriented software. The coupling measurement helps to maintain dependency degree between modules of object-oriented software. The moderate coupling values result in quality software. Ultimately quality software retains moderate range of values of software quality attributes such as complexity, efficiency, reusability, maintainability, understandability, flexibility, portability, interoperability, etc. This paper proposes a web based tool for measuring coupling in object-oriented Java software. The idea of a web based tool is to deploy a software coupling tool on intranet or cloud to give access to the prescribed users. The tool can be used online to compute coupling and the resulting data of the tool can be sent/received via the public network. The detailed architecture and components of the tool are described in the paper. The tool is most secured for input processing. The Java and Android projects are evaluated using the tool, the coupling values of Java and Android projects are compared in the results and discussion section of the paper. The Advantages of using the web based tool are also described in the paper. Seven coupling metrics are used from the literature to compute their values using web based tool proposed in this paper. Percentage coupling values of seven coupling metrics are computed for Java and Android projects. The percentage range of coupling values computed in the paper using web based tool is compared with standard range of coupling values described in the literature. The results obtained using web based tool gives us coupling values of Java and Android projects. The coupling values obtained using web based tool proposed in the paper are compared with standard coupling values described in the literature. It is found that the values obtained using the web based tool, are within the standard range of coupling values described in the literature. It means the web based tool proposed in this paper calculates correct coupling values of any object-oriented Java code.

**Keywords:** Coupling, Object-oriented, Quality, Software, Metrics, Measurement, Web.

## 1. Introduction

A Coupling is an interdependence relationship between modules of object-oriented software. Coupling measurement helps in software quality control by maintaining range of software coupling values. The moderate range of coupling values leads to quality software. The different software quality attributes like complexity, efficiency, reusability, maintainability, understandability, flexibility, portability, interoperability, etc. can be controlled by keeping a moderate range of coupling values.

To compute coupling values correctly a reliable tool is required. So this paper proposing a tool to measure coupling values amongst the modules of object-oriented software. The additional benefit of this tool is that, it can be deployed on web; hence this tool called as web based tool. It was needed to develop a tool as there was no any tool available in the literature which considers all seven coupling aspects described in table 1. In literature [2, 3, 4] few tools are available like ICAT tool described by the author Jeff Offutt et al. [1] which consider only limited coupling aspects and the tools are not





## Group-based Authentication Methodologies

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### ABSTRACT

Internet of Things (IoT) is expected to grow exponentially and billions of devices will take part in communication globally by 2020 according to International Data Corporation (IDC). With this huge number of devices, it is very difficult to authenticate or identify each user or device in IoT. The Internet of Things (IoT) by which any items could be connected via Internet. The access to the Internet has emerged from static access like desktop machines to the mobile access. Hybrid authentication is the combine of device authentication and access authentication. Device authentication ensures device identification that is the only authorized IoT equipment has the access to network. It will secure the legitimate interests of the user, and avoid conflicts of interest because of the access of illegal device along with the network security issues. Group signature mechanism TCGA (Threshold Cryptography-based Group Authentication) addresses security issue or parameter by considering shamir's secret key generation, public key infrastructure and group authority. It is lightweight by using very low level hardware as well as software. GAS (Group Authentication System) is another scheme which we have considered to compare or to evaluate; It also uses shamir's secret key generation method and public key infrastructure for security or to provide seamless communication. Group signature try to address problem faced in TCGA and GAS i.e. to generate new key every time whenever any new member adds in group by creating static key at first time or at the time of starting of communication between groups here it reduces cost to generate key. This approach is scalable in nature and also it improves the time complexity.

**Key words :** Group signature, Hash Message Authentication Code, Group-based authentication mechanism, Threshold Cryptography-based Group Authentication, Internet of Things formatting

### 1. INTRODUCTION

#### 1.1 Background

The Internet of Things (IoT) by which any items could be connected via Internet. The access to the Internet has emerged from static access like desktop machines to the mobile access. Many types of devices like mobiles, cameras, printers, tablets, televisions may connect to the internet which is called as ubiquitous computing. In that way it introduces many challenges.

The aim is to connect physical world to digital world. IoT focuses on the way by which the devices can be monitored and controlled Figure 1 shows the basic idea behind IoT. The IoT is mainly divided into three parts, application layer, the perception layer, and network layer.

IoT experience the procedures of information perception, integration, access, transmission, aggregation, decision-making and control, storage and mining. Data processing in IoT related to questions about privacy protection and location-based services in information processing.

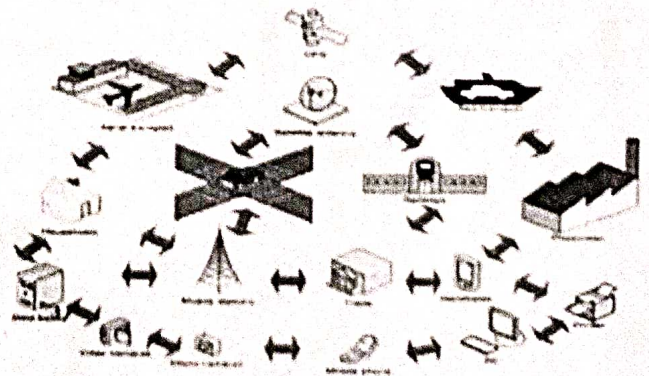



Figure 1: Basic idea of IoT





**Proceedings of Fifth International Congress on Information and Communication Technology** pp 194–201

## A Technique to Analyze a Cassandra Tombstone for Identification of Operations

Vinod Pachghare  & Rupali Chopade

Conference paper | First Online: 01 October 2020

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### Abstract


High scalability, flexible storage of data, linear performance, and many other strong features made Cassandra database a popular database. The Cassandra is one of the column-based NoSQL databases. Cassandra performs faster write operations with an additional overhead of tombstone. Whenever logical delete operation is performed, it will result in a tombstone. This tombstone value is useful to update the other replica about the deletion. The major problem with tombstone is that it is not only generated





**Progress in Advanced Computing and Intelligent Engineering** pp 427–439

## Evaluation of Digital Forensic Tools in MongoDB Database Forensics

Rupali Chopade  & Vinod Pachghare

Conference paper | First Online: 30 October 2020

342 Accesses

Part of the Advances in Intelligent Systems and Computing book series (AISC, volume 1198)

### Abstract

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Wide usage of online applications has increased the risk of misuse of data by affecting privacy and security policies. Digital forensics is a process of solving criminal cases related to digital devices. Technical growth in this area is the expansion of forensic tools to collect the pieces of evidence. Database forensics is one of the categories of digital forensics. Database forensics covers the scanning of various parts of it for data recovery or finding data tampering. Forensic tools are available for most of the relational databases. Very few tools are available in the market for





**Proceeding of International Conference on Computational Science and Applications** pp 99–107

## Tamper Detection in Cassandra and Redis Database—A Comparative Study

Archana Golhar , Sakshi Janvir, Rupali Chopade & V. K. Pachghare

Conference paper | First Online: 05 January 2020

520 Accesses | 1 Citations

Part of the Algorithms for Intelligent Systems book series (AIS)

### Abstract

With the advent of technology, there is a rapid growth in the number of users and the data related to them. To store this surplus amount of data, we need the concept of databases. Database is a collection of huge amounts of data. There are many problems in the storage of database such as data consistency, data integrity and many others. When the database gets exposed to outside world either by intruder or insider, it causes major loss for an enterprise. But being in such a data prone era, it is likely that our data is vulnerable, and it is attacked by the cyber criminals. That is why it is






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ICICT 2020: Proceedings of Fifth International Congress on Information and Communication Technology pp 393–400

## Performance Analysis of Proposed Database Tamper Detection Technique for MongoDB

Rupali Chopade  & Vinod Pachghare

Conference paper | First Online: 22 October 2020

345 Accesses

Part of the Advances in Intelligent Systems and Computing book series (AISC, volume 1183)

### Abstract

Database tamper detection is identifying the change in the old state and new state of database systems. There is a change in the state of database mostly with three kinds of operations namely insert, update and delete. Dropping the database or entire table will also affect the state of the database. Data is very precious to any individual or organization and data tampering will have serious ramifications. Now considering data as an asset of the organization, the protection of this data is supremely important. The tamper detection





**ICT Systems and Sustainability pp 529–539**

## MongoDB Indexing for Performance Improvement

Rupali Chopade  & Vinod Pachghare

Conference paper | First Online: 29 February 2020

**404** Accesses | **4** Citations

Part of the Advances in Intelligent Systems and Computing book series (AISC, volume 1077)

### Abstract


For any digital application, database positions at the heart of that application. Today with the big data requirement, databases are roaming from traditional relational databases towards NoSQL databases. The diverse numbers of database options are available under the NoSQL category. As per the database engine survey, MongoDB is the preferred NoSQL database among other databases. Due to numerous features available in MongoDB, this database is widely used in different applications. This database is fulfilling the needed requirements for upcoming





**Proceeding of International Conference on Computational Science and Applications** pp 109–117

## Tamper Detection in MongoDB and CouchDB Database

Rohit Kumbhare , Shivali Nimbalkar, Rupali Chopade & V. K. Pachghare

Conference paper | First Online: 05 January 2020

**510** Accesses | **1** Citations

Part of the Algorithms for Intelligent Systems book series (AIS)

### Abstract

Tamper detection is the ability of a software or a device to sense that an active attempt to fail the device integrity or data associated with the system, the detection of any attack or threat may enable the device to initiate the defensive actions accordingly. In NoSQL database, detecting the tamper is not simple as in relational database. This paper mainly focuses on the database security. Whether the data is secured or not? or the data is tampered? To detect any tamper in NoSQL database, the model is been built which uses the logs, port connections as an input and set the



# Implementation Paper on Speech Emotion Recognition & Accent Identification

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<sup>1,2,3,4</sup>Student, <sup>5</sup>Professor

<sup>1,2,3,4,5</sup>Dept. of Information Technology Engineering, MMCOE, Pune, Maharashtra, India)

**Abstract-** In human machine interface application, emotion recognition from the speech signal has been research topic since many years. To identify the emotions from the speech signal, many systems have been developed. Speech has several characteristic features such as naturalness, pitch & tone, which makes it as attractive interface medium. It is possible to express emotions and attitudes through speech. Here in this paper, study has been carried out to recognize the human emotion through speech using the accent of the human. To recognize accent through speech various speech features were extracted. Based on these speech features Classification of the accent and emotion has been done using KNN. Here six emotion are considered like neutral, disgust, happy, sad, anger, and fear. The classification performance is based on extracted features using MFCC. Inference about the performance and limitation of speech emotion recognition system based on the different classifiers are also discussed.

**Keywords**—Emotion Recognition, Feature extraction, MFCC, KNN

## I. INTRODUCTION

Human machine interaction are widely used nowadays in many applications. One of the medium of interaction is speech. Emotions are subjective experiences which play an important role in expressing mental and physical states of the humans and it is often associated with variety of feelings.

The Emotion Detection from Speech consists of two modules. First module is Speech to accent detection of user .This module identifies or gives result as accent of user which are living in particular region. This module is used to denote the region of user. Second module accent is considered as input. This module extract features of users speech to detect emotion of user.

In recent years, Speech Emotion Recognition has made great progress, especially after the utilization of deep learning. A typical SER system abstracts a collection of acoustic features or semantic features on top of automatic speech recognition (ASR) transcription, and then trains a multi-classifier classification model by machine learning methods such as SVM, decision tree and GMM.

The main characteristics of the proposed system are:

1. To develop model which identifies and extracts the features from the speech of the user.
- 2] To develop a model which will identify the regional aspects and detect the accent of the user.
- 3] To predict the emotional state of the user.

## II. LITERATURE SURVEY

In [1] named "Speech Based Human Emotion Recognition Using MFCC", IEEE WiSPNET year of 2017 conference proposed by authors named as M.S. Likitha , Sri Raksha R. Gupta.

A database consist of voices of 60 people with different emotions. Speech signal of speaker's read using the function a wavread in MATLAB tool .MFCC method is used for detecting emotion from voice signals. Proposed work is based on feature extraction using MFCC and decision making using standard deviation. The speech signal made to undergo framing, after which it is passed through Hamming window for windowing process. Fast Fourier Transform was performed on the input signal. After which the Mel Frequency Cepstral Coefficients were obtained. The standard deviation for the mean value was found, and this value was passed through as if else a statement, where the obtained standard deviation of that particular emotion is compared with the optimized values of standard deviation for different emotions, and the corresponding emotion were displayed. It can predict the 3 basic emotions such as happy, sad, angry from MFCC waves. Some advantages of following proposed system are:

- 1)MFCC is simplest method for emotion detection.
- 2)Efficiency and performance remains constant even in noisy environment.

Hence this system can serve as noise robust emotion recognition system. Such efficiency in noisy environment extends the scope of the work wherein emotion recognition systems can be utilized in military.

In [2] named "Emotion Recognition from Speech using Convolutional Neural Network with Recurrent Neural





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**Title**

Detection and Prevention of SQLI Attacks inside the DBMS

**Authors**

- SAYALI TELI
- PRATIMA MORAJKAR
- TEJAS PENDHARKAR
- TANMAYEE KULKARNI
- PREETI JOSHI

**Abstract**

Database applications are used to store, search, sort, calculate, report and share information. Databases can also contain code to perform mathematical and statistical calculations on the data to support queries submitted by users. The grocery store, bank, video rental store and clothing store all use databases to keep track of customer, inventory, employee and accounting information. SQL injection is a code injection technique, used to attack data-driven applications, in which malicious SQL statements are inserted into an entry field for execution. The most common cause of database vulnerabilities is a lack of due care at the moment they are deployed. The effectiveness of such attacks stems from semantic mismatch between how SQL queries are believed to be executed and the way in which database processes them. In this paper, a technique is proposed which provides external as well as internal security to the database. SEPTIC(Self Protecting mechanism), a mechanism for DBMS attack prevention, which can also assist on the identification of the vulnerabilities in the applications is combined with Naive Bayes a Machine Learning algorithm to achieve accurate results. This technique will be implemented using MySQL database. In this paper an attempt has been made to develop an online shop that allows users to check for different clothing stuff. To enhance the security all the user details such as name, password and card details will be encrypted using AES algorithm and then stored in the database.

**Key Words**

DBMS self-protection, injection attacks, Database Security, SQL injection technique, Attack detection, Attack prevention, AES Algorithm, Encryption.

**Cite This Article**

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# Cotton Crop Disease Detection using Image Processing and Machine Learning

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**Abstract-** India is an agriculture country and above seventy percent of our population depends on the agriculture. One-third of our national income comes from agriculture. Agriculturalist are facing loss due to various crop disease and it becomes tedious to cultivators to monitor the crop regularly when the cultivated area is huge (acres). So the plant disease detection plays an very important role in agriculture field. Timely and accurate disease detection is important for the loss caused due to crop diseases which affects adversely on crop quality and yield. Early diagnosis and intervention can reduce the loss of plant disease and reduce the unnecessary drug usage. Earlier, automatic detection of plant disease was performed by image processing. For disease detection and classification we are proposing machine learning mechanisms and image processing tools. Crop disease will be detected through various stages of image processing such as image acquisition, image pre-processing, image feature extraction & feature classification. For image feature extraction we will be use image global feature extraction technique.

**Keywords-** Image Processing, Machine Learning, Feature Extraction, Image Global Features, Classification.

## I. INTRODUCTION

Farmer's economic growth relies on the quality of the product that they grow, which is directly dependent on the plants growth and yield they get. Plants are attacked by the different disease which target different parts of plant body such as leaf, stem, seed, and fruit and so on. To solve this problem machine learning seems to be a better option various machine learning technique are recently proposed for identification and classification of plant disease from plant images. Cotton is one of the most important cash crops of India and plays a dominant role in the industrial and Agriculture Economy of the country. It provides basis raw material (cotton fiber) to cotton textiles industry. Cotton in India provides direct livelihood to 6 million farmers and about 40-50 million people.

Various image processing concepts such as image filtering, segmentation, image feature extraction have emerged to detect the leaf diseases. There are various image segmentation methods available such as k-means clustering, Canny and Sobel segmentation, and Otsu thresholding. Techniques such as Support Vector Machine (SVM), Neural

Network (NN), and Homogeneous Pixel Counting technique for Cotton Diseases Detection (HPCCDD) can be used for classification. Features play an important role in the classification process. Previous proposed works for detecting disease has some limitations such as low resulting accuracy and less number of images used to detect disease. The main source for the disease is the leaves of the cotton plant. About 80 to 90 % of disease on the cotton plant is on its leaf. So for our study of interest is the leaf of the cotton tree rather than whole cotton plant the cotton leaves is mainly suffered from diseases like insecticide (tude, mawa) fungus, Foliar leaf on leaf of cotton, Alternaria leaf spot of cotton. The machine vision system now a day is normally consists of computer, digital camera and application software. Various types of algorithms are integrated in the application. Image processing is one important method that helps segment image into objects and background image. One of the key steps in image analysis is feature detection. Image recognition has attracted many researchers in the area of pattern recognition, similar flow of concept are applied to the field of pattern recognition of plant leaf, that is used in diagnosing the cotton leaves diseases. There are numerous methods have been proposed in the last two decades which are not fully solved. However this is challenging problems. The critical issue is how to extract the discriminative and stable feature for classification.

## II. RELATED WORK

The primary focus of this work is to detect disease and estimate its stage for a cotton plant using images. Most disease symptoms are reflected on the cotton leaf. The proposed work uses two cascaded classifiers, so using local statistical features, first classifier segments leaf from the background. Then using hue and luminance from HSV color space another classifier is trained to detect disease and find its stage. The developed algorithm is generalized as it can be applied for any disease [1].

This work presents a survey on detection and classification of cotton leaf diseases. It is difficult for human eyes to identify the exact type of leaf disease which occurs on the leaf of plant. Thus, in order to identify the cotton leaf diseases accurately, the use of image processes and machine learning techniques can be helpful. The images used for this work were acquired from the cotton field using digital camera. In pre-processing step,



# Relative Image Searching With Image As An Input

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**Abstract-** Storage requirements for visual and Text data have increased in recent years, following the appearance of many interactive multimedia services and applications for mobile devices in personal and business scenarios. Hash methods are useful for a variety of tasks and have attracted great attention in recent times. They have proposed different approaches to capture the similarities between text and images. However, most of the existing work use bag-of-words method is used to represent text information. Since words with different forms may have a similar meaning, the similarities of the semantic text cannot be well worked out in these methods. To address these challenges in this paper, a new method called semantic cross-media hashing, which uses the continuous representations of the proposed words capturing the semantic textual similarity level and the use of a deep convolutional network to build the correlation between different modes. To demonstrate the effectiveness of the proposed method, it is necessary to consider three commonly used data sets that are considered basic. Experimental results show that the proposed method achieves significantly better results in addition, the effectiveness of the proposed method is similar or superior to other hash methods.

**Keywords-** SCMH, SIFT Descriptor, Word Embedding, Ranking, Mapping

## I. INTRODUCTION

With the fast development of internet and multimedia, information with various form has become enough smooth, simple and easier to access, modify and duplicate. Information with various forms may have semantic correlation for example a microblogs in Facebook often consist of tag, a video in YouTube is always associated with related description or tag as semantic information inherently consist of data with different modality provide an great emerging demand for the applications like cross media retrieval, image annotation and recommendation system. Therefore, the hash similarity methods which calculates or approximate search suggested and received a remarkable attention in last few years. The core problem of hash learning is how to formulate underlay correlation between multiple modality and retain / protect the similarity relation in each respective modalities. Generally hashing method divided into 2 categories: matrix decomposition method and vector based method. Matrix

decomposition based hashing method search low dimensional spaces to construct data and quantify the reconstruction coefficient to obtain binary codes. Such kind of methods avoid graph construction and Eigen decomposition. The drawback with such methods, causes large quantization errors which decrease such performance for large code length. We have design multi-modal hashing model SCMH which focuses on Image and Text type of data with binary representation Hashing. This method processed text data using Skip gram model and image data using SIFT Descriptor. After it generates hash code using Deep Neural network by avoiding duplicates.

## II. LITERATURE SURVEY

Literature survey is the most important step in any kind of research. Before start developing we need to study the previous papers of our domain which we are working and on the basis of study we can predict or generate the drawback and start working with the reference of previous papers. In this section, we briefly review the related work on Tag Search and Image Search and their different techniques.

**Y. Gong, S. Lazebnik, A. Gordo, and F. Perronnin:** This paper addresses the problem of learning similarity-preserving binary codes for efficient similarity search in large-scale image collections. We formulate this problem in terms of finding a rotation of zero-centered data so as to minimize the quantization error of mapping this data to the vertices of a zero-centered binary hypercube, and propose a simple and efficient alternating minimization algorithm to accomplish this task[1].

**Y. Pan, T. Yao, T. Mei, H. Li, C.-W. Ngo, and Y. Rui:** we demonstrate in this paper that the above two fundamental challenges can be mitigated by jointly exploring the cross-view learning and the use of click-through data. The former aims to create a latent subspace with the ability in comparing information from the original incomparable views (i.e., textual and visual views), while the latter explores the largely available and freely accessible click-through data (i.e., -crowdsourced human intelligence) for understanding query[2].

**D. Zhai, H. Chang, Y. Zhen, X. Liu, X. Chen, and W. Gao:**



# "SMART RECRUITMENT SYSTEM USING MACHINE LEARNING"

Shubham Shendage, Tushar Shinde, Ketki Govilkar  
BE Students, Department of Information Technology, MMCOE Pune.

Jitendra Chavan  
Professor, Department of Information Technology, MMCOE Pune.

**ABSTRACT:** Smart Recruitment System for an Organization to attract potential and amazing talent candidates and select most appropriate candidates for an organization. Analyzing the requirements of jobs, attracting candidates for the jobs, screening and hiring the new applicants for the Organization. Employees can screen schedule further interview and get notified. Employee is hire according to their performance in interview. Candidates report is generated according to the feedback given by Interviewer. After Candidate is appointed for the organization, their report/ performance related project is given to the candidate. This system helps to bring right candidates for an Organization and helps in saving time of Recruiting activity of the company to run the process smoothly and efficiently. As compared to human recruiters, this process was found to be more consistent, so this system can be trusted more in case of automation of applicant ranking.

**Keyword-** Candidate interview, Hire ability, Behaviour, Security, Social computing, Job to resume matching.

## I.INTRODUCTION

In this competitive and progressive business world organizations need to recruit the best talent that can lead them to achieve goals. Recruitment is defined as a process to hire a candidate from various rounds by analyzing his performance parameters in various fields. The goal of our system is to hire a best perfect candidate for a perfect post. Smart Recruitment is one of the most recent trending requirement as internet usage become widespread the first step of smart recruitment was the addition of online applying for the job on a corporate website .Our project aim is to generate report of each indicate who will attend further interview. Firstly a candidate will apply and upload their resume on the website. The Organization will analyze the candidate resume and select the candidate according to their requirement. Selected candidate get notification mail and schedule interview. This interview will be scheduled by the admin. Interviewer will get assign for candidates by admin and generate feedback of that particular candidate in each round. After completion of rounds complete report is generated of that candidate





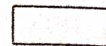
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### Title

Viral Post Category Identification by Using Core NLP Technique

### Authors

- Pradip Shelke
- Shreyas Malavade
- Vinay Dasalkar
- Karan Rajurkar
- Jitendra Chavan

### Abstract

In today's world every day there is enormous information published on the web (social media, science and more). This information contains movie reviews, product reviews, blogs, news articles, etc. It is not easy to predict this kind of information to which it belongs. So proposed system need to solve the above-mentioned issue for that we proposed the system in which- when any post that contains textual information given as an input, makes it to provide solution from the web. To make a post for provide solution by business the system extract useful information from the text. The use of the system is to take a post directly to its potential audience (online users like social media). Here, proposed system analyze the social media posts and understand what kind of decisions they may take in the future so that proposed system can recommend to the user directly with a certain post. There are certain domains which proposed system will identify from the post. Content will suggest from the post to the potential audience and potential audience will recommend the solution or suggestion to the user.

### Key Words

Machine Learning, Natural language processing

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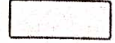
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**Title**

OFFLINE SIGNATURE FORGERY DETECTION USING CONVOLUTIONAL NEURAL NETWORK

**Authors**

Ms. Rashi Gundapwar  
Mr. Raj Balsekar  
Ms. Aditi Parekh  
Ms. Manasi Desai  
Prof. Swapnil Shinde

**Abstract**

Handwritten Signature is considered as one of an integral part of security as it can be used for verification and authentication. Precision is not maintained every time a person does the signature, different parameters like signature strokes, length, pixel depth, continuity, etc may vary. Such Properties of the signature has to be checked before verification and authentication. So authenticating a fake signature becomes a challenging task. A Signature Capturing and Recognition System will take the image of the signature as an input and will train the image by extracting various features and will store it in the database then using Convolutional Neural Networks it will be compared with the original source signature and recognize whether it is the original signature. For feature extraction algorithms like Grayscale and Binarization are used. Once the image is captured, it will be converted into a black and white image and then processed. This system needs to be trained very well in order to have better results. Signatures samples will be fed into the system for identification tests in order to maintain high accuracy in the system. Feature extraction is an important stage where the features of each signature are captured using the CNN algorithm. The idea of this step is to identify each and every minor detail of a signature. Subsequently identifying the features and extracting them properly will lead to a better or more accurate verification. A centralized database of correct signatures of the customers will be available. This particular database can be used by a lot of systems that require customer information and signature information.

**Key Words****Cite This Article**

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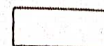
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## Title

Blockchain based Land Registry

## Authors

Shounak Pawar  
Harsh Joglekar  
Swapnil Shinde  
Sarang Umap

## Abstract

Land assets hold huge value to farmers as well as other landowners. The Indian system of storing 7/12 extracts on paper, although in digitized format now, has been a source of fraud and cheating. The current system provides digitized records of the paper trail bearing ownership credentials. However, this system depends on Third Party involvement & centralization of data making it susceptible to integrity damages. In our Blockchain-based system we eliminate Third Party involvement by providing a Decentralized system, thus zeroing in on any possible vulnerabilities. The system provides consensus-based validation of blocks of transactions in the blockchain. The system also validates smart contracts upon initialization of a transaction to comply with the Government's smart contract attestation body and taxation norms of ownership transfer.

## Key Words

Blockchain, Land Registry, Blockchain based asset management

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# SECURITY AND PRIVACY IN SMART HEALTH: USING ABE AND AES

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## ABSTRACT:

SMART health (s-health) is the context-aware augmentation of mobile health in smart cities, and it provides an opportunity for accurate and efficient prevention of various diseases and accidents. As a kind of fundamental technologies in smart cities, the Internet has been widely applied to interconnect available medical resources and provide reliable and effective s-health services to the elderly and patients. Cloud-based s-health is expected to provide desirable health care in the near future. We will use Amazon EC2 cloud for storing our confidential data. However, s-health is still in its early stages and many concerns remain to be solved for practical applications. According to symptoms intensity system will suggest to go emergency department and showing nearest hospitals. In particular, data security and privacy issues have become the biggest concerns of people in s-health. For example, Usually, a patient expects his s-health documents (SHRs), such as blood pressure and pulse rate, to be accessible only through approved professional health care-givers. Whereas, either data security is breached or only coarse-grained access policies are permitted if traditional access control methods are adopted. The system is used by any Doctor, Patient and Pathology laboratories to obtain patient information and then store it for future use. The current system in use is a paper-based system. It is too moderate and can't give refreshed arrangements of patients inside a sensible time allotment. The expectations of the framework are to decrease over-time pay and increment the number of patients that can be dealt with precisely.

Necessities proclamations in this record are both utilitarian and non-useful. This system will provide security and privacy to the patient history. To provide privacy for patient Treatment in this System we'll use CP-ABE and DES algorithm for encryption and decryption.

**Keyword:** Cloud computing, Data Security, Data privacy, Attribute-based encryption, AES.

## I. INTRODUCTION

A health-care aim is to create a patient portfolio management scheme capable of tracking the medical history of their patients. This system is to facilitate the middle to retrieve, update, and report the patient information expeditiously, assisting physicians in turn to create timely, efficient diagnoses. At the same moment, to monitor their medical and financial management, the center can use this scheme. Currently, completely different departments within the aid center have their own separated systems resulting in the dearth of communications and also the inefficient information sharing. In the clinic department, Doctors must write down patient prescriptions and maintain paper records, as well as have no data on insurance plans for patients, the drugs department has got to keep the prescription and inventory records on their own system. While every system serves a particular purpose, there is no coordinating, assimilating and representing of data. The systems might have duplicate information that could be a waste of space.





## Short Communication

### Failure analysis of fuel pumps used for diesel engines in transport utility vehicles



Vikas Radhakrishna Deulgaonkar<sup>a,\*</sup>, Kundan Pawar<sup>b</sup>, Pratik Kudle<sup>c</sup>,  
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#### ABSTRACT

Present work deals with the failure analysis of fuel pump in transport utility vehicles. The fuel pump assembly failed at 70536 km. Various types of failures in pump and its different components are analyzed. Failure mode and effect analysis (FMEA) of the acquired data has been carried out. The pump components with substantial contribution in failure are determined using risk priority number analysis and the failure causes are postulated. Using scanning electron microscopy (SEM) for pump parts as rollers and cam plates the types failures are observed. Presence of water in fuel tank indicated the reason for rusting of bottom surface of tank. Pitting failure due to rust particles has been identified in pump parts after SEM observations. Energy Dispersive Spectroscopy (EDS) of pump parts has also been carried out to identify levels of unnormalized constituent elements responsible for failure. From EDS presence of oxygen responsible for oxidation reaction with iron is identified. Significant percentage of oxygen at different locations indicated the presence of moisture in the system. Remedial measure to avoid pump failure has been suggested in present work.

#### 1. Introduction

One of the important components for passenger vehicles or buses using fuel as diesel is fuel-injection pump. Fuel pump not only distributes the measured amount of fuel to the cylinder but also assists in controlling engine speed. A typical fuel-injection system comprises of pressure generating system, motion transmitting system, control system, hydraulic delivery system and a system or unit to handle overload [1]. The fuel-injection pump is indirectly driven by the crankshaft through gearing arrangement. Fuel injection system includes several components possessing motion relative to each other, however no separate unit is used for lubrication as fuel itself acts a lubricant during the fuel pump action. In present work a total of 89 fuel-injection pumps were analyzed for different types of failures. Failure of pumps occurred at 70536 km far before the actual life of 200,000 km stated by original equipment manufacturer. Fuel pump failure is faced by all state transport systems and present work is conducted in one of the state central workshops utilized for regular maintenance and bus body building. The failure data collected is analyzed using various techniques and remedial action is devised which further affected the performance of fuel-injection pumps.

#### 2. Investigation of fuel pump failures

Fuel pumps under consideration failed due to improper functioning of the pressure generating, hydraulic delivery, control systems and overload control unit. Part wise failure data is collected and analyzed. Major systems, system components and causes of their failure are enlisted in Table 1.

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## Design and Analysis of State Transport (S.T) Utility Vehicle ~ Bus

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### ABSTRACT:

Passenger transport is an inseparable ingredient of public transport system for developing and developed nations. In present work design and analysis of state transport utility vehicle ~ bus is carried out. Present paper focuses on the design enhancements in structural features of sub and superstructure without any alterations on the chassis provided by OEMs. Limiting dimensions of bus as prescribed by automotive industry standard and central motor vehicle rules are the design constraints accounted in the present work. This work was commenced with the thorough study of sub and superstructure configurations, seat locations, passenger load patterns, locations of doors, windows & emergency exits and other relevant bus attributes. Hand calculations for evaluation gross section modulus of chassis and cross member combination are presented. Usage of shear force and bending moment diagrams to evaluate the stress and deflection for the proposed load patterns is made before proceeding for finite element analysis. Finite element modelling and analysis of the sub and super structure combination is carried using shell elements with the presumption that chassis of the bus is rigid. Roll-over analysis of bus for the present configuration is presented.

### KEYWORDS:

Transport utility vehicles; Bus design; Stress analysis; Finite element analysis

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V.R. Deulgaonkar, V.A. Shitole and R.M. Panage. 2019. Design and Analysis of State Transport (S.T) Utility Vehicle. *Int. J. Vehicle Structures & Systems*, 11(2), 127-132. doi:10.4273/ijvss.11.2.02.

## 1. Introduction

History of public transport is one of the technological innovations which are in continual improvement since its inception from Stone Age. With the invention of wheel, this transportation system has undergone several developments with respect to the geographical situations, nature of land and frequency of travel. Land transport has progressed through various modes as walking, palanquin (palkhis), animal powered transport as bullock cart and horse carriage, hand-pulled rickshaw, bicycle, cycle-rickshaw, auto-rickshaw, electric-rickshaw, taxi, bus and bus rapid transit system (BRTS). Public transport has been inseparable part of an individual irrespective of environmental and geographical situations, type of terrains and frequency of travel. With the advancements in automobile realm, inclination towards public transportation offered by state transport agencies has been decreased due to many aspects including but not limited to poor design of bus sub and superstructures resulting in increased levels of vibration to travelling passengers, noise resulting from the under maintained doors, windows and the external appearance.

Several efforts have been made by researchers over the globe to improve the passenger comfort in public transport. Testing and experimentation of bus involves a considerable amount of labour, time as well as economic investment. Most of the state transport buses in India are designed on the basis of past experience without much technical considerations. The state transport workshops

have fabrication units in which the bus superstructure is fabricated with the use of tooling and past experience. The chassis along with necessary mounts is supplied by OEM's. The dimensions of bus are governed by automotive industry standard (AIS 052) and central motor vehicle rules. The superstructure influences directly the life and health of travellers in case of accidents. Rollover is one of the prominent tests which the bus superstructures are required to pass before the buses are put into service [12]. Rollover is exceptionally hazardous as it results into significant deformation of roof arch members and side walls. Reasons of rollover occurrence include collisions and high speed cornering.

Intrusion of structure inside the passenger survival space is the reason for injury and death of the passengers. When the bus takes a turn, i.e. during cornering three forces act on it viz, tire (centrifugal) force, inertial (centrifugal) force and gravity force. Cornering force creates thrust and pushes the vehicle towards the curve centre as this force acts below the centre of mass and at the ground level. Inertial force act in horizontal direction through the centre of vehicle mass and away from the turn. When the magnitude of these forces increases more than force of gravity, the bus starts to rollover.

## 2. Sub - Structure of bus

Floor of the bus is a composition of longitudinal and cross members placed on chassis and attached with the help of minimum 15 U-bolts from strength and rigidity



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# Thermal Analysis and Performance Evaluation of Triple Concentric Tube Heat Exchanger

Pradip K. Tamkhade, Pramod S. Purandare, Mandar M. Lele.

**Abstract:** Triple concentric-tube exchanger (TCTHE) is an improved version of double concentric tube heat exchanger (DCTHE). Introducing an intermediate tube to a DCTHE provides TCTHE and enhances the heat transfer performance. Recognizing the need of experimental results, extremely scarce in the literature and essential to validate theoretical analyses, the aim of this work is to investigate thermal behavior of TCTHE. The present study includes design, development and experimental analysis of TCTHE for oil (ISO VG 22) cooling application required for industrial purposes. It comprises of water (cooling fluid) flowing through innermost tube as well as outer annulus and oil (hot fluid) flows through inner annulus. The experimental studies of the temperature distribution for three fluids along the length and heat transfer characteristics for TCTHE under regulated condition for counter current flow mode are carried out and discussed. The effect of change in oil (hot fluid) temperatures is analyzed keeping water inlet temperatures same at various operating conditions. The experiments have been conducted by varying flow rate of one of the fluids at a time and keeping other two fluid flow rates constant. The results are expressed in terms of temperature variation for all three fluids along the length. The effect of change in hot fluid inlet temperature is expressed in terms of heat transfer rate variation with respect to Reynolds number. The variation of non-dimensional parameters as temperature effectiveness and thermal conductance with respect to Reynolds number is also presented in this paper. Theoretical studies are carried out for evaluation of heat transfer rate using empirical correlations. Experimental validation is carried out for degree of cooling at different Reynolds numbers with theoretical analysis.

**Index Terms:** Triple concentric tube heat exchanger (TCTHE), Temperature variation, Temperature effectiveness, Thermal conductance.

## INTRODUCTION

The heat exchangers are widely used for industrial as well as residential heating and cooling applications. The need to improve performance and to reduce space required for heat exchanger has been a motivation for researchers to understand, suggest and analyze newer and newer designs.

In Industry, [1] the most common heat exchanger is double concentric tube heat exchanger (DCTHE) and Triple

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concentric-tube exchanger (TCTHE) is an improved version resulting improvement in thermal performance.

TCTHEs find the applications in different sections as dairy, food, beverage and pharmaceutical industries. In triple tube heat exchangers, a thermal fluid is passed through inner annular space and heat transfer media are passed through the central pipe and outer annular space.

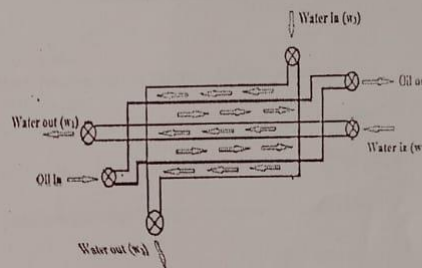


Figure 1. Schematic of counter flow mode in the TCTHE.

The performance of the heat exchanger depends on the various thermo physical properties of fluids and the material. There is need to enhance the effectiveness and compactness of double tube heat exchangers. One of the ways to enhance effectiveness and compactness is Triple Concentric Tube Heat Exchangers (TCTHE).

These types of heat exchangers can be extensively useful for the process of pasteurization of food products, viz. dairy products, fruit juice, liquid egg storages and sauces. TCTHE provides an additional flow passage and a larger heat transfer area per unit exchanger length compared to a double concentric-tube heat exchanger. This ultimately enhances heat transfer performance. As the fluid velocities are higher for the flows through annular regions, there is improvement in overall heat transfer coefficients in TCTHE which enhances performance and compactness of heat exchanger.

The performance analysis of a triple concentric tube heat exchanger under steady state conditions for insulated and non-insulated conditions was undertaken by G.A. Quadir et al. [1], [2]. The experimentation was carried out using hot





# Investigation on the effect of power and velocity of laser beam welding on the butt weld joint on TRIP steel

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## ABSTRACT

In this study, the characterization of laser weld joint on transformation-induced plasticity (TRIP) steel sheets coupled with Nd:YAG laser welding was investigated, and the influence of welding conditions like angle of weld, power of laser, and welding speed on the strength of the joint was measured. The microstructure, tensile behavior, and microhardness of TRIP laser-welded sheets were examined in detail. The power was maintained constant, i.e., 1800 W, and by relatively varying the velocity from 25 to 30 mm/s, the strength of the joint increased drastically to 11%. In contrast, by varying the power, the effect of velocity was reduced; however, the joint performance was enormously stable. Finally, the microhardness behavior of the heat-affected zone and fusion zone was investigated and discussed.

Key words: TRIP steel, butt weld joint, laser welding, heat treatment, Nd:YAG laser

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## I. INTRODUCTION

Nowadays, due to globalization, all the sectors are changing significantly in which each sector is working in an optimized manner. In addition, huge transformations have occurred in the automobile sector to increase the fuel efficiency of a vehicle. As the demand for tough materials in the world market has increased, manufacturers are in search of different materials that can possess a high strength to weight ratio.<sup>1–3</sup> In this regard, even though many strategies have been put forward to enhance the strength of materials, still problems pertaining to complicated preparation method, high cost, and poor utilization of resources hinder the commercial application of these materials.<sup>4</sup> However, in the existing fabricating process, the best material is the advanced high-strength steels

(AHSSs), which consist of dual phase (DP), complex phase (CP), and transformation-induced plasticity steel (TRIP). The TRIP steel consists of an  $\alpha$ -ferrite matrix, distributed with  $\alpha$ -martensite, bainite, and some amount of retained austenite that can be transformed into  $\epsilon$ -martensite under the mechanical loading condition.<sup>5,6</sup> Moreover, the laser welding technique is one of the most important joining processes that falls under welding process, and it is considered to be an essential joining procedure in predetermined construction and is thus widely used in automotive, energy, electronic, aerospace, and medical applications.<sup>7</sup> Besides, the engineering application of laser light as a device intended for the functioning of resources started around two and a half decades ago; since then, CO<sub>2</sub>-laser is generally considered to be the widespread



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## Decision Making of Condition Monitoring using AHP and TOPSIS Method.

A. B. Gholap, M. D. Jaybhaye.

*Abstract: In today's maintenance era various techniques are used for prevention of breakdown in mechanical engineering. Condition Monitoring Technique selection is a challenging job. MCDM can be useful in selecting between different methods. In this paper attempt is made to use GTMA and TOPSIS for comparing the various CM techniques. Attributes like Diagnostic Quality, Quantity of failure which can be measured, Cost, Supportability of diagnostic method and Environmental Interference are used for current study. From the analysis is observed that ferrography and vibration analysis are the two most important techniques among various CM techniques.*

*Index Terms: CBM, MCDM, GTMA, TOPSIS.*

### I. INTRODUCTION

Multiple Criteria Decision Making (MCDM) techniques usually involve the decision-maker to assess options with regard to the criteria for the decision and also to assign the criteria weights of significance. Then the best option can be chosen based on the allocated weights. However, it often occurs after a choice is made that the decision-maker becomes dubious as to whether the correct weighting has been allocated to the criteria given that a range of eventualities can happen in the near future. This paper's primary objective is to tackle this issue and enhance the implementation of MCDM techniques by addressing possible changes in the weighting of criteria. Condition Monitoring is the method of controlling a parameter or situation (vibration, oil, temperature, sound pressure and acoustic signal) in the scheme to indicate a developmental failure. It involves three main steps; data acquisition, processing, and interpretation. Condition Monitoring gathers the raw data to be processed using signal processing methods to obtain the diagnostic information in the form of characteristics. Among the available methods, vibration analysis, acoustic signal analysis and lubrication oil analysis are widely used in rotating equipment fault diagnosis. Selection of Condition monitoring is a difficult task. MCDM can be very helpful for selection among various techniques.

### II. LITERATURE SURVEY:

Multiple-criteria decision-analysis (MCDA) also known as multiple-criteria decision making (MCDM) is an operational research sub-discipline that clearly assesses various conflicting requirements in decision-making [1]. In Triantaphyllou's book on multi criteria decision making topic,

some of the MCDM techniques in this category were explored in a comparative way. [2] Rao [3] used GTMA to develop a scheme of performance assessment for technical educational organizations that is used to rank technical institutions. Graph theory matrix method is used with various and interrelated characteristics to model and solve a decision-making issue. In our daily life, we mainly implicitly weigh various requirements and we might be satisfied with the implications of decisions on the basis of perceptivity alone [4]. Kaur et al. [5] proposed an index of Supply Chain Coordination to assess several processes of cooperation. To find the reliability of a mechanical hydraulic component, Gandhi and Agrawal [6] proposed a graph theory matrix approach. Graph theory has represented a major objective in system data analysis, network analysis, functional depiction, mathematical modeling, prognosis, etc. As proposed by Rao [7], graph theory has demonstrated its mettle in different areas of science and technology. Grover and Agrawal [8] constructed a TQM index to quantify the level of application of TQM approaches in an industrial sector. Upadhyay [9] proposed a systematic method for analyzing object-oriented software systems that is helpful to prevent drawbacks in the quality of the life cycle of software development. Yager [10] addressed the use of monotonic strategies in multi-criteria decision-making to reflect critical data. It demonstrates that the Choquet integral offers a suitable technique for combining the satisfaction of the individual requirements in cases where a measure expresses the connection between the significance of the criteria. N. Tandon et al. [11] Constructed certain condition surveillance methods for detecting defects induction ball bearings of engine. R.M.Ayo-Imoru and A.C.Cilliers [12] presents a study on the present scenario of condition-based monitoring in the nuclear industry for maintenance. It is accomplished through a systematic examination of the main CBM stages of surveillance, diagnosis and prognosis. A methodical review on these dimensions of CBM has been carried out. It covers present nuclear industry practices and continuing research on the various techniques and techniques being developed.

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# Thermal Analysis and Performance Evaluation of Triple Concentric Tube Heat Exchanger



Pradip K. Tamkhade, Pramod S. Purandare, Mandar M. Lele.

**Abstract.** Triple concentric-tube exchanger (TCTHE) is an improved version of double concentric tube heat exchanger (DCTHE). Introducing an intermediate tube to a DCTHE provides TCTHE and enhances the heat transfer performance. Recognizing the need of experimental results, extremely scarce in the literature and essential to validate theoretical analyses, the aim of this work is to investigate thermal behavior of TCTHE. The present study includes design, development and experimental analysis of TCTHE for oil (ISO VG 22) cooling application required for industrial purposes. It comprises of water (cooling fluid) flowing through innermost tube as well as outer annulus and oil (hot fluid) flows through inner annulus. The experimental studies of the temperature distribution for three fluids along the length and heat transfer characteristics for TCTHE under insulated condition for counter current flow mode are carried out and discussed. The effect of change in oil (hot fluid) temperatures is analyzed keeping water inlet temperatures same at various operating conditions. The experiments have been conducted by varying flow rate of one of the fluids at a time and keeping other two fluid flow rates constant. The results are expressed in terms of temperature variation for all three fluids along the length. The effect of change in hot fluid inlet temperature is expressed in terms of heat transfer rate variation with respect to Reynolds number. The variation of non-dimensional parameters as temperature effectiveness and thermal conductance with respect to Reynolds number is also presented in this paper. Theoretical studies are carried out for evaluation of heat transfer rate using empirical correlations. Experimental validation is carried out for degree of cooling at different Reynolds numbers with theoretical analysis.

**Index Terms:** Triple concentric tube heat exchanger (TCTHE), Temperature variation, Temperature effectiveness, Thermal conductance.

## I. INTRODUCTION

The heat exchangers are widely used for industrial as well as residential heating and cooling applications. The need to improve performance and to reduce space required for heat exchanger has been a motivation for researchers to

understand, suggest and analyze newer and newer designs.

In Industry, [1] the most common heat exchanger is double concentric tube heat exchanger (DCTHE) and Triple concentric-tube exchanger (TCTHE) is an improved version resulting improvement in thermal performance. TCTHEs find the applications in different sections as dairy, food, beverage and pharmaceutical industries. In triple tube heat exchangers, a thermal fluid is passed through inner annular space and heat transfer media are passed through the central pipe and outer annular space.

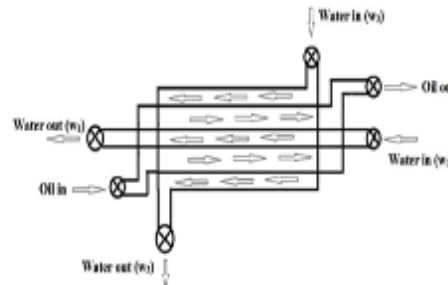


Figure 1. Schematic of counter flow mode in the TCTHE.

The performance of the heat exchanger depends on the various thermo physical properties of fluids and the material. There is need to enhance the effectiveness and compactness of double tube heat exchangers. One of the ways to enhance effectiveness and compactness is Triple Concentric Tube Heat Exchangers (TCTHE). These types of heat exchangers can be extensively useful for the process of pasteurization of food products, viz. dairy products, fruit juice, liquid egg storages and sauces. TCTHE provides an additional flow passage and a larger heat transfer area per unit exchanger length compared to a double concentric-tube heat exchanger. This ultimately enhances heat transfer performance. As the fluid velocities are higher for the flows through annular regions, there is improvement in overall heat transfer coefficients in TCTHE which enhances performance and compactness of heat exchanger. The performance analysis of a triple concentric tube heat exchanger under steady state conditions for insulated and non-insulated conditions was undertaken by G.A. Quadir et al. [1], [2]. The experimentation was carried out using hot water, cold water and normal tap water for different flow arrangements.

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