DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Project Synopsis

(2018-2019)

CANARA ENGINEERING COLLEGE, BENJANAPADAVU

Department Vision and Mission

VISION

To be recognized as a centre of knowledge dissemination in Computer Science and Engineering by imparting value-added education to transform budding minds into competent computer professionals.

MISSION

- Provide a learning environment enriched with ethics that helps in enhancing problem solving skills of students and, cater to the needs of the society and industry.
- Expose the students to cutting-edge technologies and state-of-the-art tools in the many areas of Computer Science & Engineering.
- Create opportunities for all round development of students through co-curricular and extra-curricular activities.
- Promote research, innovation and development activities among staff and students.

PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

1. Graduates will work productively as computer science engineers exhibiting ethical qualities and leadership roles in multi-disciplinary teams.
2. Graduates will adapt to the changing technologies, tools and societal requirements.
3. Graduates will design and deploy software that meets the needs of individuals and the industries
4. Graduates will take up higher education and/or be associated with the field so that they can keep themselves abreast of Research & Development

PROGRAMME OUTCOMES (PO)

Engineering graduates in Computer Science and Engineering will be able to:

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.

2. **Problem analysis:** Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.

3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal and environmental considerations.

4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods, including design of experiments, analysis and interpretation of data and synthesis of the information to provide valid conclusions.

5. **Modern tool usage:** Select/Create and apply appropriate techniques, resources and modern engineering and IT tools, including prediction and modelling to complex engineering activities, taking comprehensive cognizance of their limitations.

6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. **Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts and demonstrate the knowledge of and need for sustainable development.

8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the relevant scientific and/or engineering practices.

9. **Individual and team work:** Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary settings.

10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with the society-at-large, such as being able to comprehend and write effective reports and design documentation, make effective presentations and give and receive clear instructions.

11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work as a member and leader in a team to manage projects and in multidisciplinary environments.

12. **Life-long learning:** Recognize the need for and above have the preparation and ability to engage in independent and life-long learning in the broadcast context of technological changes.

PROGRAMME SPECIFIC OUTCOMES (PSO)

1. **Computer System Design: Ability to apply the knowledge of computer system design principles in building system software and hardware components.**

2. **Computer Communication and Internet Applications: Ability to apply knowledge of layered network models, their protocols and technologies in building network and Internet based applications.**

3. **Solve Computational Problems: Apply the theoretical foundations of computer science in modelling and developing solutions to the real world problems.**

4. **Software System Design and Development: Design and develop the application software systems that meet the automation needs of society and industry.**

TABLE OF CONTENT

Detection of Brain Tumor using Image Processing

(CEC/CS/2018/P01)

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Abstract:

This project is focused on implementing "Detection of Brain Tumor using image processing". Brain tumor is a collection of abnormal tissue in the brain which can be classified as malignant and benign when these grow it can be life threatening hence it is necessary to detect the tumors and detection of tumors is a challenging task, This project is used to determine whether the brain has tumor or is it tumor-free from the MR image using hybrid technique of K-means and SVM, first the image converted to grey scale and the spots are detected and they are represented in terms of their intensities then to distinguish between the normal and abnormal brain the set of feature extraction is done by using K-means algorithm, then the tumor detection is done using Support Vector Machine which is an effective training technique which can be implemented with a small training set.

Objective:

- The purpose of this project is to detect the brain tumour by using the K-means clustering algorithm and by using the concept of machine learning.

- This project analyses the data and gives an effective and accurate output.

Outcome:

- This project helps in detection of brain tumour effectively by using the concept of K-means clustering.

- It also compares the clustered image with the training examples using the Support Vector Machine and gives the amount of tumor spread.

Methodology:

The proposed system is helpful in detection of brain tumor. In this system, we use techniques like K-means which is a clustering algorithm and Support Vector Machine (SVM) which is a machine learning method. The K-means is used to extract the features from the image by clustering the spots and we use a machine learning technique called Support Vector Machine (SVM) to effectively classify the tumor. This system identifies the abnormalities in the brain which is detected using the MR image. The system provides accurate results.

Result:
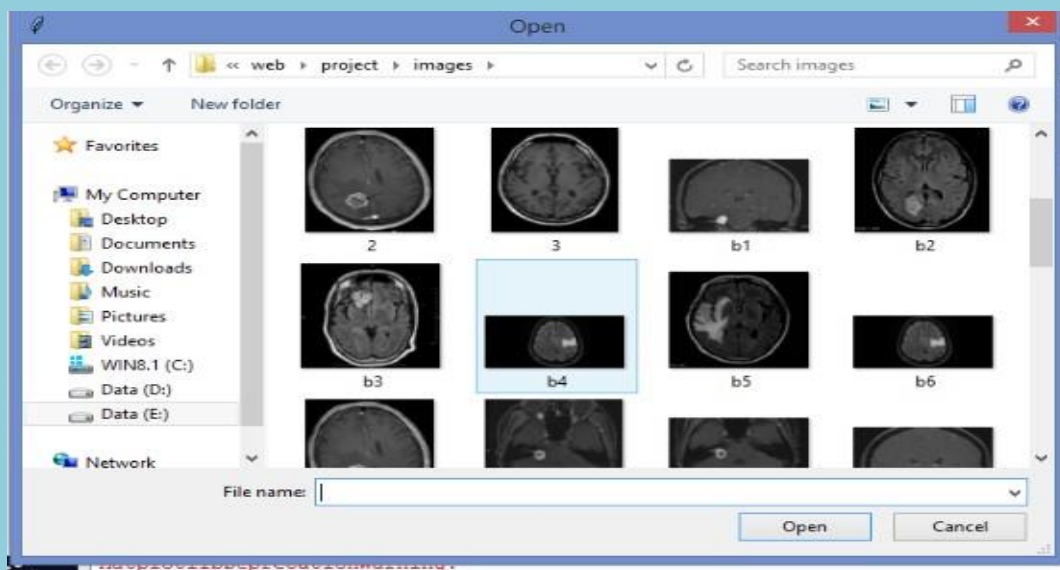
Fig 1: User Interface for selecting patient's MR Image
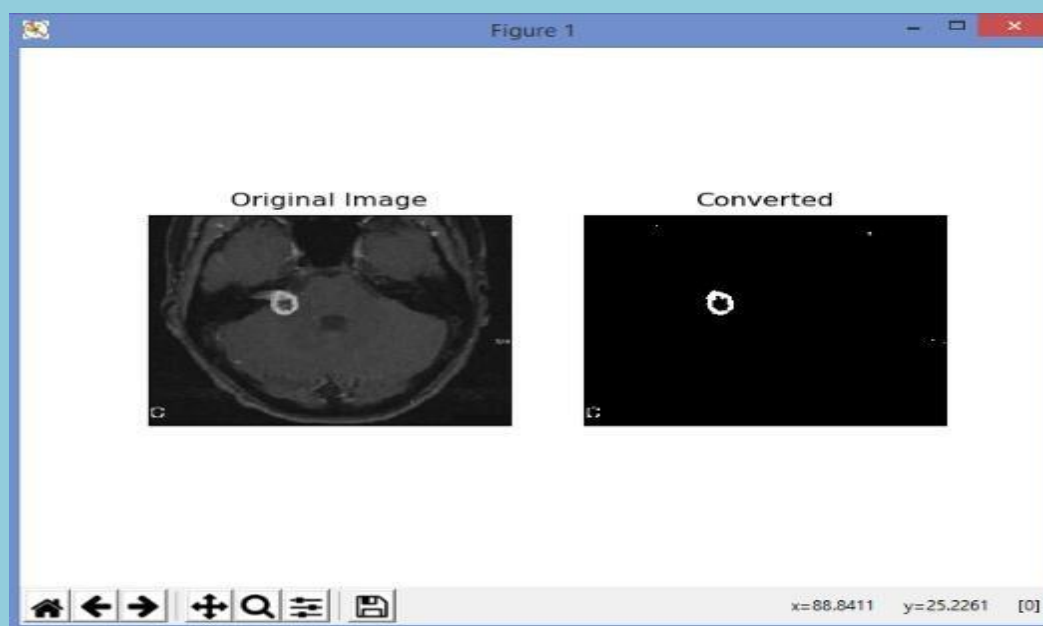
Fig 2: Image conversion
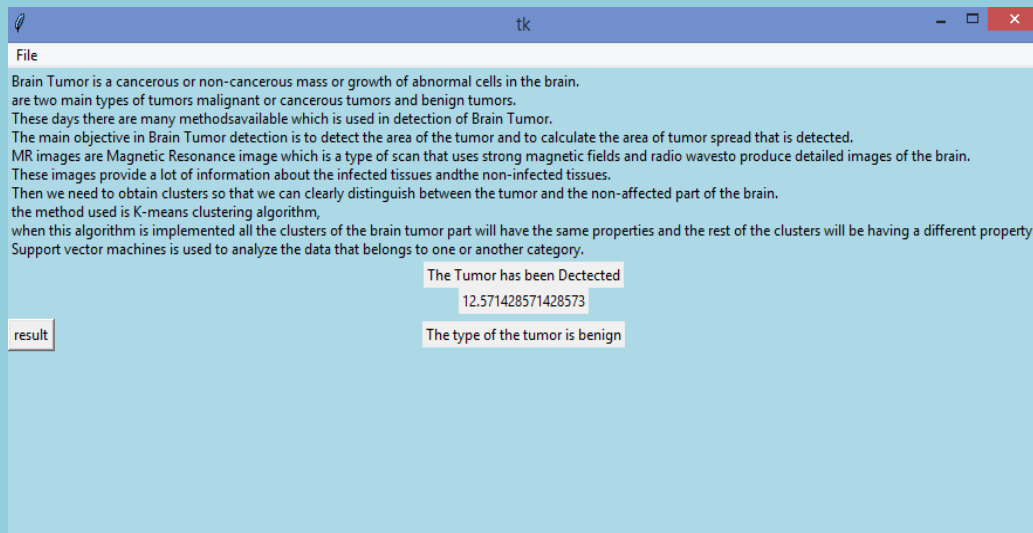
Fig 3: Output screen

The Fig 1 shows the user interface through which the user selects the specific MR image of the patient. The Fig 2 shows the selected image and the image after conversion is displayed to the user. After user closes this window the report will be displayed as shown in Fig 3 which will have details like amount of area affected and type of the tumor detected.

Student Skill Development Analysis System
(CEC/CS/2018/P02)

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Abstract:

This project is focused on implementing "Students Skill Development Analysis System". These days we have manual evaluation of the resume. It is time consuming and it requires human intervention. In order to overcome this problem we have come up with the idea of automatic evaluation of resume. The user logs in and uploads his/her updated resume in the format specified by the admin. Our system evaluates and extracts the data required for future use. The user will then undergo a test based on the technical skills that he/she mentions in the resume. These tests will be uploaded by the experts, who also logs in to the system. The result of the test will be automatically generated. If his /her mark satisfies any of the company's cut off, then the name of the company/ies for which the user is eligible will be disclosed to him. Then admin will send the information of those candidates to the company as recommendation.

Objective:

- The purpose of this project is to reduce the company's hiring process since technical based test will be already conducted by our system. The eligible candidates are thus recommended to the company.

- This project helps in Automatic evaluation of resume and extraction of the data for the further processing and other operations carried out in the system.

Outcome:

- To evaluate the understanding of candidate in the area of expertise and to sort the student according to their performance and suggest their names as the eligible candidates to the required company.

- It reduces the time and cost spent by the company in the recruitment process. It eases the effort that is put on to generate the questions to test the candidate's technical skills.

Methodology:

The proposed system is very useful for the candidates and company. Here we implement the concept of white block i.e. IF-THEN rule for decision making. Our system automatically extracts the keywords and then evaluates the resume, based upon his/her skills. Then it will test the candidates by generating questions based on the skills developed by them. The students who score above the mentioned cut-off will be placed in the white box. Hence the white box will contain the names of eligible candidates. Our system also sees that there is no loss/leakage of data by providing internal security to the database.

Result:
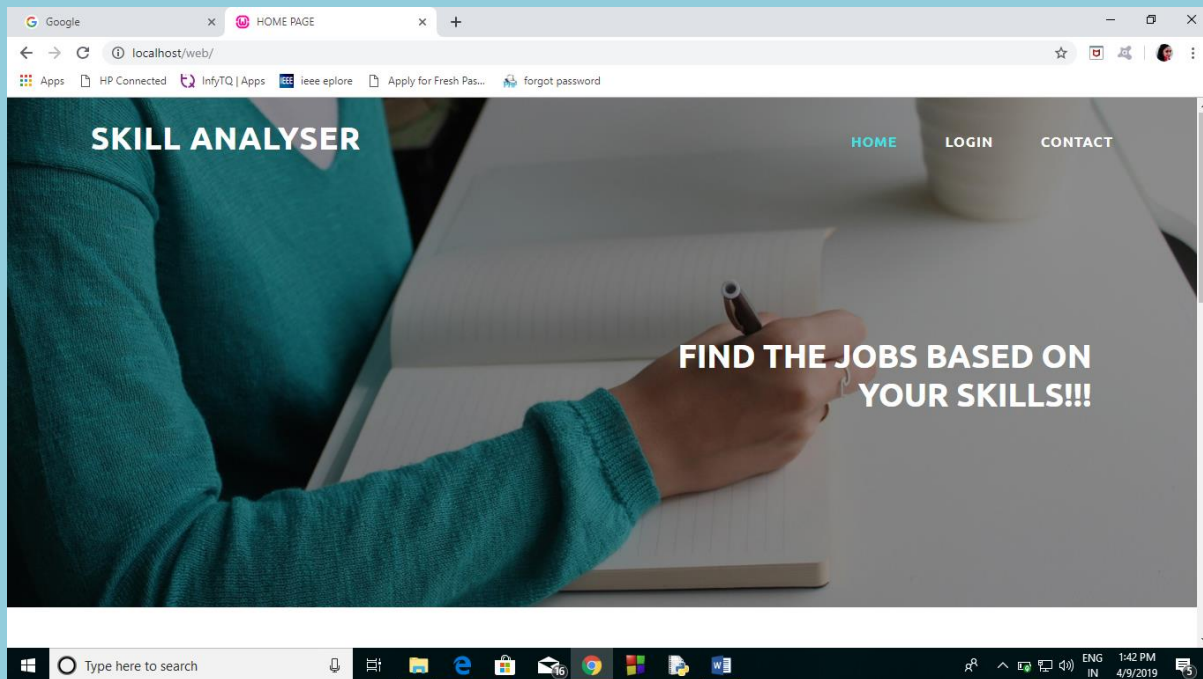
Fig 1: Home Page of Student Skill Development Analysis System

Figure 1 shows the Home page that provides the UI for the user to login and register to the system and the enquiry page where user can send any query to the Admin. The test dates will also be displayed in the home page as shown in the Figure 2.
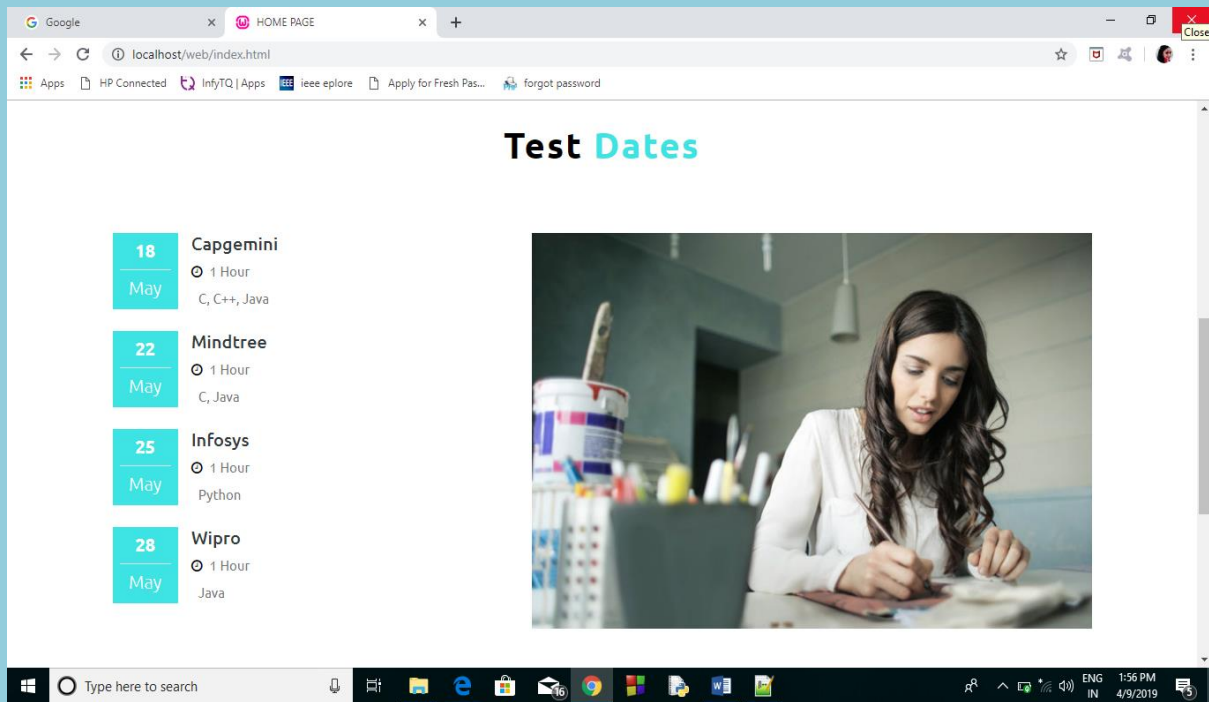
Fig 2: Test DatesPage of Student Skill Development Analysis System
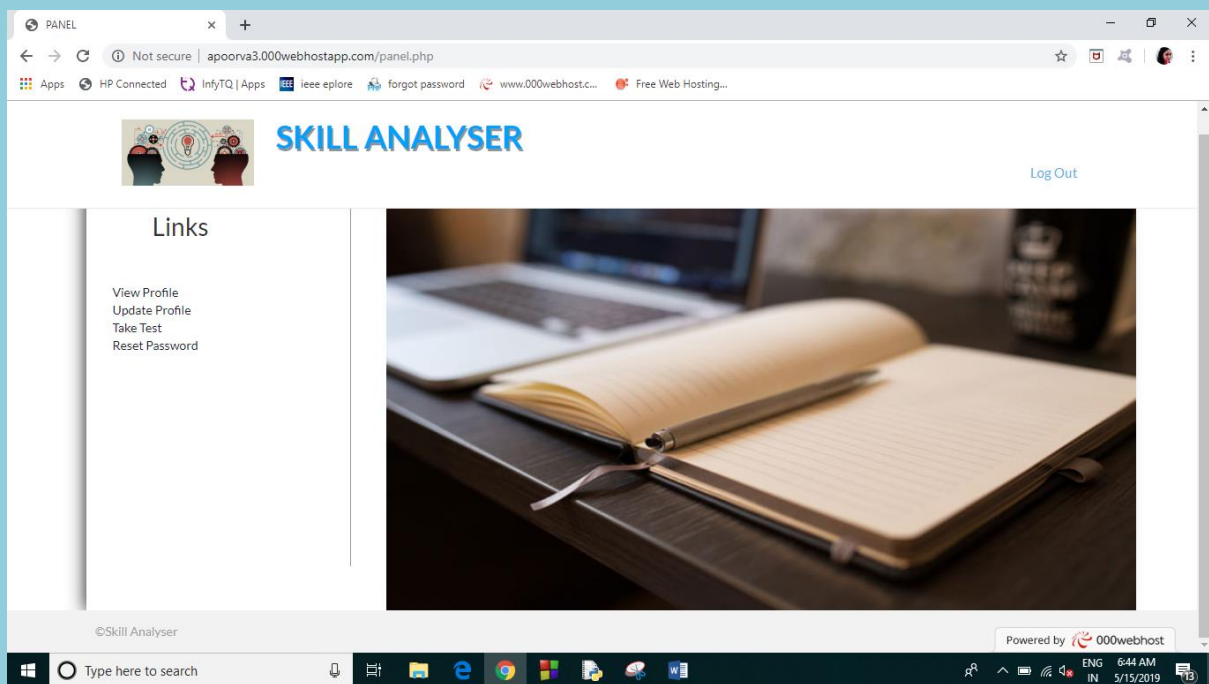
Fig 3: Student PanelPage of Student Skill Development Analysis System

Figure 3 shows the Panel for the student with certain links to perform different tasks. Similarly the other users such as Admin, Company and Mediator has separate panel designed to perform specific tasks.
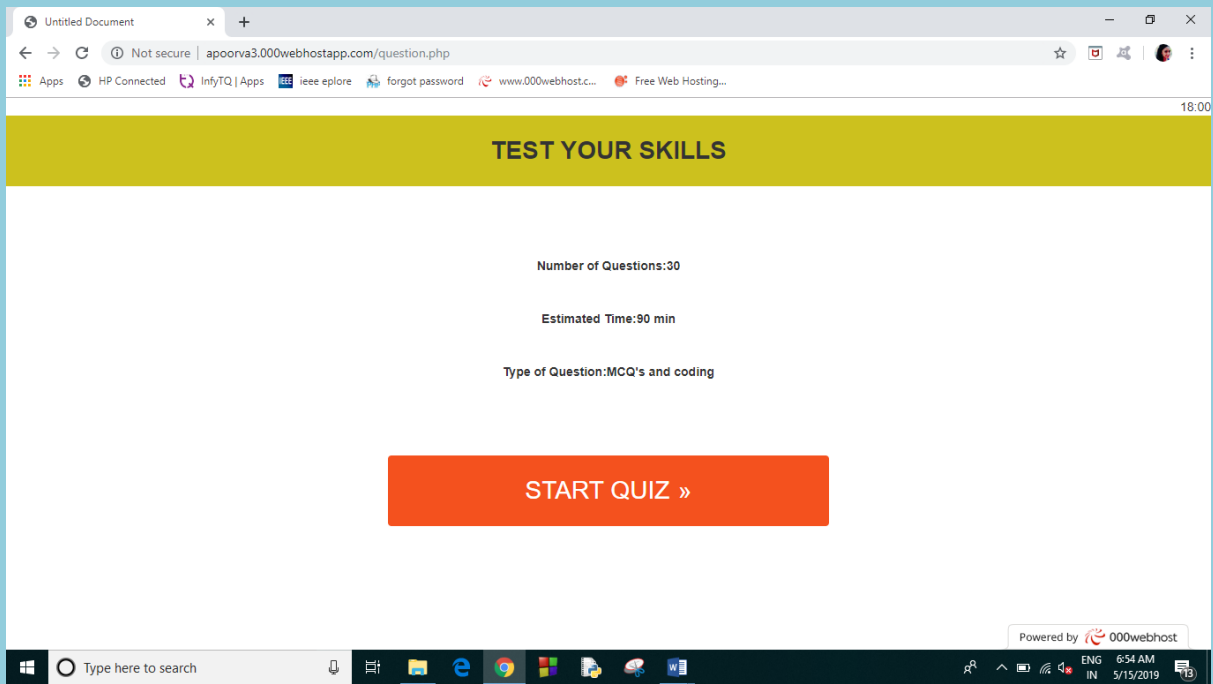
Fig 4: Test Page of Student Skill Development Analysis System

Figure 4 shows the test page where student skill is evaluated and the test is given based on the streams the students mention in their resume.

Fig 5: Report Generation Page of Student Skill Development Analysis System

Figure 5 shows the report generated to the company that has student details who can proceed to take the test for that particular co

Gas Leakage Detection and Controlling System
(CEC/CS/2018/P03)

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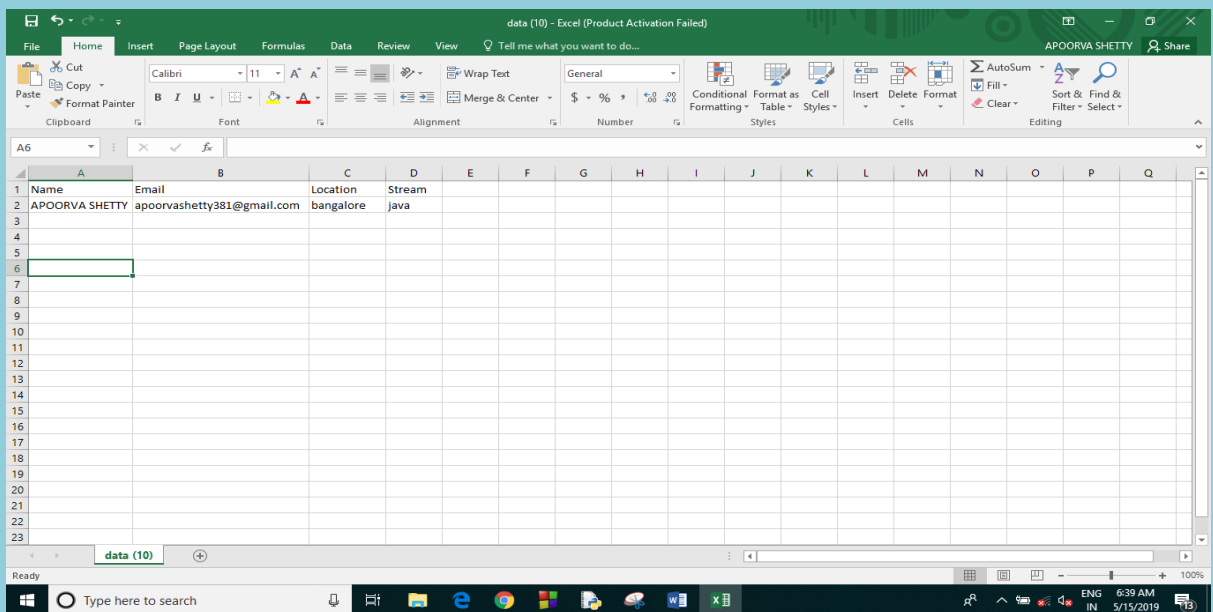Dept of CSE,CEC
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Abstract:

Safety plays a major role in today's world and it is necessary that good safety systems are to be implemented in places of education, work and home. Work modifies the existing safety model installed in homes. The purpose of this project is to develop a system for the gas detector and controlling. The gas sensor used for development of this system is the combustible gas sensor MQ-2 that is used in order to detect the presence of liquified petroleum gas (LPG) and butane gas. This sensor can detect gas concentrations anywhere from 200 to 5000 ppm according to the voltage output of the sensor. The output of the sensor is connected to Raspberry PI. The system is programmed with python, where as the system evaluates the sensed data, if the sensed data is more than threshold value, an email will be sent to the user and motor will activate in order to turn off the gas regulator valve.

Objective:

- To develop an automatic system that can detect and alert gas leak.

- Control action is taken to stop leakage.

- To make the gas leakage information accessible from anywhere.
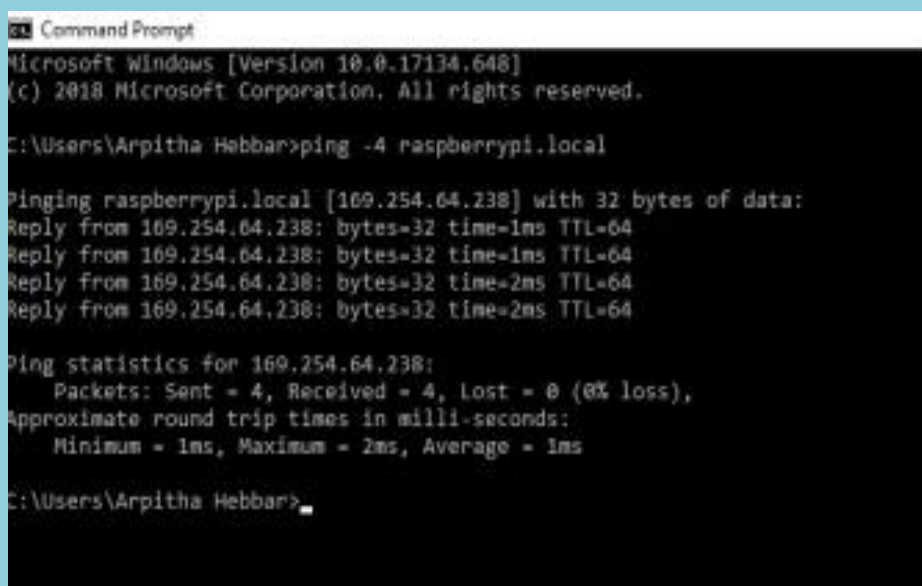
Outcome:

- A quick detection and alert would minimize the dangers of gas leak.

- Automatic controlling leakage system implemented through Motor.

Methodology:

The proposed method takes an automatic control action upon detection of gases. The regulator valve would be switched off in order to completely stop the flow of the leaked gas. It also has various ways to alert by sounding off the buzzer and also send notifications to the user through message. Advantages of proposed systems are Control action is being taken to stop leakages, if gas leakage is detected it will alert by sounding off the buzzer and also send an email to the user, it can be merged with other home automation system

Result:

Fig -1: Command to get the IP address

Fig -2: Implementation of proposed system
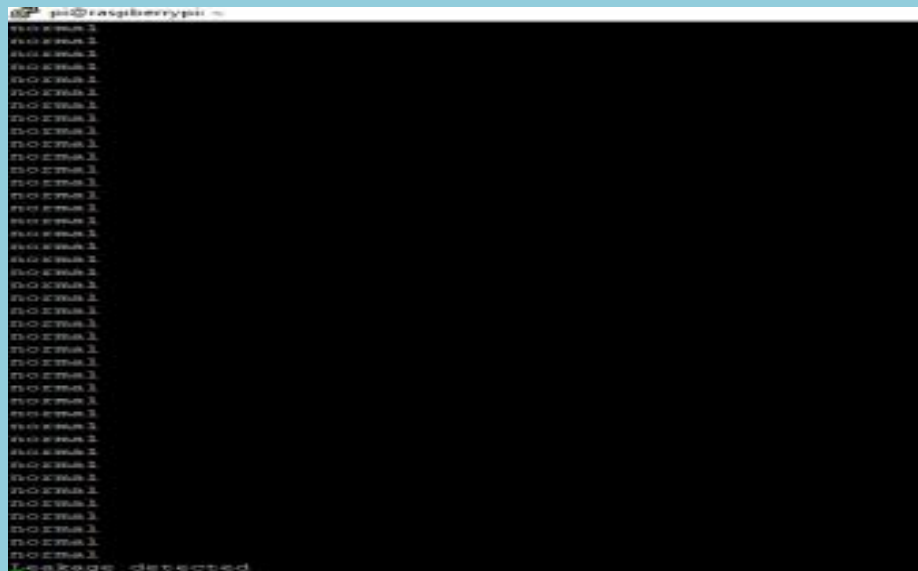
Fig -3: Output screen

The Fig.1 shows the command to get the IP address of the Raspberry Pi kit i.e ping -4 raspberrypi.local. The Fig.2 shows the overall connection between all the hardware components. When the gas leakage is detected by the sensor, the signal will be sent to the Raspberry Pi which will alert user by beeping the buzzer and sends notification to the user through email. The stepper motor will be rotated to turn off the gas regulator valve. Fig.3 shows the output screen of python program.

Automated Question Paper Generator Using Genetic Algorithm (CEC/CS/2018/P04)

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Abstract:

Manual preparation of exam questions requires a lot of work to be done to make sure that all the guidelines given by educational institutions are followed by educators during preparation of exam questions. It requires lots of educator's efforts and time since it is tedious and meticulous which can sometimes lead to human mistake. The works of question paper setting and evaluation become more important, particularly when students come from different background and board. The purpose of this project is to ease the educator's work in the process of preparing exam question paper using Genetic algorithm. The generator can auto generate new exam questions set using Genetic Algorithm and covers six levels of Bloom's Taxonomy to produce high quality exam questions that can evaluate different level of learners based on Bloom's cognitive domains and the selection of chapters made by educators.

Objective:

- The purpose of this project is to ease the educators working the process of preparation exam questions.
- Generate Exam Questions based on Bloom's Taxonomy level and chapters chosen without repeating previous questions in two consecutive years.

Outcome:

- Generate question paper using blooms level.
- Generate the question paper which do not contain questions from last 2 consecutive years.

- The question paper generated is of high quality.

Methodology:

The proposed framework is extremely valuable for the teachers and students. This dodges the test question paper spillage which was influencing students who are making a decent attempt to get great stamps on those tests. As teachers work can get limited the worry of setting question paper and directing tests become so straightforward and furthermore can keep basic archives. We isolated this segment into three phases where we will portray the theoretical framework in the primary stage, the improvement and development of the Automated Exam Question Generator in the second stage and the Genetic Algorithm for the Automated Exam Question Generator in the last stage.

Architectural Design:

Previous exam questions will be processed and stored in questions bank for the input Automated Exam Questions Generator. The educator may also create new exam question and store into question bank for future use. The educator can choose the chapters to be covered in exam questions. The Automated Exam Questions Generator will generate new exam questions based on six levels of Bloom's Taxonomy and chapters selected by the educator.
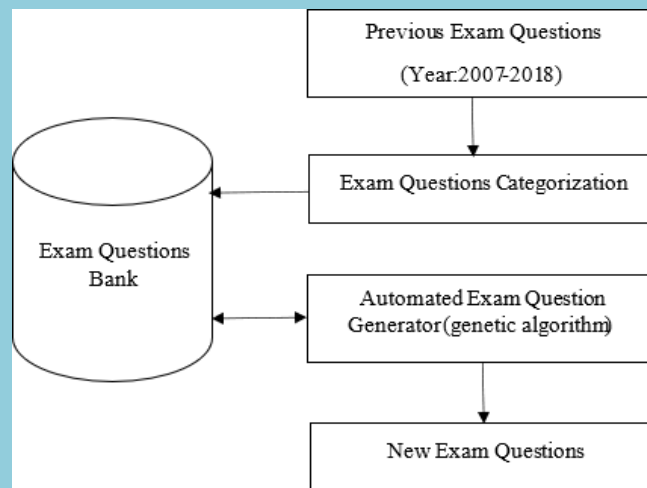
Fig -1: Architectural Design of paper generator

We will utilize Java as the programming language to develop the prototype, NetBeans will be used as an Integrated Development Environment (also known as IDE) and MySQL will be used for structural database to develop Automated Exam Question Generator.

Type	Description
Programming Language	Java version 1.8.0_65
IDE	NetBeans 8.1
Database	MySQL version 5.6.16

Table -1: Software Requirements

Genetic Algorithm:

The generic process of Genetic Algorithm is listed below:

• Step 1: Initialization

• Step 2: Evaluation

• Step 3: Selection

• Step 4: Crossover

• Step 5: Mutation

• Step 6: Repeat step 2 until a desired solution is obtained
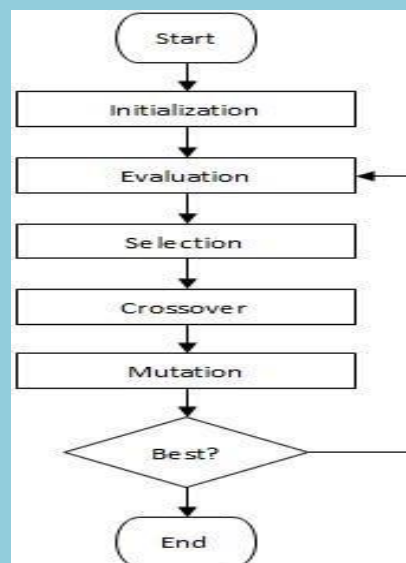
Fig-1: Flowchart of Genetic Algorithm

At first, five beginning populations will be made by arbitrarily choosing questions from separated question bank. A basic query has been executed already to channel every one of the questions in the bank so the age of new test addresses will comprise of just questions from picked chapters and reject past questions from question papers of two continuous years to avert prescient paper design. Every population comprises of gathering of chromosomes and

every chromosome comprises of genes. Every chromosome refers to question paper and every gene refers to a question in the test set.

Secondly, every chromosome of the population will be assessed and fitness value will be determined for that singular chromosome. The fitness value will be determined dependent on Bloom's Taxonomy Classification and nature of test questions weightage rate is as follows

Table -2: Bloom's Taxonomy Classification

Level1	Knowledge	Easy
Level2	Comprehension	
Level3	Application	Medium
Level4	Analysis	
Level5	Synthesis	Hard
Level6	Evaluation	

The nature of test questions weightage rate is resolved dependent on the inclusion of Bloom's scientific classification where Knowledge and Comprehension levels are assembled as Easy; Application and Analysis levels are gathered as Medium; and Synthesis and Evaluation levels are assembled as Hard.

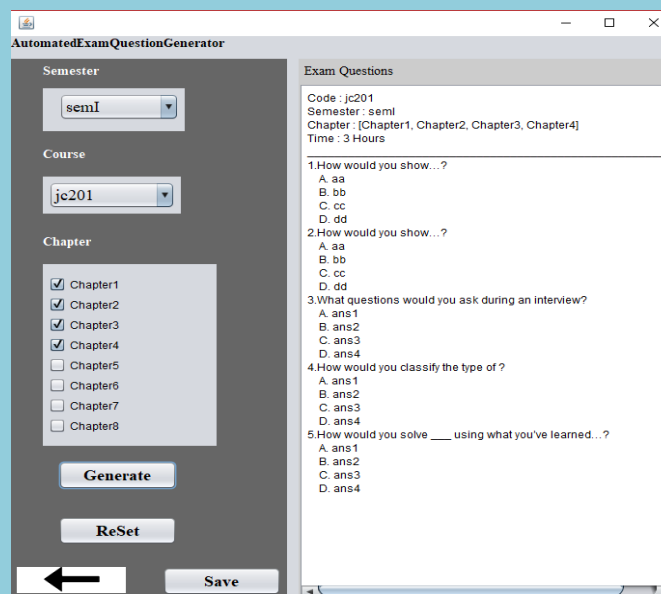The interface design of Automated Exam Question Generator is shown in Figure 3 below:

Fig -3 Automated Exam Question Generator

A new question paper is generated by choosing required course name, subject code and chapters. On-click of the generate button exam paper is generated. Reset button helps to reset the generated paper.

Result:

The degree program typically comprises of five Multiple Choice inquiries, in this way the absolute number of test questions is introduced as five. The Automated Exam Question Generator expects teachers to pick course code, exam question set and sections before test questions can be created. The nature of test questions weightage rate depends on the dimension of psychological area secured and it has been characterized as fitness value for this model. The low fitness value implies that high quality test addresses will be produced. Each experiment utilizing diverse number of sections chose. The created exam questions from this model appeared in Figure 8.the normal estimation of exam questions weightage rate is 70%. The most elevated exam questions weightage rate is 90% and the least exam questions weightage rate is 40%. The end result of this research affected by the smaller number of existing questions for each Bloom's Taxonomy level in question bank

Maturity Detection and Classification of Mango
(CEC/CS/2018/P05)

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Abstract:

Maturity is a prime aspect to determine the shelf life or whether the mango can be packed for the transportation. The purpose of this project is to develop software for the classification and maturity detection of mango. The image of the mango is fed to the software as input, which is then processed by the CNN algorithm for feature extraction. Based on the extracted features a graph is plotted, which defines the classification and maturity status of the mango. The output of this software is a brief description about the breed of the mango and its maturity status, which decides whether the mango can be packed or should be preserved.

Objective:

- To develop software for classification of the mango based on breed.

- To enable the users to identify the maturity status of the mango.

- To reduce the time taken in order to decide the maturity of the mango.

Outcome:

- Briefs about the breed of the mango and the maturity status.

- Provides accuracy rate of the detection.

Methodology:

In this software image is taken as input, the image is then given to the Convolutional Neural Network where the feature are extracted from the image. Based on the extracted feature a graph is plotted which defines the classification and maturity status for that image. The output of this software is a brief description about the breed of the mango and its maturity status from which it can be decided whether to pack the mango or not.

Result:
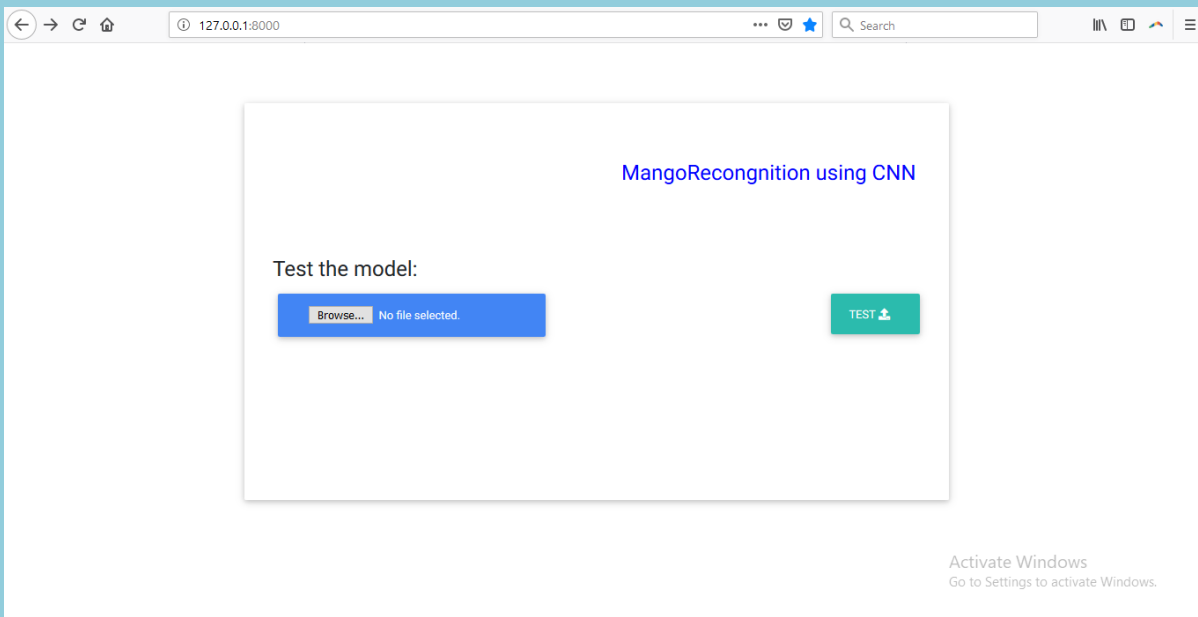
Fig -1: Front End
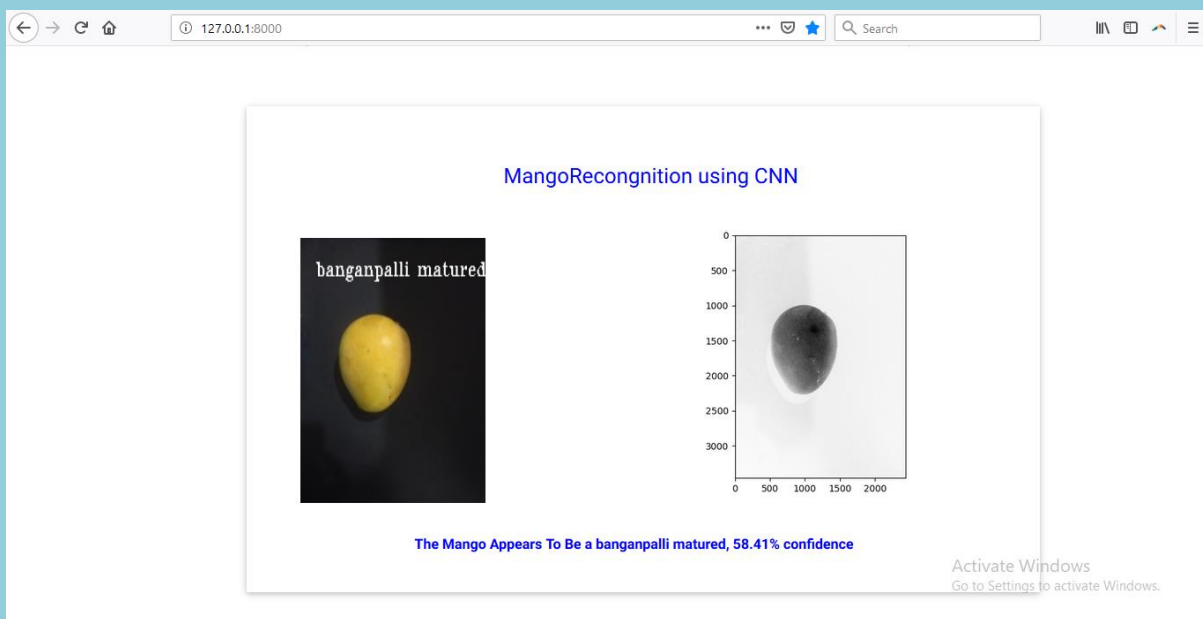
Fig -2:
Output screen

The Fig.1 shows the front end where the user can browse the image which is needed to be tested. The Fig.2 shows the output screen where the image fed by the user is shown with the maturity status, breed to which it belongs and accuracy value.

Our aim is to categorize mangoes according to four different breeds and three different maturity status so that a system of mango categorization can be built. To meet that expectation, we have implemented

a technique using Convolutional Neural Network with Open-CV Python. Table 1 shows the average accuracy of classification for each breed.

Table 1: accuracy with the proposed method

Test	Number of Training Images	Number of Test Images	Correct result	Incorrect result	Accuracy
Thothapuri	150	30	25	5	83.33%
Badami	150	30	20	10	66.66%
Pairi	150	30	22	8	73.33%
Banganpalli	150	30	25	5	83.33%
Average Accuracy					76.66%

Voice Recognition based E-Notice Board using Android
(CEC/CS/2018/P06)

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Ms. Annapurna M

Asst.Professor

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Abstract:

Notice boards are being handled manually in many applications. In order to put up notices on the notice board, lot of resources such as paper, printer ink is wasted and in addition it consumes a lot of time to update. So there exists a need for an electronic notice board. So, in our project we are introducing an e-noticeboard which is controlled by an android application that is preinstalled in the smart phone. The android application coverts the speech into a text message which is transferred over Wi-Fi to an LED display which is interfaced with Microcontroller. Electronic notice board typically consists of LED display which is a flat panel display that uses light emitting diodes as the video display. LED do not use fluorescent bulbs due to which they are lighter and thinner in weight. LED consumes less energy and saves a lot of power. Wi-Fi provides the widest channel bandwidth and allows large data transfer. Thus, in our project we have preferred LED over LCD display. Wi-Fi is used for faster data transfer and larger area coverage.

Objective and Outcome:

The main objective of this project is

- To develop a wireless electronic notice board that displays notices.
- To receive the message in the form of speech, convert it into text message.
- To send the converted text message to the LED display toolkit through Wi-Fi module.

The outcomes of this project are

- The electronic notice board will display the notices sent from the smart phone application.
- Wireless communication is established between the smart phone and LED display using Wi-Fi connectivity.

Methodology:

Our proposed work consists of two modules, the transmitter and the receiver. The transmitter part mainly consists of smart phone having pre-installed application which takes voice and text as input and it has Wi-Fi connectivity. The application converts speech into a text message. Receiver part is placed at the remote end, which consists of Microcontroller which is interfaced with display device having

Wi-Fi connectivity. It receives the converted text message which will be displayed on the LED notice board. Access to the application is given using login credentials thus allowing only the specified users to access the notice board.

Result:

Voice Recognition based E-Notice Board displays the notices on LED display. The LED display toolkit used in our project is a moving display with variable speed. This notice board displays the notices sent from the pre-installed android application which receives the notice in the form of speech or text and coverts the speech message into text and then sends it to the LED display through Wi-Fi connectivity to display notices.
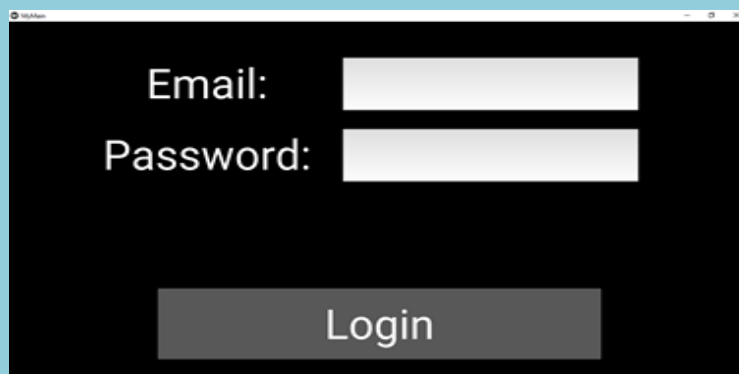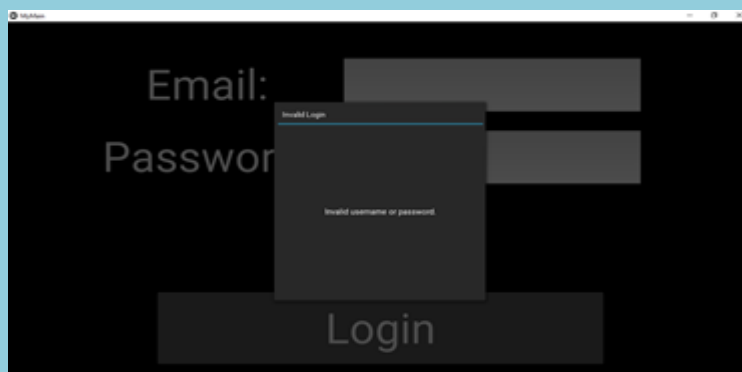

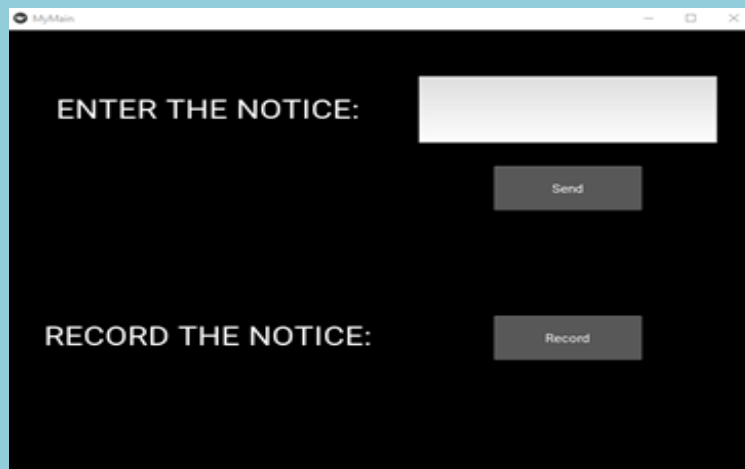Fig 1: Login Form

Fig 2: Invalid Login

Fig 3: Input Page
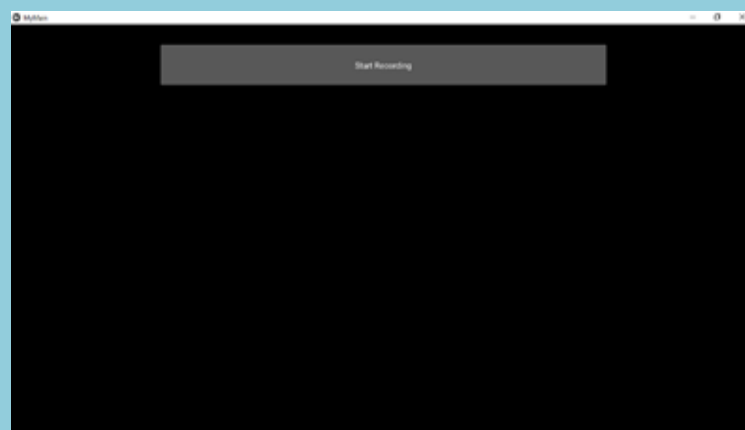
Fig 4: Record Message
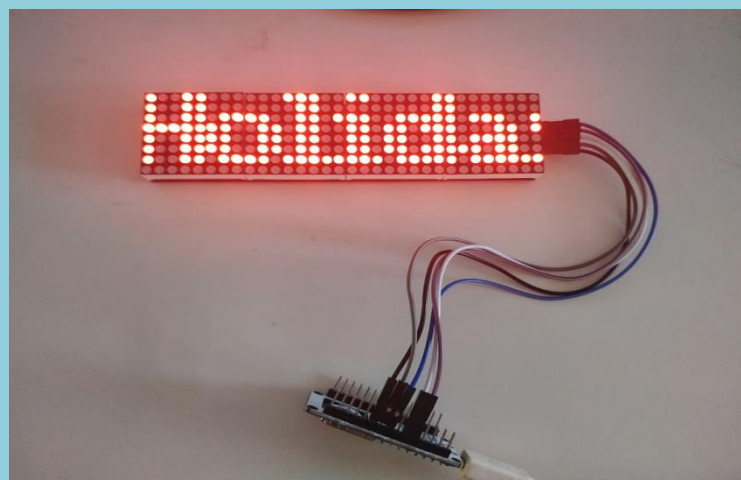
Fig 5: Wireless E-Notice Board

In figure 1, user will enter the login credential, which is email id and password. If it is valid then the user will be redirected to the recording page. Otherwise, a pop-up window will be shown indicating invalid login which is shown in figure 2. Figure 3 shows that user is provided with two options to enter the notice. That is, user can enter the notice in the form of text or he can record the notice. Figure 4

shows that user can record the message by clicking on 'Start Recording' button. Figure 5 shows an electronic notice board that displays the notices on LED display.

Wireless operations permit services, such as long-range communications, that are impractical to implement with the use of wires. It provides fast transfer of information and are cheaper to install and maintain. This project provides an easy way of displaying messages on Notice Board using Wireless Technology. It also provides user authentication in order to avoid any misuse of proposed system. This system can be used in organizations such as college, school, offices, banks as well as in public places such as railway stations, bus stands and shopping centers.

Attendance Management System Using Face Recognition
(CEC/CS/2018/P07)

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Abstract:

Face Recognition Technologies have been dramatic improvements in performance over the past years. Face recognition is an important branch of biometric verification and has been widely used in many applications, such as video monitor system, human-computer interaction, and door control system and network security. An automated system for human face recognition in a real time background for a college is to mark the attendance of their students. Since taking Attendance manually is a very tedious job and wastes a lot of time too. So we designed an efficient module that comprises of face recognition to manage the attendance records of students. This work described aims at automating the whole process. A time period is settled for taking the attendance and after the completion of time period attendance will directly store into storage device mechanically without any human intervention. There will be a Camera installed which will take a picture of whole class, followed by detecting individual face in the image, recognizing the student and then updating their attendance. Each student is having their own student id. Once the face is recognized from camera then that face is compared through all stored images in database. Then once matched face are used to mark attendance of the respective students. Our system maintains the attendance records of students automatically. These records of students are all maintained in excel sheet. This product gives much more solutions with accurate results in user interactive manner rather than existing attendance and leave management system.

Objective:

The overall objective is to develop an automated class attendance management system comprising of a desktop application to perform the following tasks:

1. To capture Images from Camera.

2. To detect faces from the captured image.

3. To recognize the detected faces by the use of a suitable algorithm.

4. To update the class attendance register sheet after a successful match and notify parents on Requirement.

5. To update attendance for every class.

Outcome:

1. It should be able to capture clear image from camera.

2. Faces of student must be able to detect properly.

3. It should able to identify changing faces of students.

4. After every subject attendance must be updated for every subject.

5. It should be able to notify parents when data crosses specified limit.
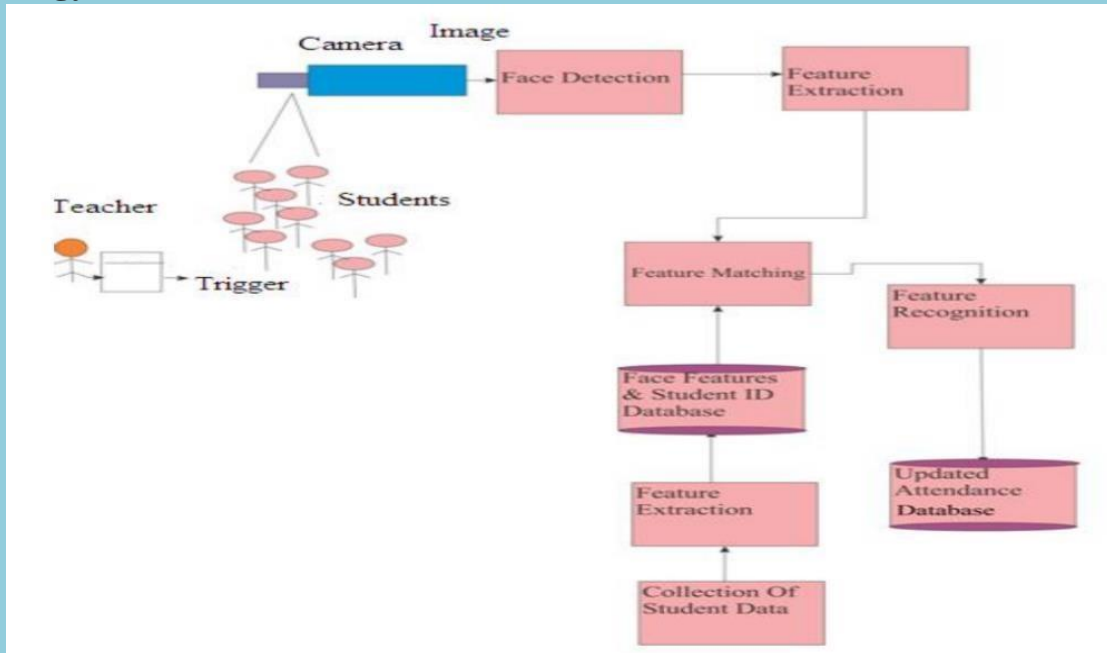
Methodology:

Fig: Architecture of Attendance System using Face Recognition

In the first step the image is taken from camera and as image is taken with help of camera there will be lighting effects that in image that is captured. Because of this there will be dissimilar lighting condition and there will also be some noise that has disconnected from further phases. For elimination of noise medium filter taken and unlikeness enlargement three-dimensional area histogram normalization has been taken.

LBPH CASCADE CLASSIFIER:

As any other classifier, theLocalBinaryPatterns, or LBP in short, also needs to be trained on hundreds of images. LBP is a visual/texture descriptor, and thankfully, our faces are also composed of micro visual patterns. So, LBP features are extracted to form a feature vector that classifies a face from a non-face. Each training image is divided into some blocks. For each block, **LBP looks at 9 pixels** (3×3 window) at a time, and with a particular interest in the pixel located in the centre of the window.

Then, it compares the central pixel value with every neighbour's pixel value under the 3×3 window. After that, it reads the updated pixel values (which can be either 0 or 1) in a clockwise order and forms a binary number. Next, it converts the binary number into a decimal number, and that decimal number is the new value of the centre pixel. We do this for every pixel in a block.

Then, it converts each block values into a **histogram**, so now we have gotten one histogram for each block in an image. Finally, it concatenates these block histograms to form a one feature vector for one image, which contains all the features we are interested. So, this is how we extract LBP features from a picture.

After the verification of faces and successful recognition is done, the attendance will be marked on the excel sheet. If the student misses any particular class notification is sent to their parents. At the end of the week the attendance in excel sheet are then calculated into percentage. If the average of any student is below the requirement system will notify parents of respective student.

Result:

The Attendance Management System will allow teacher to maintain a record of attendance of student in their respective classes from a PC. Also, the system will permit the teacher in charge to maintain all the essential details regarding a particular student. The scope of the project is the system on which the software is installed, i.e. the project is developed as a desktop application, and it will work for a particular institute. The goal is to provide a professor with an easy portable solution to attendance record maintenance and attendance statistics.

Study and Performance Evaluation of Different Symmetric Key Cryptographic Technique for Encryption
(CEC/CS/2018/P08)

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Abstract: Technology is advancing day-to-day. For a better and faster technology, information security is a must. This requires data authentication at the execution levels. Cryptography is a useful tool through which secure data independency can be established. It uses two basic operations namely encryption and decryption for secure data communication. A large number of cryptographic techniques have been proposed and implemented so far.

The two main characteristics that identify and differentiate one encryption algorithm from another are its ability to secure the protected data against attacks and its speed and efficiency in doing so. Proposed project provides a performance comparison between the encryption algorithms such as AES, DES, Blowfish, combination of DES and Blowfish and One-time pad. The comparison is done based on the file type, file size and time for encryption and decryption.

Symmetric key cryptography is a common cryptographic technique using the same key at both the transmitter and receiver side. The main advantage of symmetric key encryption is its less computational cost compared to its counter-part public key encryption. Symmetric key encryption algorithm provides authentication as long as the key stays secret and data is encrypted quickly.

Objective and Outcome:

Objective:

- Implementation of different symmetric key cryptographic so that unauthorized users cannot access data

- Performance analysis of different cryptography technique.

Outcome:

- Encrypted message by different symmetric cryptographic algorithms.

- Efficiency of algorithms can be determined.

- A comparative study on different symmetric key cryptographic algorithms is performed based on some criteria and an algorithm which provides best outcome is considered to be an efficient algorithm.

Methodology: Many encryption algorithms are widely available and used in information security.

They can be categorized into symmetric and asymmetric keys encryption. In our project we concentrate on major symmetric key encryption algorithms like AES, DES, Blowfish, combination of DES and Blowfish and One-time pad. The project is divided into two major parts. The front end is done with the help of Java applets. The core Java is used as a language to implement different algorithm. Concept of multithreading is also used to accurately measure the parametric values.

AES algorithm stands for Advanced Encryption Standard which is iterative in nature. It comprises of a series of linked operations, some of which involve replacing inputs by specific outputs and others involve shuffling bits around. The Data Encryption Standard (DES) is a symmetric-key algorithm for the encryption of electronic data. Although insecure, it was highly influential in the advancement of modern cryptography. Blowfish is a symmetric block cipher that can be used as a drop-in replacement for DES. The one-time pad (OTP) is an encryption technique that cannot be cracked, but requires the use of a one-time pre shared key the same size as, or longer than, the message being sent.

AES Algorithm:

1. Derive the set of round keys from the cipher key.

2. Initialize the state array with the block data (plain text).

3. Add the initial round key to the starting address.

4. Perform nine rounds of state manipulation.

5. Perform tenth and final round of state manipulation.

6. Copy the final state array out as the encrypted data (cipher text).

DES Algorithm:

1. Fractioning the text into 64-bit blocks

2. Initial permutation of blocks.

3. Breakdown of the blocks into two parts: left and right, named L and R.

4. Permutation and substitution steps repeated 16 times.

5. Re-joining of the left and right parts then inverse initial permutation.

Blowfish Algorithm:

There are two parts in this algorithm.

- KEY EXPANSION: The first step in the algorithm is to break the original key into a set of sub keys. Specifically, a key of no more than 448 its is separated into 4168 bytes. There is a P-array and four 32-bit S-boxes. The P-array contains 18 32-bit sub keys, while each S-box contains 256 entries.

  The following steps are used to calculate the sub keys:

  1. Initialize the P-array and S-boxes.

  2. XOR P-array with the key bits.

  3. Use the above method to encrypt the all-zero string.

  4. This new output is now P1 and P2.

  5. Encrypt the new P1 and P2 with the modified subkeys.

  6. This new output is now P3 and P4.

  7. Repeat 521 times in order to calculate new subkeys for the P-array and the four S-boxes.

- ENCRYPTION

One-time pad algorithm:

To Encrypt:

1. The key for encryption is as long as the message or data that must be encrypted. The key is truly random.

2. Modulo 26 is applied for the sum of key and plain text.

To Decrypt:

1. Modulo 26 is applied for values obtained after subtracting key value from the cipher text.
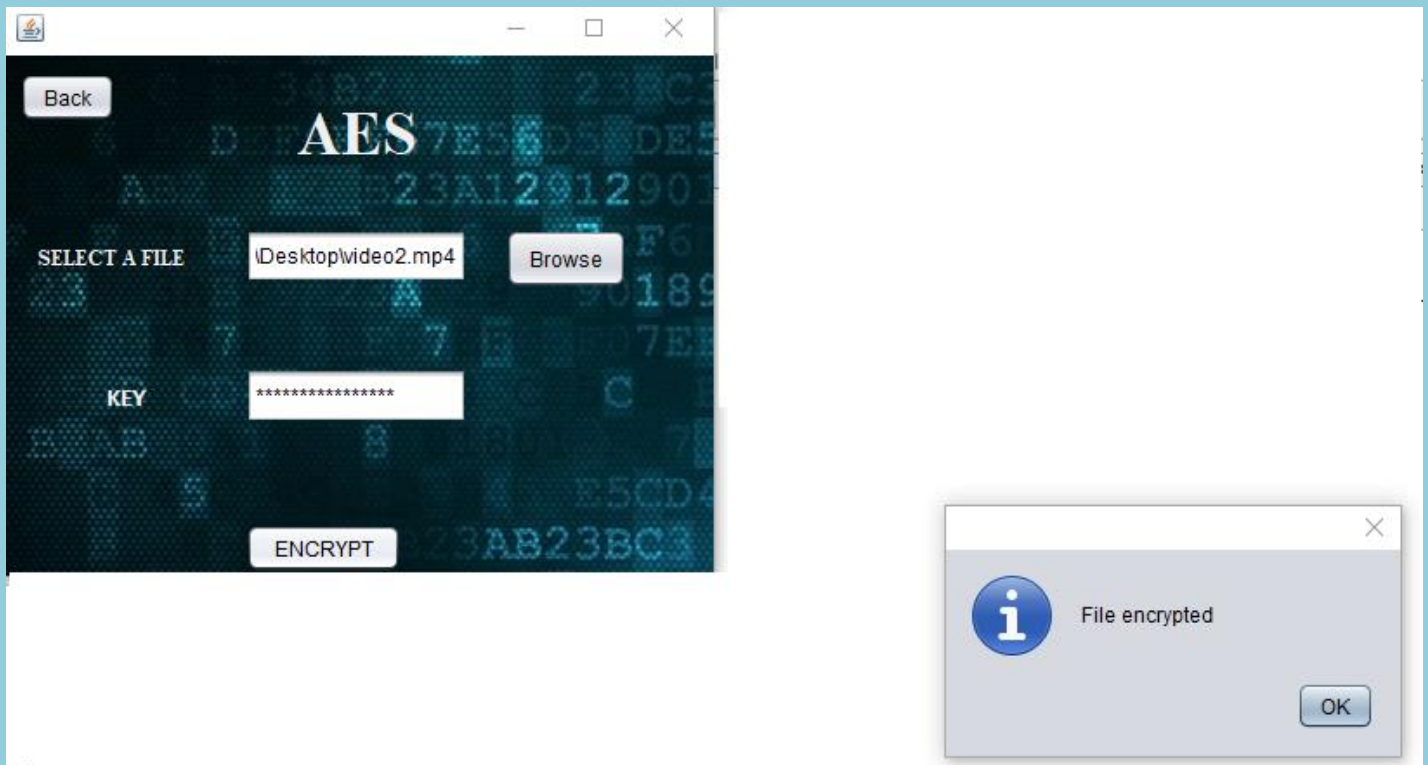
Result:

Fig 1: Test screenshot for Encryption using AES.

Figure 1 shows the test result for encryption using AES algorithm. If the encryption is successful then a message box saying "file encrypted" is popped up.
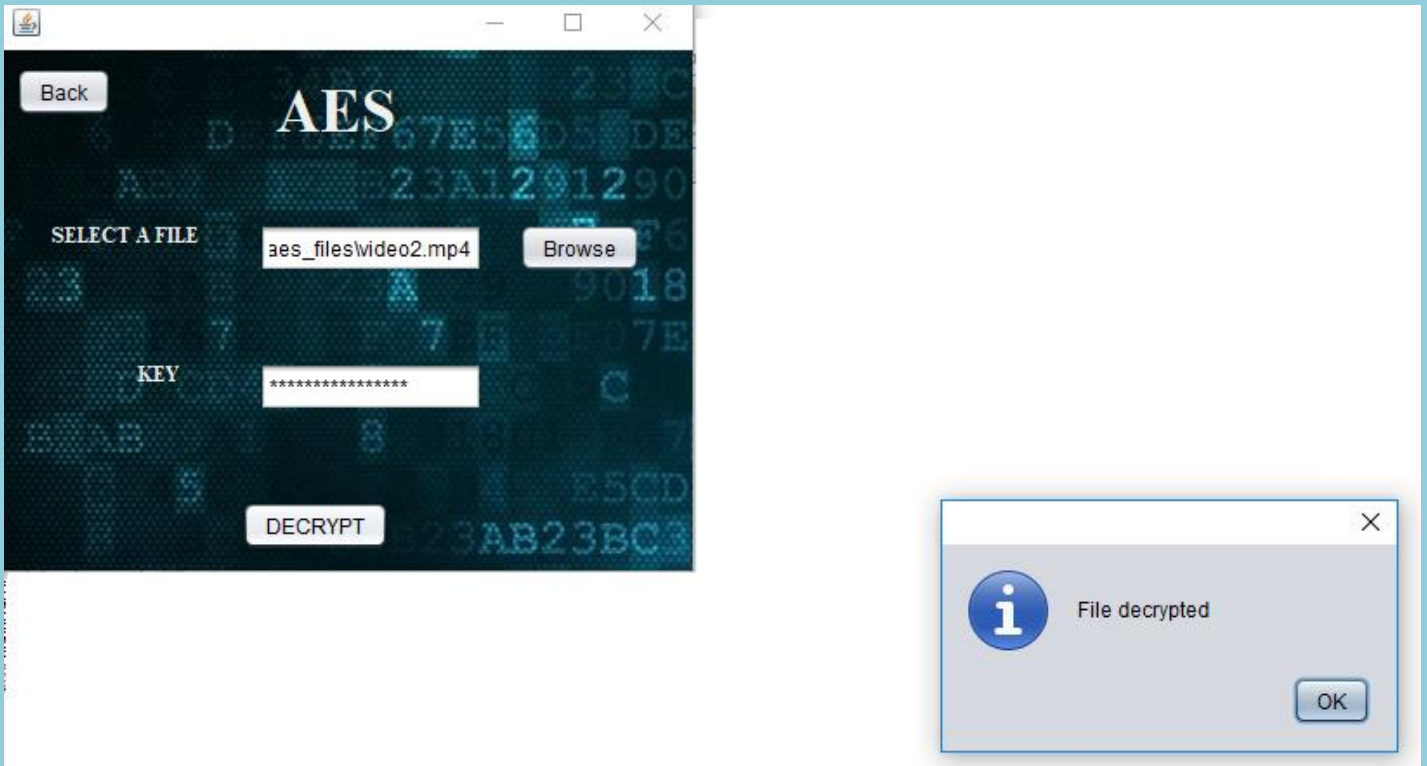
Fig 2: Test screenshot for Decryption using AES.

Figure 2 shows test results for decryption using AES algorithm. If decryption is successful then "File decrypted" message box pops up.

Table 1: Table of test cases showing time taken by different algorithms

Test cases	File type	File size	AES (sec)	DES (sec)	Blowfish (sec)	Combination Of DES and Blowfish(sec)	OTP(sec)
1	text	3.16KB	0.678	0.043	0.59	0.359	0.092
2	pdf	376KB	0.718	0.128	0.833	0.538	-
3	jpg	2.82MB	0.933	0.469	0.839	1.032	-
4	mp3	3.79MB	0.812	0.656	0.922	1.188	-
5	mp4	5.66MB	0.891	0.844	0.923	2.327	-
6	mp3	6.38MB	0.849	0.908	0.988	1.611	-
7	mp4	17.2MB	1.293	2.682	1.456	3.527	-
8	mp4	50.6MB	2.218	6.405	3.826	9.467	-

Summary: Table 1 is test cases showing time taken by different algorithms. OTP works only for text   files. Combination of DES & Blowfish takes more time than other algorithms.
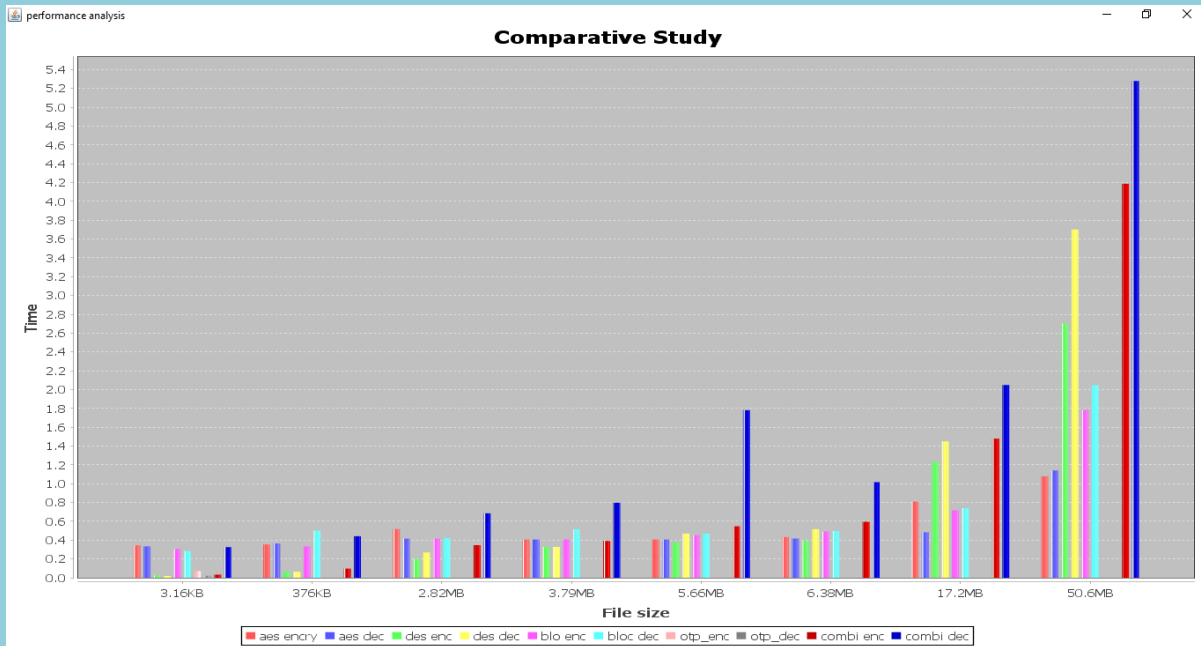
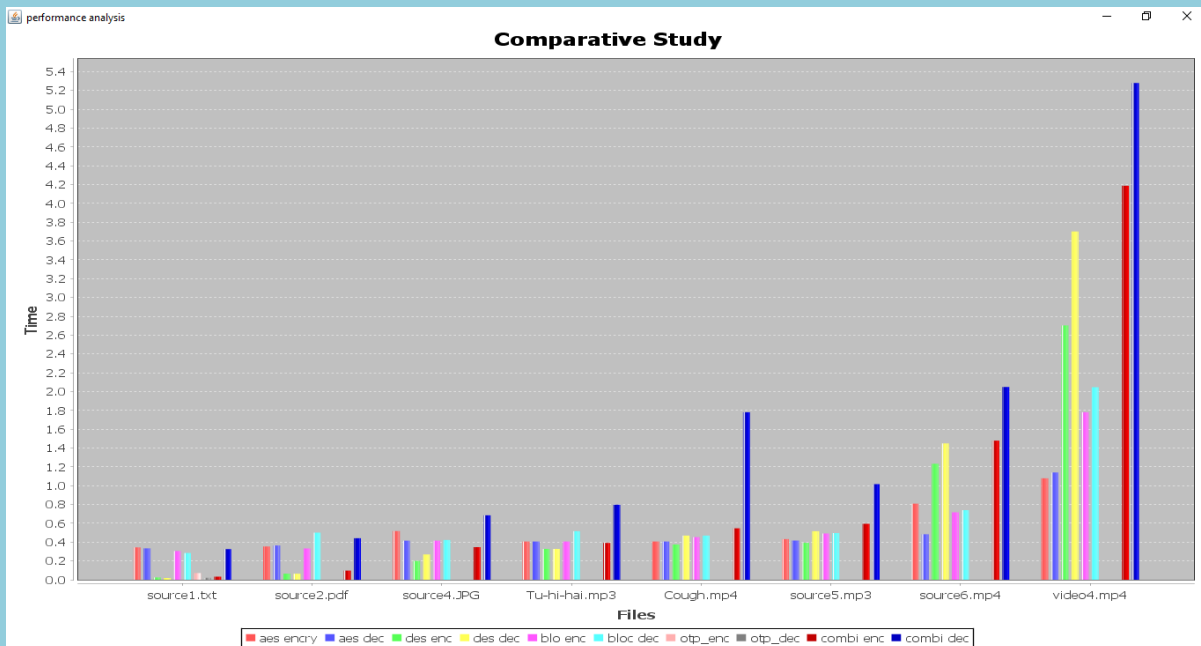**Fig 3: Graph for test cases mentioned in table 1 (file size Vs Time)**

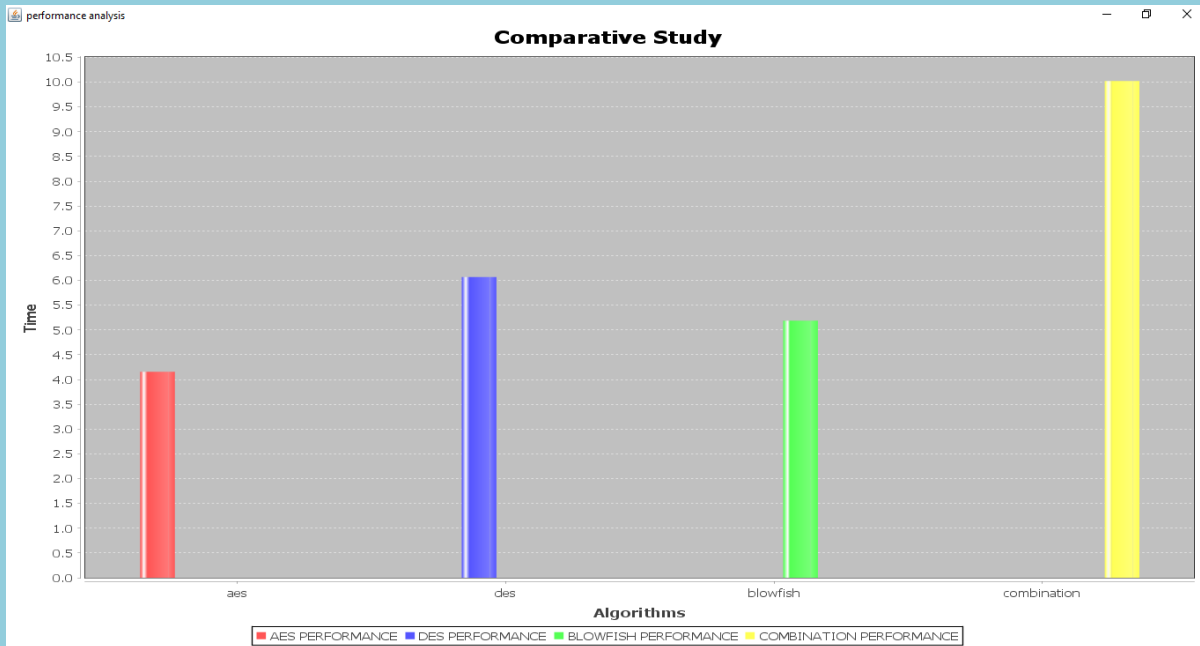**Fig 4: Graph for test cases mentioned in table 1 (file Vs Time)**

Fig 5: Graph for test cases mentioned in table 1 (Algorithm Vs Time)

Figure 3 is the bar graph shown for the test case of the table 1. which is file size versus time. Figure 4 is the bar graph shown for file size versus time. Figure 5 is the bar graph shown for algorithm versus time (overall performance). We can observe that time efficiency for various algorithm to encrypt same data varies.

MONITORING SUSPICIOUS DISCUSSIONS ON ONLINE FORUMS USING DATA MINING

(CEC/CS/2018/P09)

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Abstract: People now-a-days are using forums as discussion medium. With the increasing years, the internet has changed the lives of many people for better or worse. As internet technology is progressing, many illegal activities have also increased exponentially. The Internet is an unacknowledged path for illegal activities such as hacking, trafficking, betting, fraud and scams etc. The cyber-crime branches are looking for provisions to detect these forums for illegal feedbacks, comments or reviews for their investigation. Our proposed system will monitor for suspicious postings, collect it from few discussion forums, implement technique of data mining and notify administrator about malicious user. In this concern, we focus on Data Mining and Sentimental Analysis to bring a awareness about such discussion and make user not to use them again.

Objective:

- To Reduce the suspicious Activity on Online forums
- To notify the Admin about the malicious user and to identify

Outcome:

- Convert negative words into *

Methodology: We make use of collection of data from different online forums. This data is then passed into csv file. On the other part of this method user will be given by his own account and credentials of a website, where he need to logged in and can start a discussion with any topic. But whenever he /she make use of such words will be notified to admin of the particular site. And even user will be warned on his activity. The technique we make use of data mining algorithm Naïve-Bayes theorem which is implemented in python library textblob. The algorithm used here will analyse the words into positive and negative classification based on polarity and subjectivity parameters.

Result: The main objective was to monitor the suspicious activity that occurs in various online forums. This application satisfies with our objectives. From the time of user login and his discussion on any topic available in online forum are monitored. Once the suspicious word is found it is replaced by the * and is notified to website administrator.

Figure 1.1 shows the home page. Figure 1.2 represents the User Login Page where the user enters his email id and password. Figure 1.3 shows the registration page for the user where the user has to fill details such as name, email, password and mobile number. Figure 1.4 shows the admin login page. Figure 1.5 depicts the discussion selection page. Figure 1.6 depicts the discussion page. Figure 1.7 shows admin view page. Figure 1.8 represents the admin comment section view page.

Figure1.1: Home page
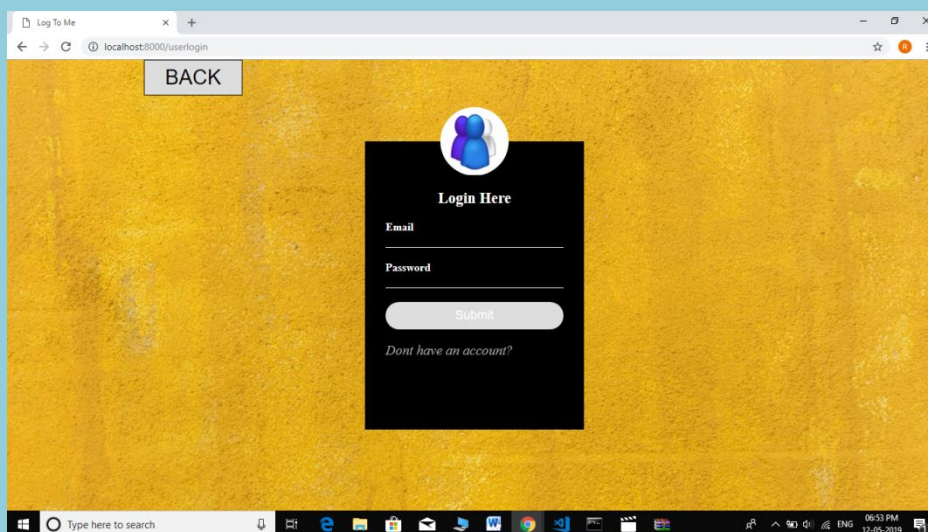
Figure 1.2: User Login Page
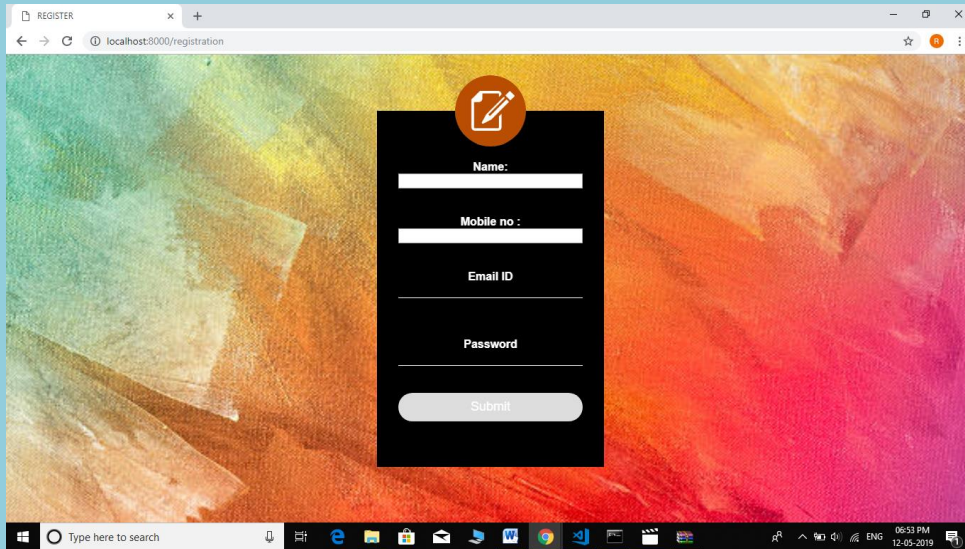
Figure 1.3: User Registration Page
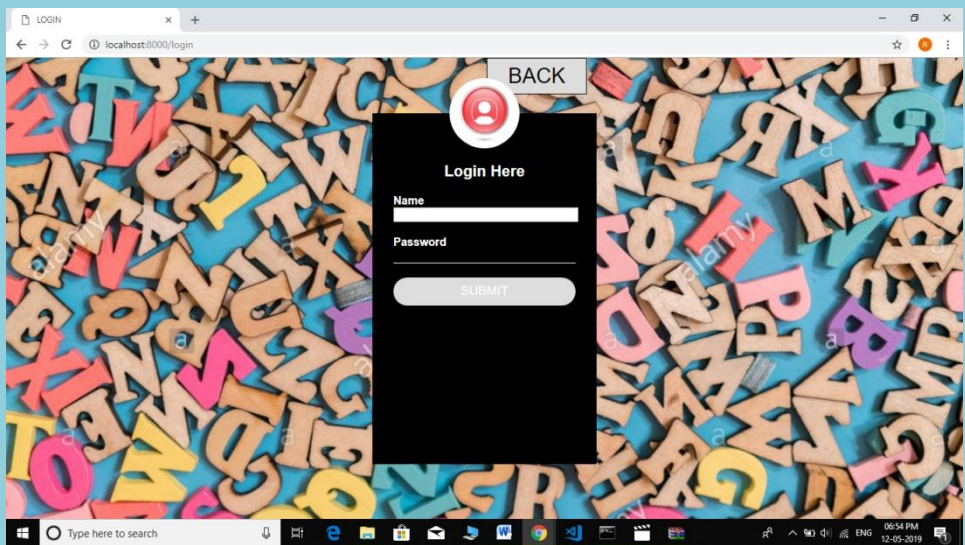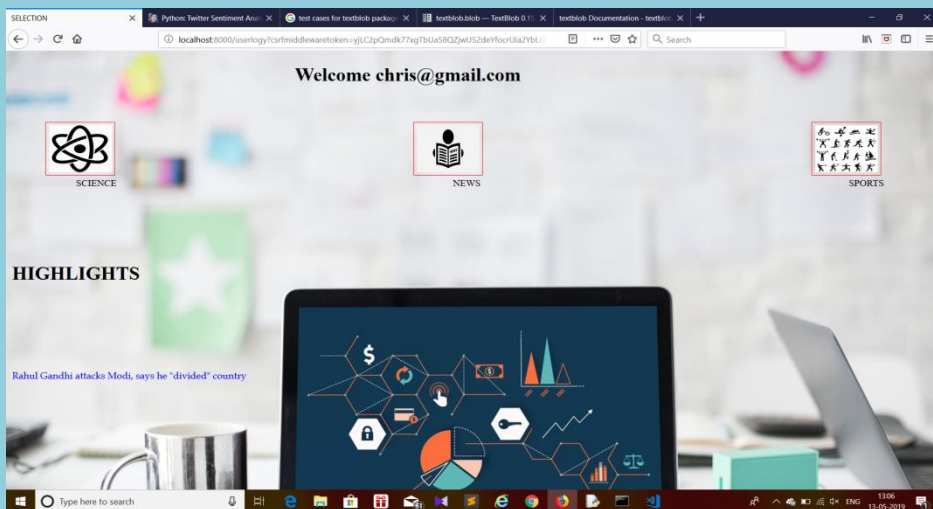

Figure 1.4: Admin Login page

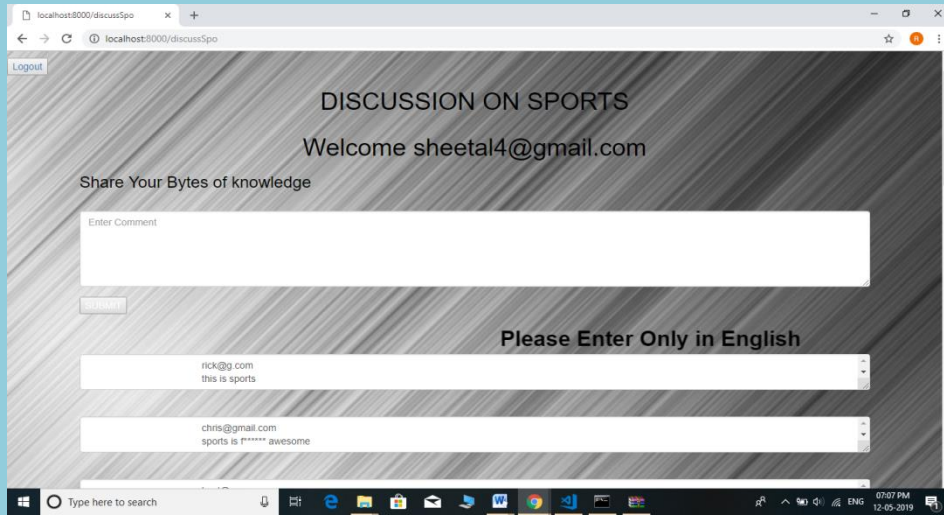Figure 1.5: Discussion Forum Selection Page

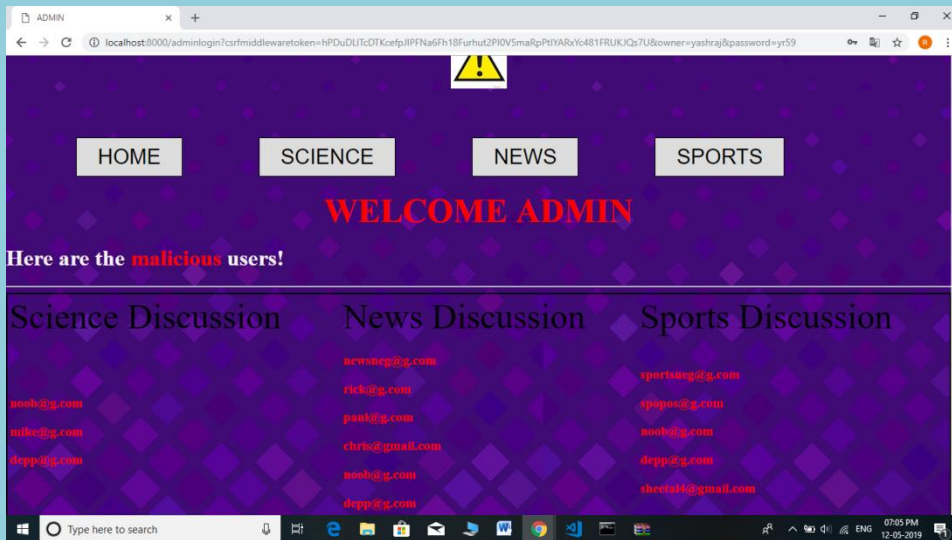Figure 1.6: Discussion Page

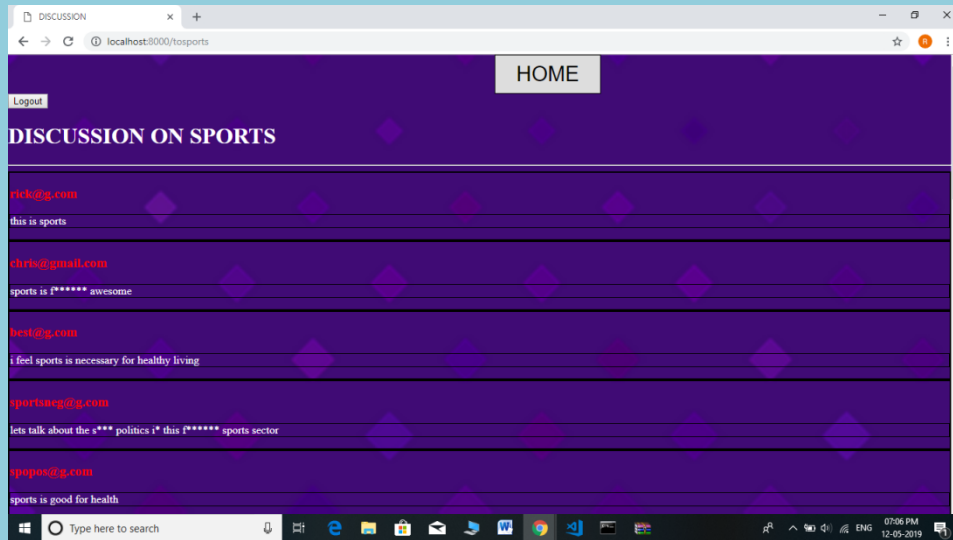Figure 1.7: Admin View Page

Figure 1.8: Comment Section Page

Sentimental Analysis on Products using Statistical Measures
(CEC/CS/2018/P10)

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Abstract:

As online shopping becomes increasingly more popular, many shopping websites encourage existing customers to add reviews of the products purchased. These reviews make an impact on the purchasing decisions of potential customers. At amazon.com for instance, some products receive hundreds of reviews. It is overwhelming and time restrictive for most customers to read, comprehend and make decisions based on all of these reviews. Customers most likely end up reading only a small fraction of

the reviews usually in the order which they are presented on the product page. In the proposed method, opinions are classified using the Support Vector Machine statistical measure to provide ratings to help the sentimental analysis of big data. Experimental results demonstrate the efficiency of the proposed method to help in analysis of quality of product, marketer's evaluation of success of a new product launched, determine which versions of a product or service are popular and identify demographics like or dislike of product features, etc. Analysis of plenty of words coupled in a sentence represent various sentiments of users and the various experiences and impact that product has given them, the polarity of the opinion which subsequently classifies positive and negative opinions and hence help the user with the decision making process and make it easier.

Objective and Outcome:

The main objective of our project is to successfully read the comma separated value file which contains the reviews of the products given by the users and apply machine learning and classification such as Support Vector Machine to classify the reviews of the product into positive and negative. Also, the best model among each product is shown as output.

Methodology:
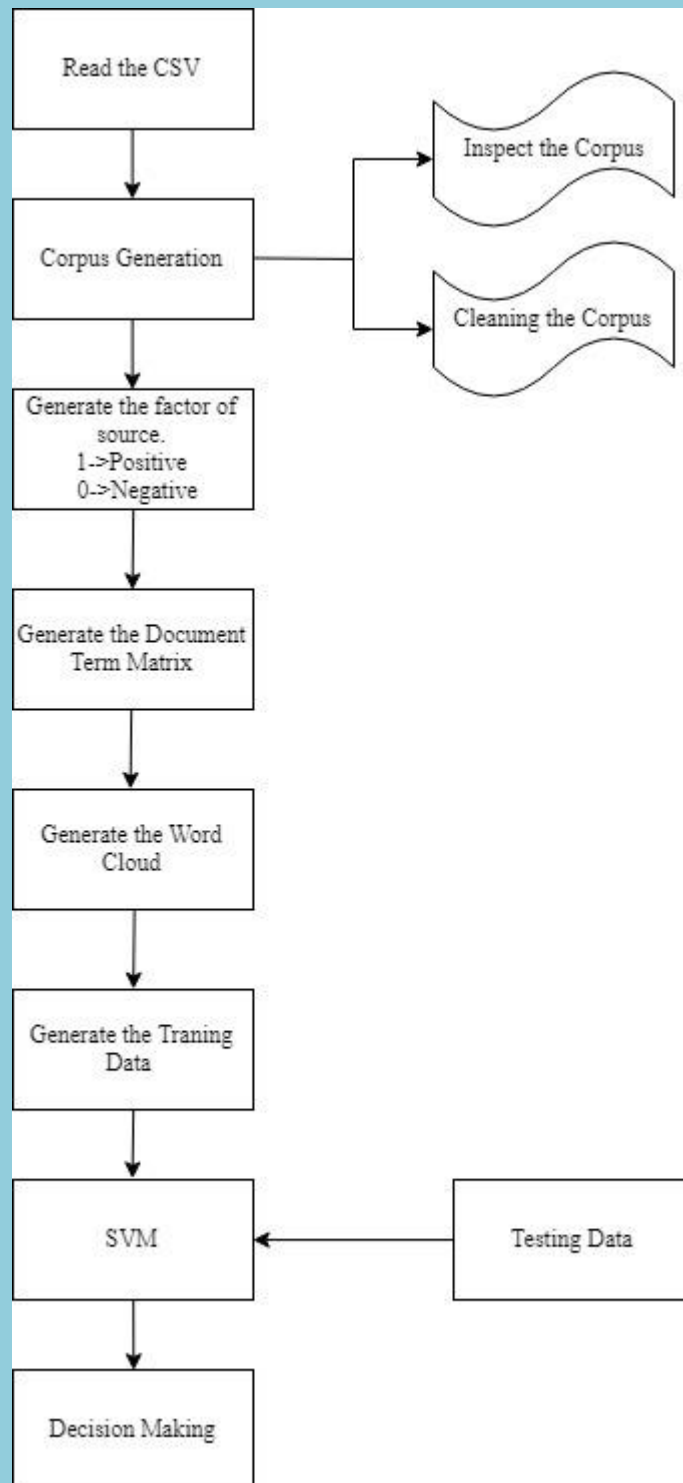
- The training dataset needs to be downloaded from the server (Amazon).
- The training dataset is later examined for Corpus generation using sklearn package.
- These filtered training dataset is later fed to the Support Vector Machine Classifier using python.
- The user is given an interface to choose the product from the provided list.

- Now, the test data of the selected product is given to the SVM classifier.
- The output of this implementation would be the pie chart which provides the overall polarity of the reviews and the bar graph which provides the monthly trend of the selected product using matplotlib package in python.

Result:

- The users will be able to obtain positive and negative reviews of the required product using pie chart.

- Also the best model among each product is show using bar chart.

Security for data in Hadoop platform
(CEC/CS/2018/P11)

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Abstract:

Hadoop is an efficient, reliable distributed platform that provides scalable storage and computing on large datasets. It offers framework to process a large volume of data by running a large number of jobs in parallel, on a cluster of machines. Due to its features of scalability, reliability, cross platform support, it has been widely adopted by various academia and industries. With the growing development of data, it has become increasingly vulnerable and exposed to malicious attacks. These attacks can damage essential properties such as confidentiality, integrity, and availability of information systems. To deal with these malicious intents, it is necessary to develop effective protection mechanisms. There is a lot of innovation around security in Hadoop today. There is a lot of focus on making all these security frameworks work together and to make them simple to manage. In our project we will indicate the main risks arising in Big Data and existing security mechanisms, we focus on Hadoop security and its components because it remains the required Framework for the management and the processing of Big Data.

Objective and Outcome:

Design an application specific security profile with more control at application side. To design an easy Key Management solution for reconfigurable keys with more security and little user intervention Application provided with configurable and adaptive security profile. Key management effort is reduced for Hadoop users without compromising the security

Methodology:

Each Application can decide its security profile based on its performance requirements and its data sensitivity. The decision can be auto tuned by a Fuzzy Controller. Application must be providing with a profile tailoring mechanism to select the security profile based on data sensitivity and performance needs. Data is stored in HDFS always in a perturbed form. For data perturbation, Shamir Secret Sharing mechanism is employed. The keys for perturbation are controlled by CP-ABE (Cipher Policy Attribute Based Encryption) Key Management module.

Result:

- Users data will be uploaded to Hadoop in encrypted form and to decrypt it we use the prime number and other data stored in name node which will be again in the encrypted form

- Output of the project is providing security to the data which is being processed in Hadoop platform.

Smart dustbin monitoring system

(CEC/CS/2018/P12)

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Abstract:

As we move towards a more digitized future, it is directly proportional to increase in urbanization and industrialization. This is the main cause of generation of large amount of waste. So, the waste management becomes an important concern for the health and well- being of the society. Presently, the waste segregation is done manually by installing different bins for collecting different type of waste. So, our idea is to make a garbage segregate which can identify the type of waste and put them in different bins accordingly and automatically.

Objective and Outcome:

The level of waste collected is detected and then the information is stored in cloud. The moisture content of the waste which is detected by the moisture sensor will segregate wet and dry waste respectively. This dustbin which is attached with a Wi-Fi module helps us get the information about the level of the waste collected . This information received is stored in cloud and retrieved via app when the admin logs in. A quick detection and alert would minimize the overflow and hence reducing human effort. This dustbin will help in segregating dry and wet waste. The regular updates make it more convenient for the garbage management unit helpful by also minimizing time and fuel.

Methodology:

In this proposed system there are two sensor units placed on the dustbin namely IR sensor and moisture sensor. IR sensor performs the accurate detection of garbage full condition. The moisture content of the waste which is detected by the moisture sensor will segregate wet and dry waste respectively. The motor attached to this segregates wet and dry waste. The Node MCU which has both ESP Wi-Fi module and Arduino will send the information from sensor to cloud. It then compares the input information with the threshold value set and the notification is sent to the Android application through wireless network

Result:

In this proposed system there are two sensor units placed on the dustbin namely IR sensor and moisture sensor. IR sensor performs the accurate detection of garbage full condition. The moisture content of the waste which is detected by the moisture sensor will segregate wet and dry waste respectively. The motor attached to this segregates wet and dry waste. The Node MCU which has both ESP Wi-Fi module and Arduino will send the information from sensor to cloud. It then compares the input information with the threshold value set and the notification is sent to the Android application through wireless network.
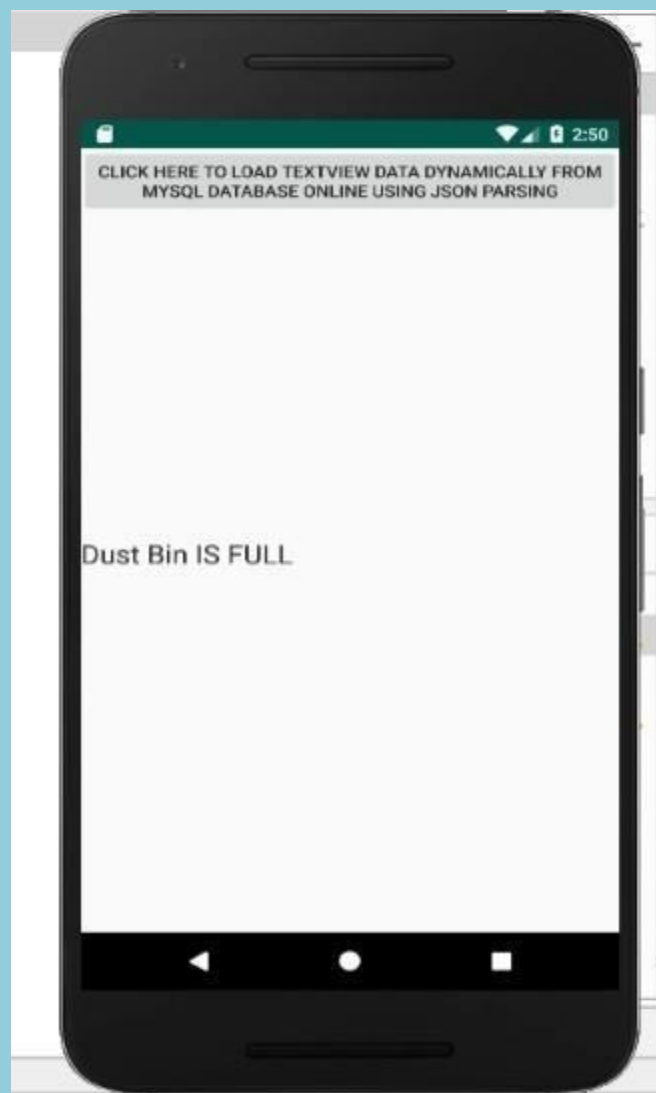
Fig 1.1: Notification sent to the Admin
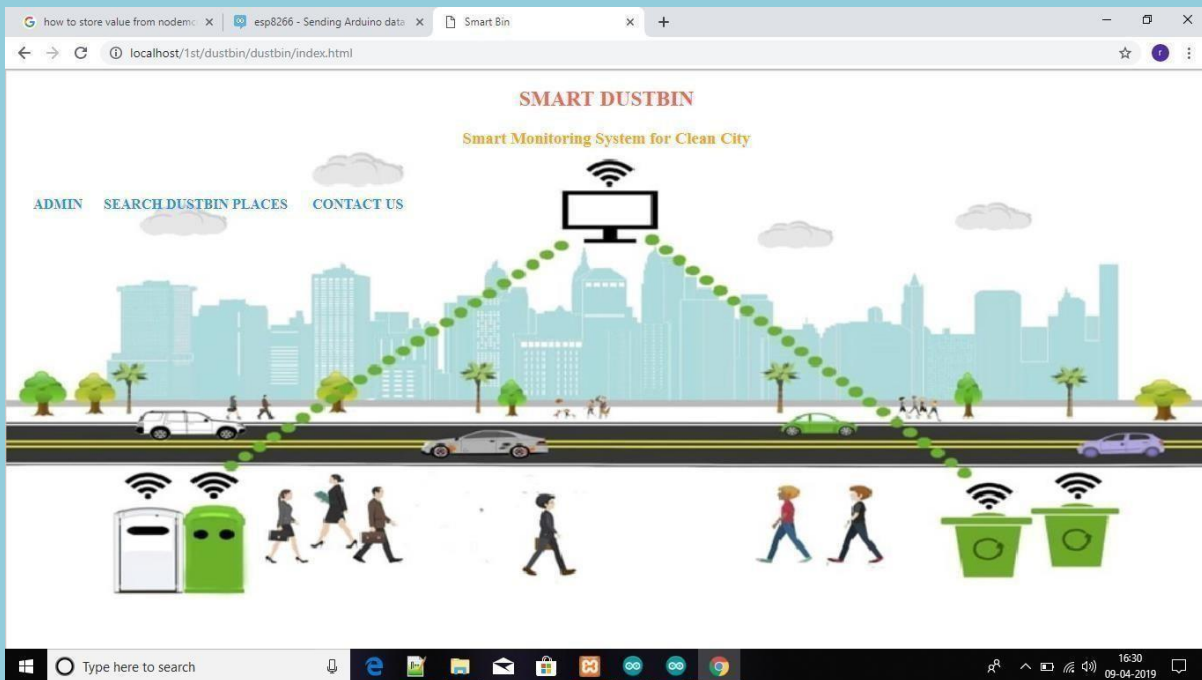
Fig 1.2: Home page
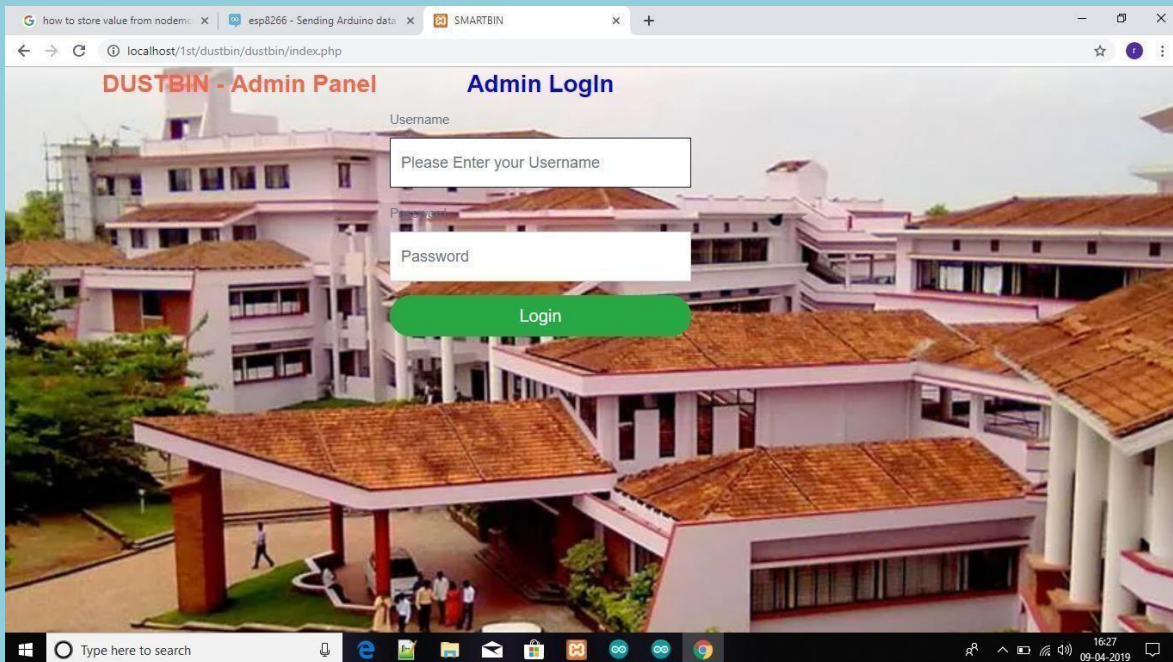
Fig 1.3: Admin page
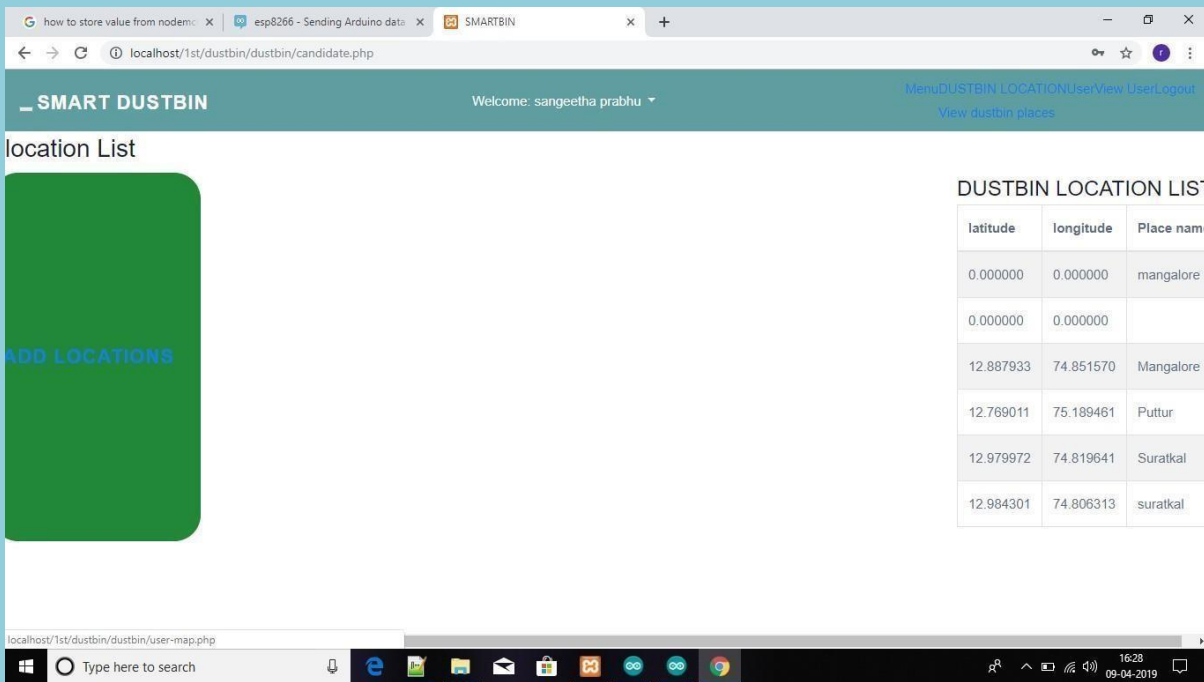
Figure 1.4: Locations of the dustbin
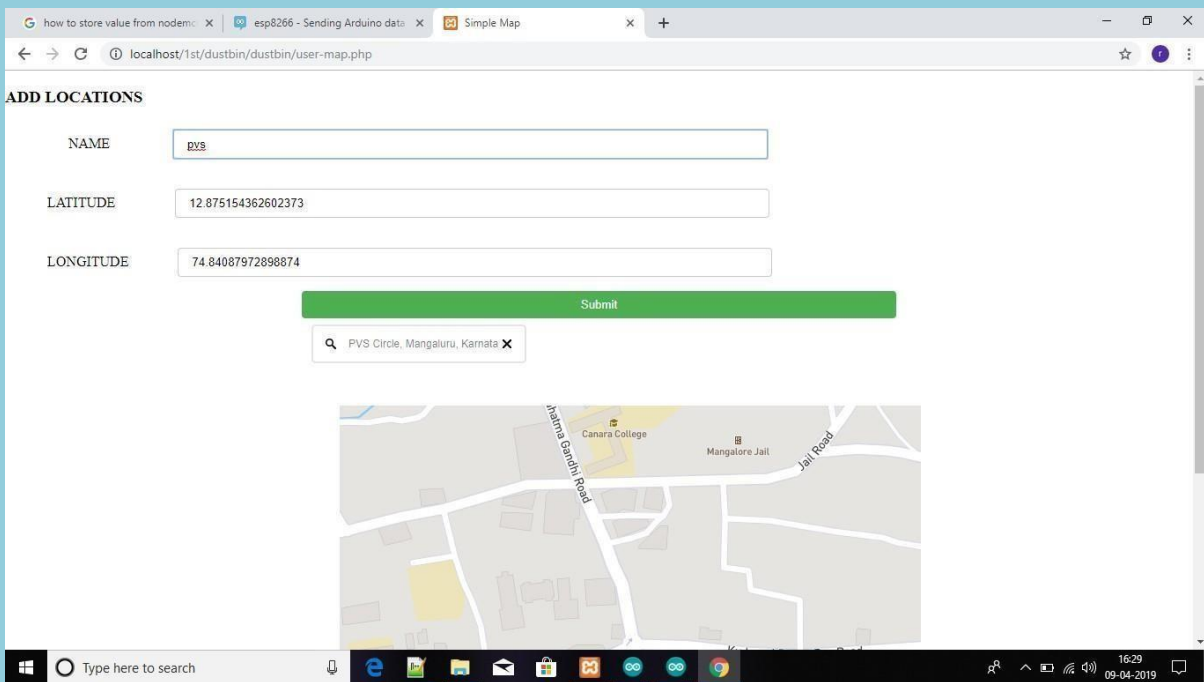
Figure 1.5: Adding new locations
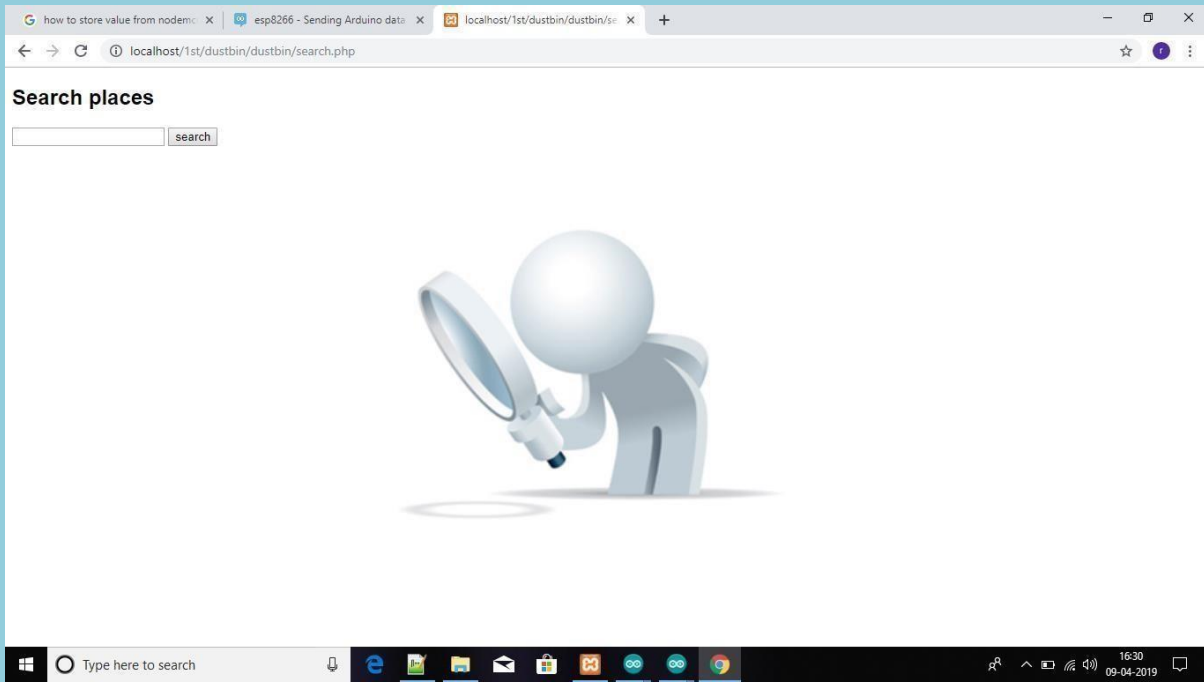
Figure 1.6: Searching for the location
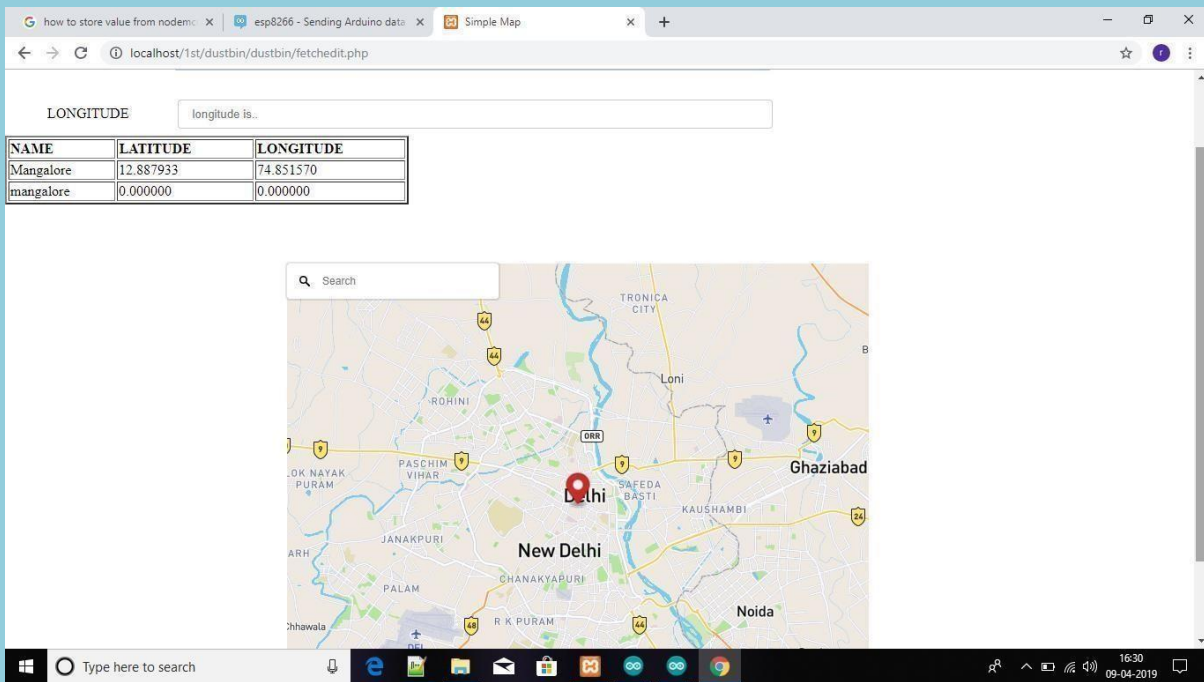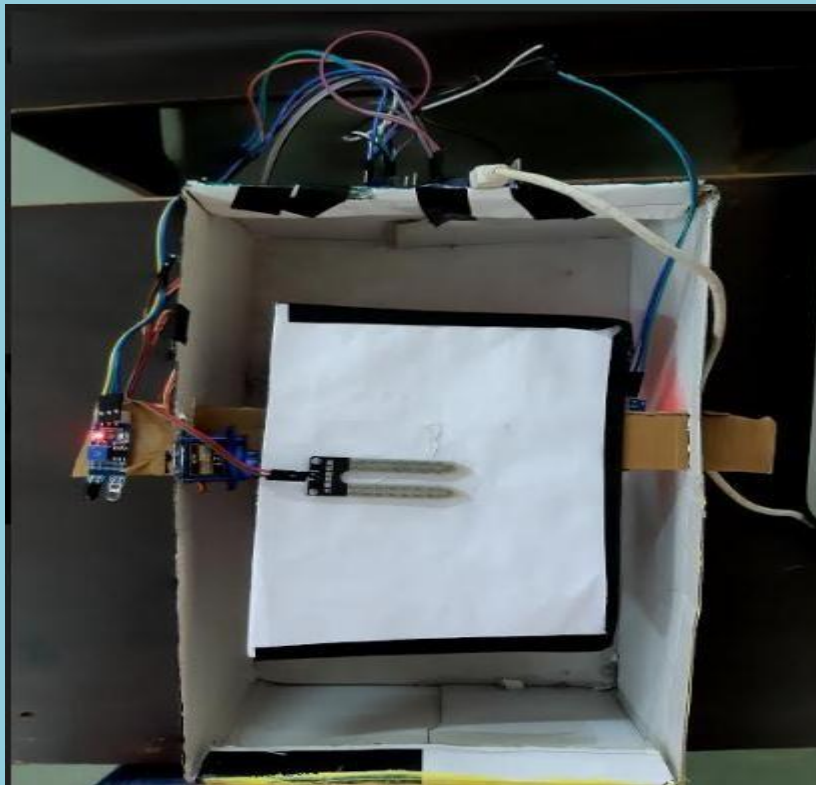

Figure 1.7: Map

Figure 1.8: Hardware connection for smart dustbin monitoring system
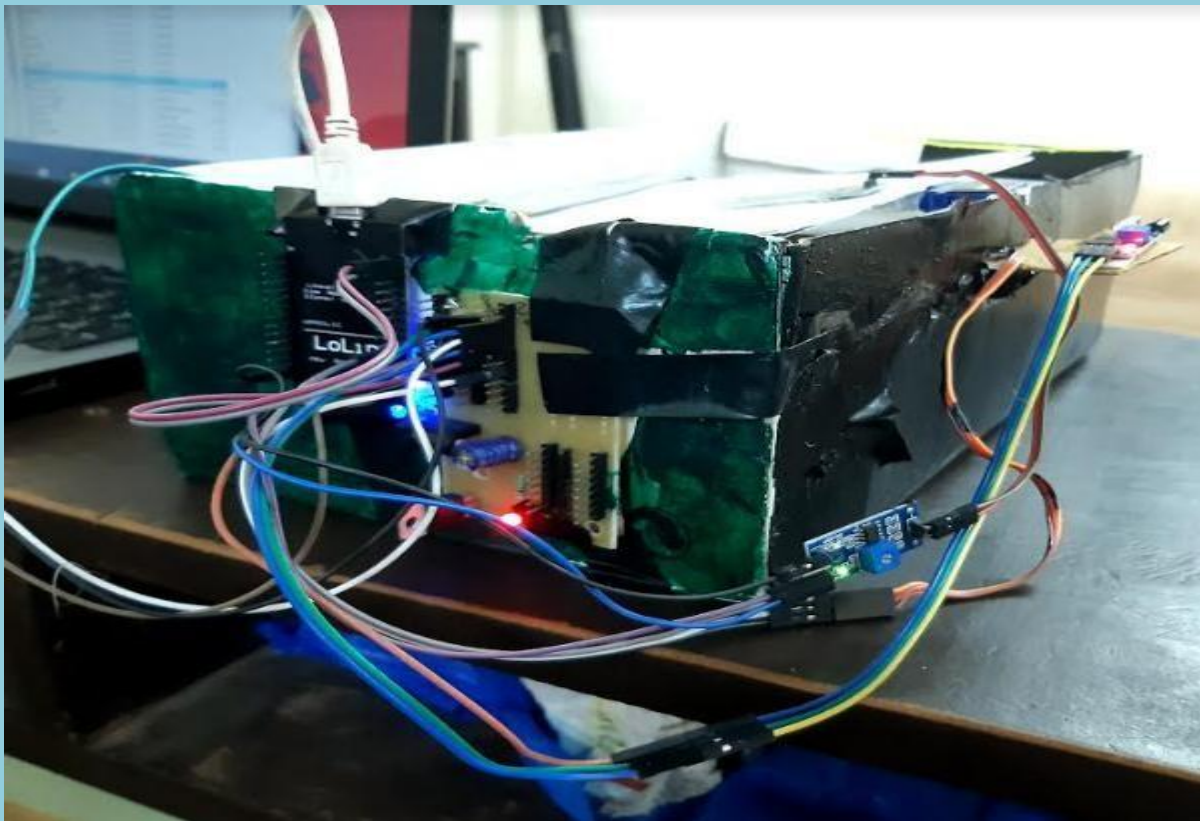

Figure 1.9: Side view of the smart dustbin monitoring system

GREEN AUDIT MANAGEMENT SYSTEM FOR COLLEGE CAMPUS

(CEC/CS/2018/P13)

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Abstract: - Green Audit Management System for college campus is a web application that can be used to simplify the process of monitoring the campus garden maintenance activities. This system can be used by the college authorities to get the details of the different types of plants/trees in the campus including the plant type, botanical names and their locations within the campus. This application can also be used to monitor the maintenance of plants in the campus in an efficient way. The process of tracking and reporting the garden related expenses can be achieved as part of implementation of this paper.

Objective: The main objective of this paper is to achieve a green college campus by monitoring the maintenance of plants and ensure efficient irrigation system using soil moisture sensors. The second objective is to record the different and monitor variety of plants species within the campus along with their location. The Third objective is to monitor the bills and purchases related to the Garden Maintenance and the last objective is to Generate Garden Audit reports as and when required.

Outcome:

- Holistic report of the college campus Garden activities can be generated.
- The expenses related to the Garden Maintenance can be monitored.
- Moisture level of soil can be availed any time.
- Usage of water resource can be reduced.

Methodology:

One of the most time-consuming tasks of any survey is the creation of reports: weekly, monthly, quarterly and yearly as well as special reports at the end of a survey or on any given date. Such reports are usually made by copying and pasting the daily reports of garden. The

system described here makes these reports automatically. The members of project team file their daily work results using a Web interface. These entries are kept in a SQL database. The report generation utility is launched through a Web interface. It creates overall report by selecting the data relevant to the given set of data and it generates the report automatically collating the individual reports.

Figure 1.1 shows the home page. Figure 1.2 represents the Admin Login Modal where the admin enters his email id and password. Figure 1.3 shows the page where the admin will be able to view as well as add details of a new gardener and even delete the existing details. Figure 1.4 show the page where the admin is able to add or delete inventory details. Figure 1.5 shows the plant details page where admin can view as well as add details of new plants. Figure 1.6 shows the report page where the report is generated. Figure 1.7 show the page where anyone can view location wise plants.
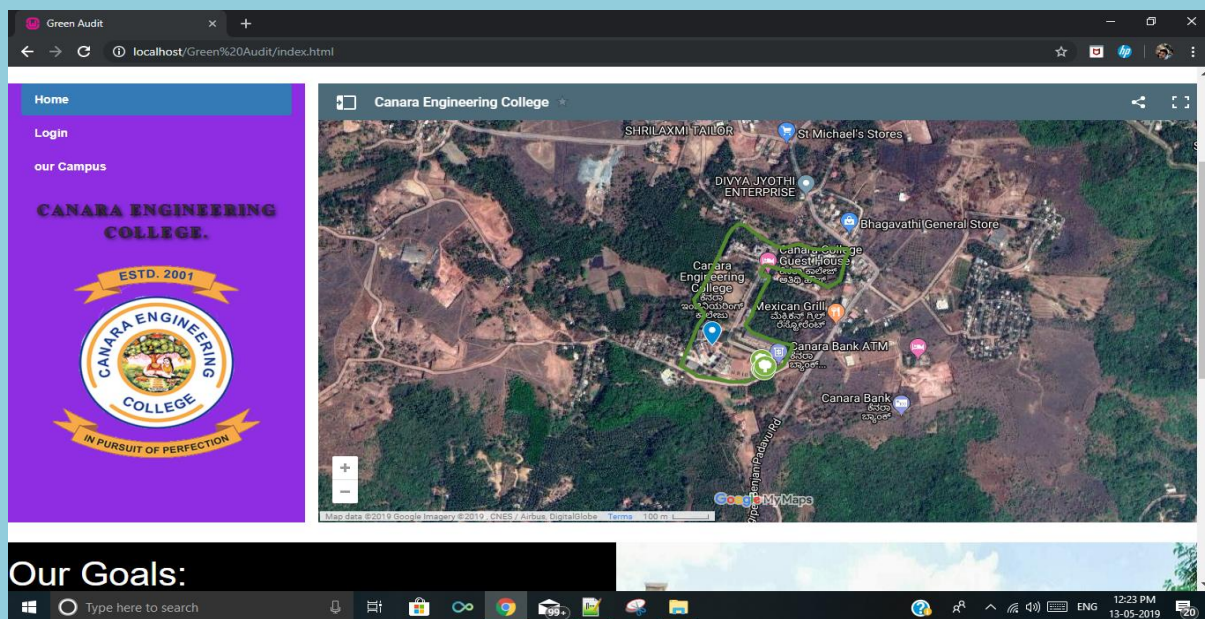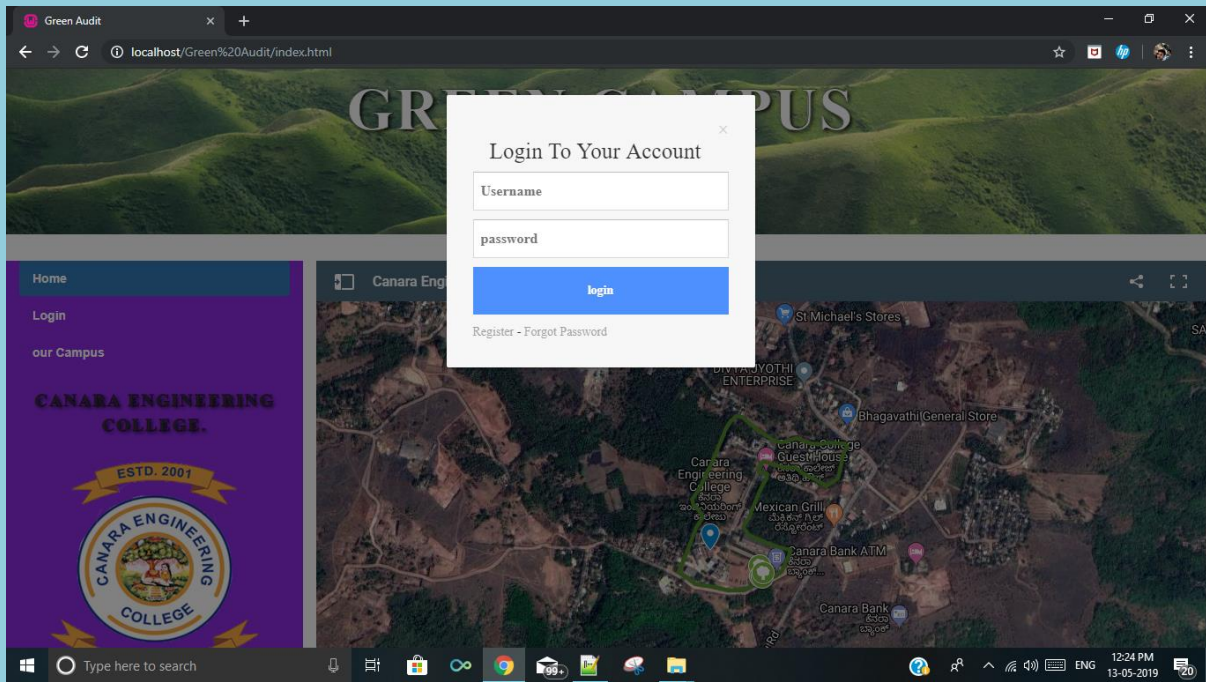

Figure1.1: Home page
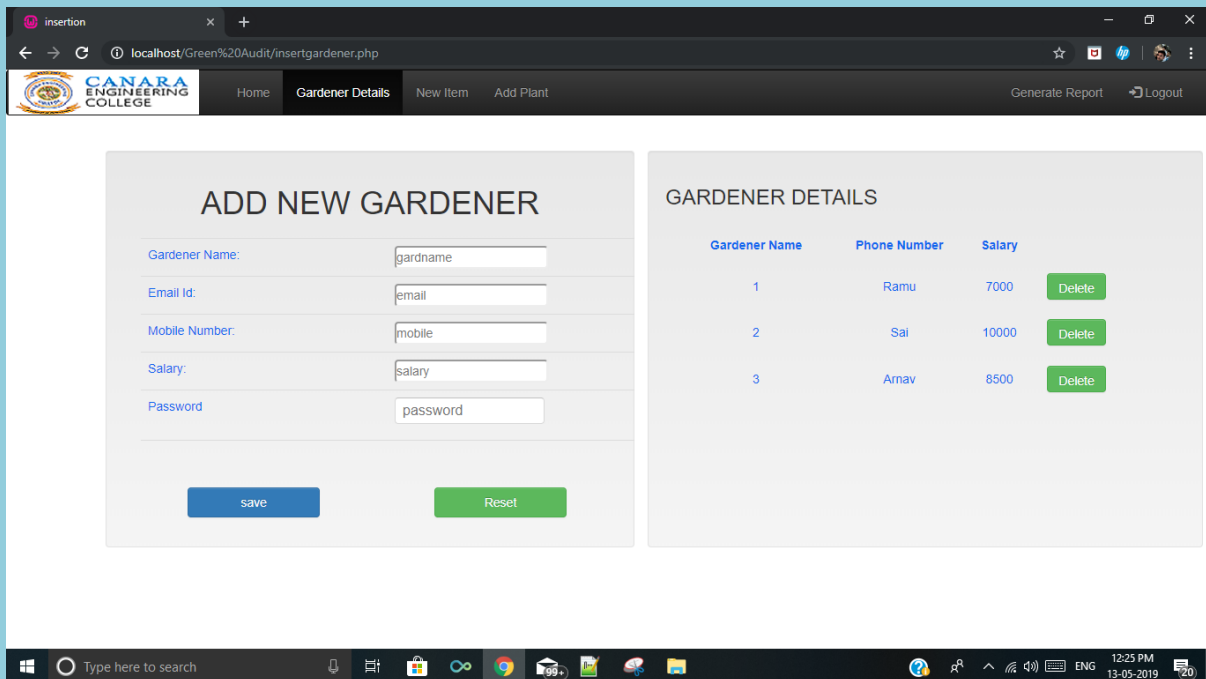
Figure 1.2: Admin Login Modal
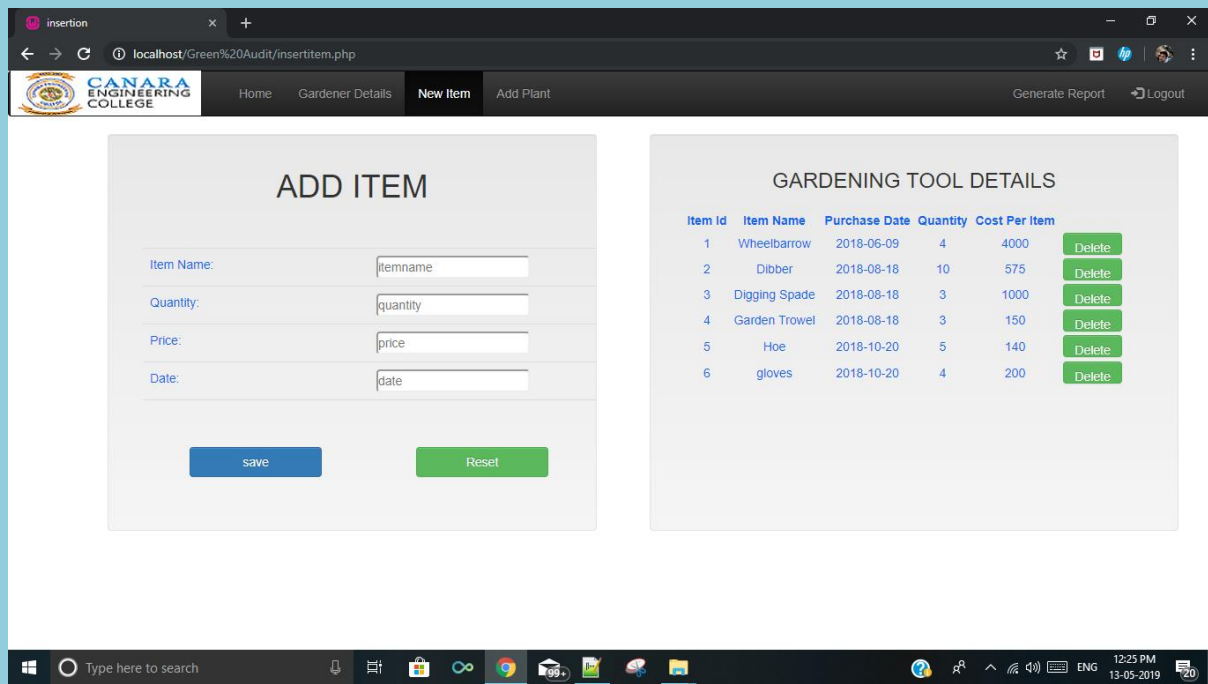

Figure 1.3: Gardener Details Page
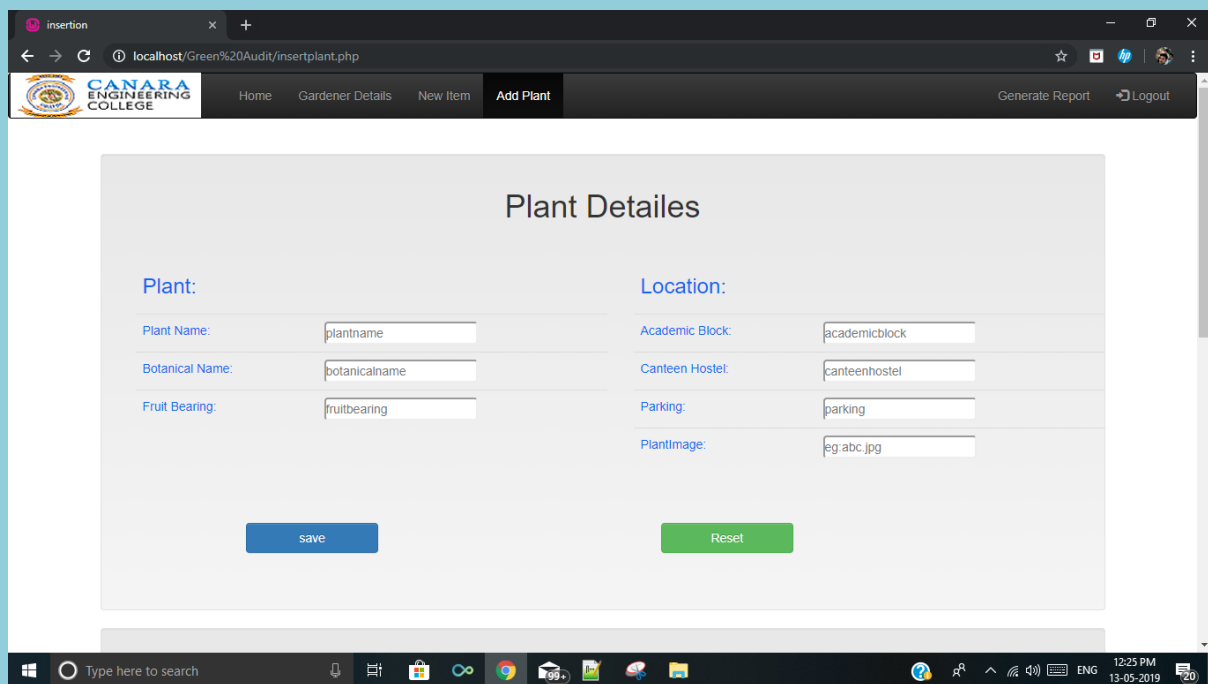
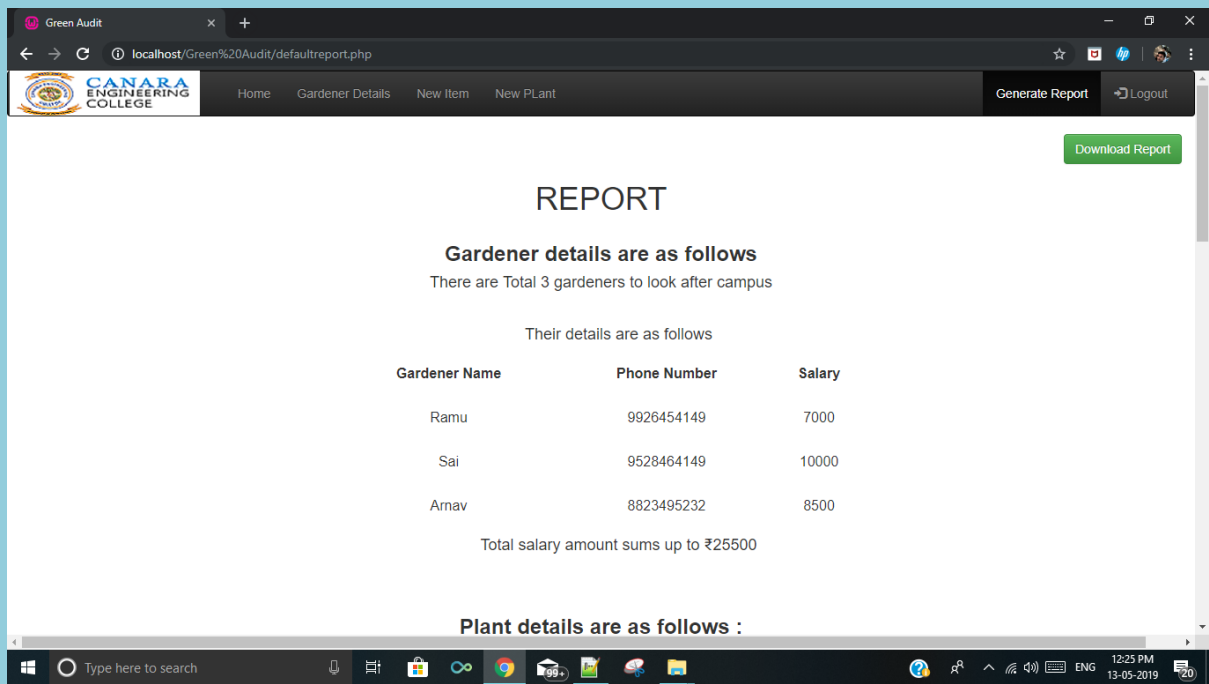Figure 1.4: Inventory Details Page

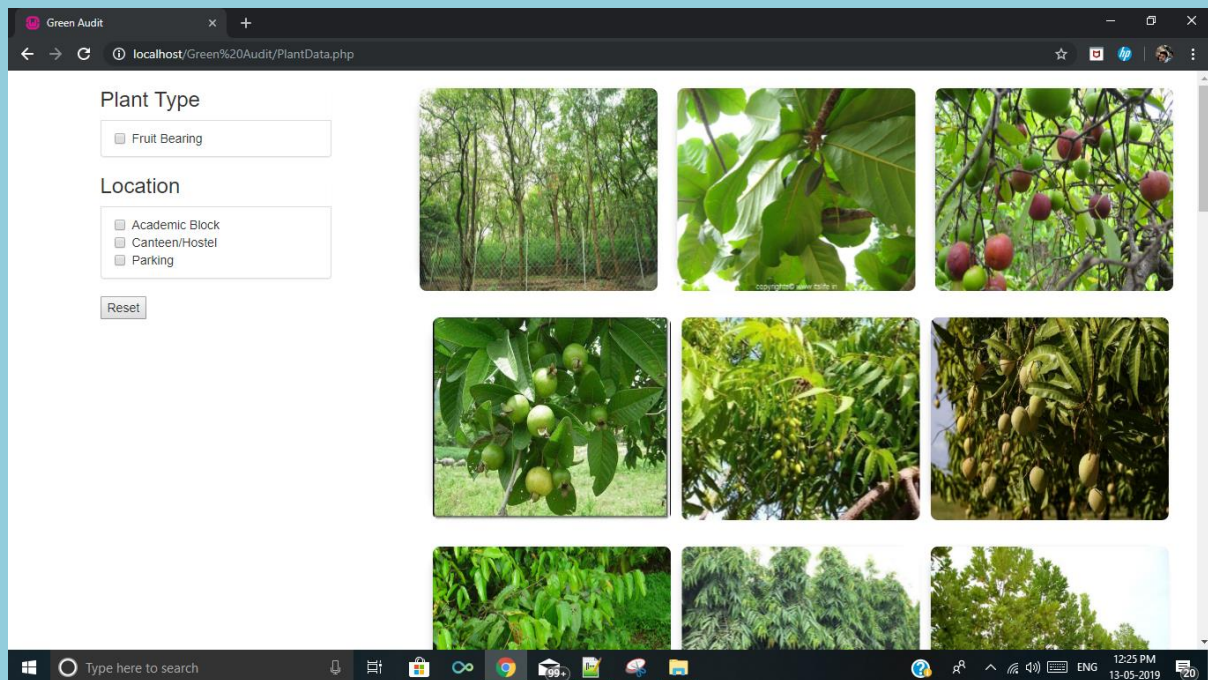Figure 1.5: Plant Details Page

Figure 1.6: Report Page

Figure 1.7: Location wise plant view

Automated Visual Inspection for Quality Control
(CEC/CS/2018/P14)

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Abstract:

In the proposed system the vegetable can be processed , analyzed or recognized on the basis of color features of the vegetable. Not only shape but also color also be an important characteristics that may used to assess the quality of the vegetable. Alone by the shape, the quality cannot be estimated because of the fact that vegetables having same quality may have different shape. Proposed system uses color based sorting to judge the quality of vegetables. Color grading is an important aspect in the systems designed for inspecting the quality of vegetables. Though grading the vegetable using color may exist, they are not effective and user friendly and are hence not suited for commercial production. In this system, the captured images are converted into some other format such as HSV,YCBCR. For determine the quality this is more appropriate than RGB. The harvesting process is generally done on fruits such as tomatoes before they completely ripen. The ripening process is continued after harvesting and then the color of the fruit changes. It is because of this fact that the color of fruit is used as a measure for the determination of the length of the time the fruits can be transported. The judgment using human eye cannot be perfect because sometimes it should be an erroneous judgment. So it is better to judge the fruit using machine, because usually machine will not give erroneous output due to weakness. There is a limitation for the human vision in the case of similar color identification.

Objective and Outcome:

Objective of the project is the quality assessment of vegetables based on their color. Proposed system uses color based sorting to judge the quality of vegetables. In this system, the captured images are converted into some other format such as HSV,YCBCR .For determine the quality this is more appropriate than RGB.

Mathodology:
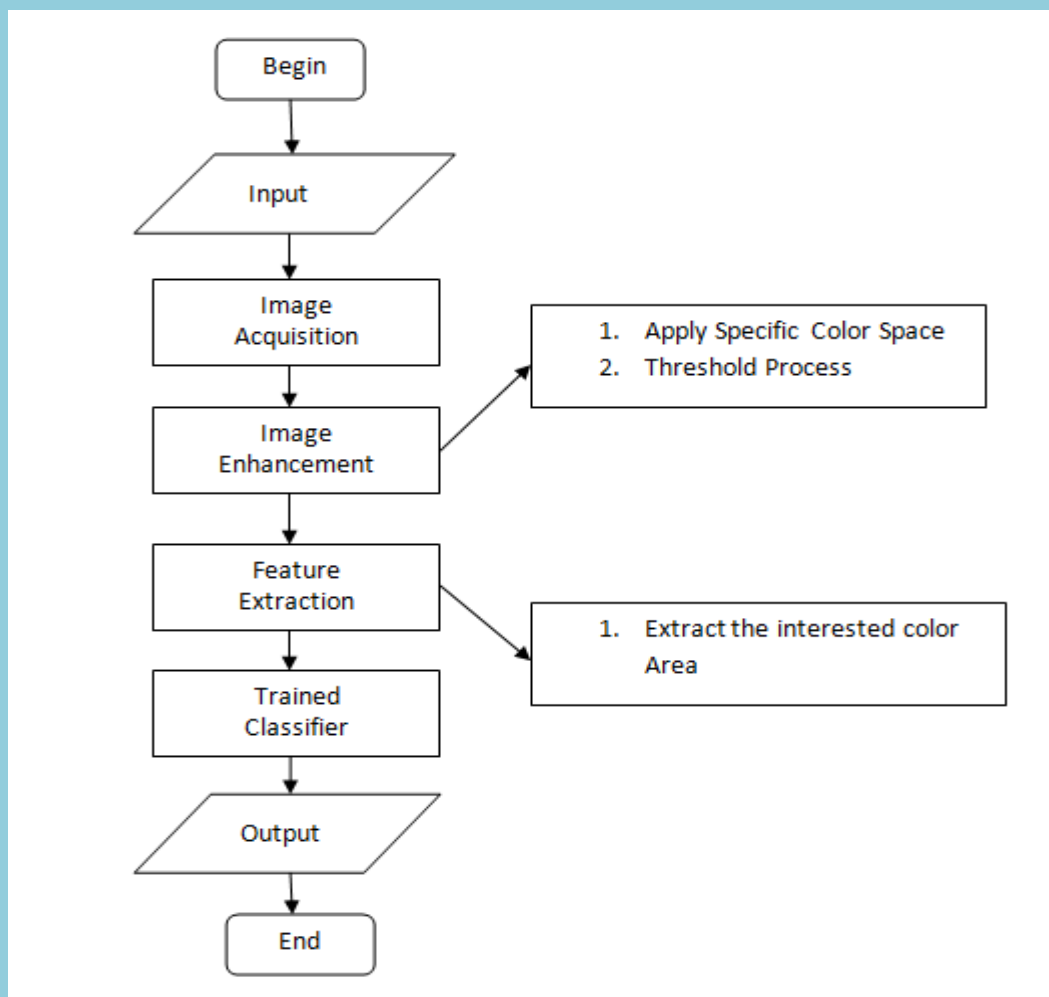
Result:

The proposed system will separate the fruits based on the specified grade and class, which can work 24 hours.

Fingerprint Based Biometric Attendance System
(CEC/CS/2018/P15)

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Abstract:

In the World of Technology, Biometrics plays an effective role in identifying Human beings. Through this project we will develop a unique system that can identify students for attendance purpose using their fingerprints. Attendance systems are commonly used systems to mark the presence in offices and schools. From manually marking the attendance in attendance registers to using high-tech applications and biometric systems, these systems have improved significantly. It aims at reducing paper work and thus resolving the problems of manual errors is highly accurate. Evaluation of a person's attendance is done and all related information is stored in the database.
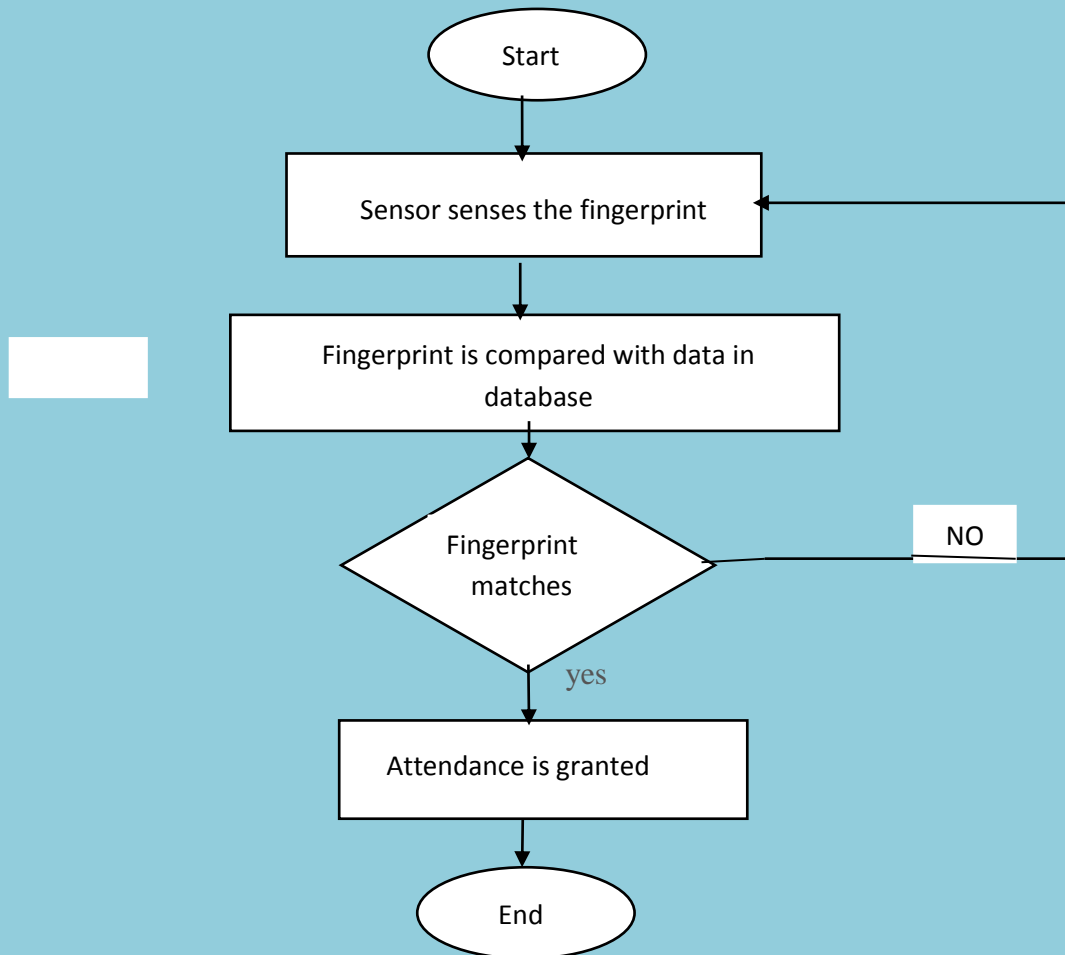
Objective and Outcome:

The objective of this project is to increase security and accuracy. It accurately records students' attendance and stores it in the database which then can be viewed by means of an android application. It allows the professor to maintain a record of attendance of students in their respective classes from a PC or mobile. The goal is to provide a professor with an easy, portable solution to maintain attendance record and attendance statistics.

Methodology:

- In fingerprint based biometric attendance system, we need to verify and store student attendance.
- The system uses fingerprint scanner to enroll the fingerprint of each student.
- The scanner then compares with the image that is previously stored to verify student attendance.

- We make use of minutiae feature extraction algorithm to convert the fingerprint image into digital pattern.
- The system stores the attendance recorded by the scanner in the database.
- Attendance is granted, if the scanned fingerprint matches the records.
- Otherwise the student is asked to scan his fingerprint.

```
                    ┌───────────┐
                    │   Start   │
                    └─────┬─────┘
                          │
                          ▼
         ┌────────────────────────────────────┐◄──────────┐
         │   Sensor senses the fingerprint    │           │
         └────────────────┬───────────────────┘           │
                          │                                │
                          ▼                                │
  ┌─────┐  ┌────────────────────────────────────┐         │
  │     │  │  Fingerprint is compared with data  │         │
  └─────┘  │            in database              │         │
           └────────────────┬───────────────────┘         │
                            ◇                              │
                  ╱   Fingerprint   ╲        NO            │
                 ◇      matches       ◇──────────────┐─────┘
                  ╲                 ╱          ┌──────┐
                    ◇             ◇            │  NO  │
                       yes                     └──────┘
                          │
                          ▼
         ┌────────────────────────────────────┐
         │      Attendance is granted         │
         └────────────────┬───────────────────┘
                          │
                          ▼
                    ┌───────────┐
                    │    End    │
                    └───────────┘
```

Result:

The proposed system can be implemented to take the attendance of the students in a reliable manner. The system maintains the attendance records of each student accurately. The system identifies each student's fingerprint and stores the attendance in the database. The attendance will be immediately uploaded to the database in seconds. It can also effectively generate attendance reports of each day. The attendance reports of a day can be viewed by means of an android application.

Driver Safety Awareness and Assistance System for Vehicle Control
(CEC/CS/2018/P16)

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Abstract:

Safety plays a major role in today's world and it is necessary that good safety systems are to be implemented in places of driving. Now day's road accidents are happening due to driver's drowsiness, drunken behavior and improper physical conditions. This project describes on a driver drowsiness detection system, monitoring the drowsiness of the driver, preventing the vehicle from being accessed in a unauthorized way and it also detect the alcohol consumption of driver. When the drowsiness is detected the DC motor vibrates which is placed below the seat and the alarm rings. Only the authorized person can access the vehicle, and if any unauthorized person tries to access the vehicle then the notification is sent to the vehicle owner. The alcohol consumption of the driver can detected with the help of alcohol sensor and the ignition of the engine stops if the alcohol consumed by the driver is more than the threshold.

Objective:

- To develop a system that can detect the drowsiness of the driver.

- To prevent the unauthorized access of the vehicles.

- To detect the alcohol consumption of the driver using alcohol sensor.

Outcome:

- Alarm rings and DC Motor vibrates when drowsiness is detected.

- Prevention of unauthorized access of vehicle through notification

- Driver can be considered as drunk if the alcohol consumption is more than threshold.

Methodology:

In the proposed system we are using Arduino nano kit as the main controller of the system. The alcohol consumption of the driver is detected by using Alcohol senor to measure the alcohol consumption of the driver. If the alcohol consumed by the driver is more than the threshold value, then the ignition of the vehicle stops. To detect the drowsiness of the driver we are using web camera to capture the image of the driver. If the drowsiness is detected then the vibration of seat takes place. This done by placing the DC Motor below the driver's seat. After that alarm rings which awakens the driver. The unauthorized access of the vehicle by sending message to the vehicle owner saying that face not detected. As a result the unauthorized access to the vehicle can be prevented.

Result:
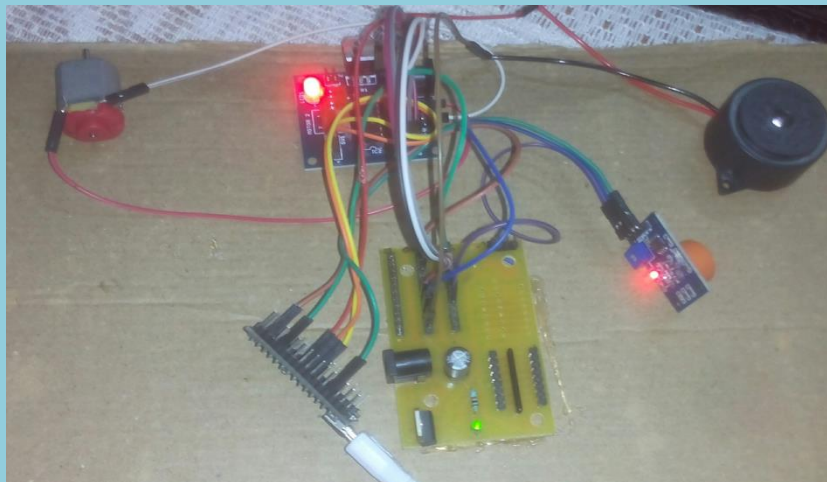
Fig -1: Alarm Rings and DC Motor vibrating output
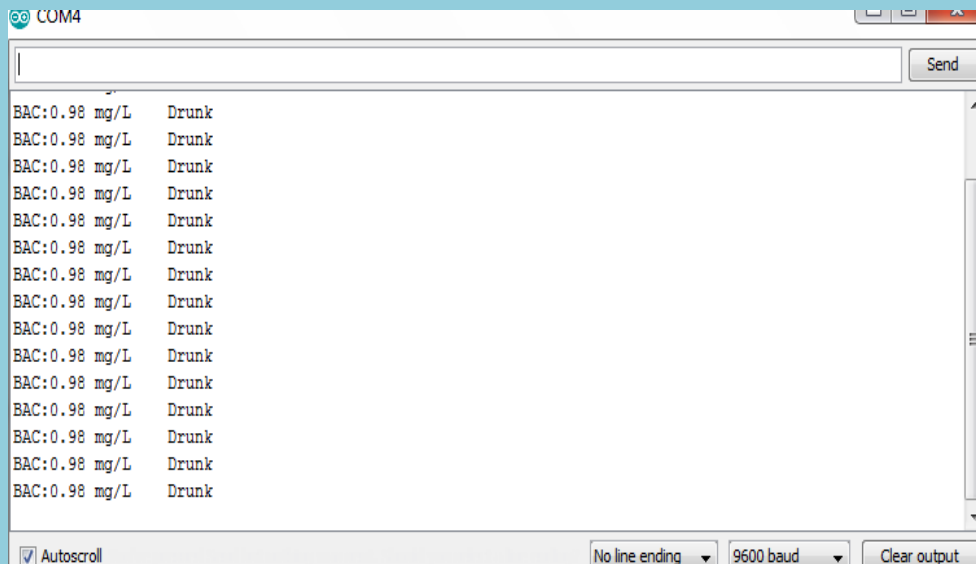
Fig -2: Alcohol Consumption Output

Fig -3: Output screen

The Fig.1 shows the output of drowsiness detection in which the motor vibrates and alarm rings. The Fig.2 shows the output of alcohol consumption of the driver in which the alcohol senor is used and prints the message as drunk. Fig.3 shows the output that face captured is a authorized person and prints the name.

Analysis of the causes behind average students' grade using Machine Learning approach

(CSE/CS/2018/P17)

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Abstract:

Machine learning and data mining approaches in educational sector concern with extracting hidden information from education dataset which could be useful to improve the education system by resolving those causes. There are various reasons behind low grades of students such as high level of alcohol and drugs consumption, spending more time on extra curriculum activities, lack of parent's education, lack of proper motivation, etc. In this project, we use different machine learning methods on an educational dataset of Bachelor of Engineering student's average grades. Our results may demonstrate that while liquor/drug utilization are not the most grounded indicator of average student grades. There are few most grounded indicators of average students grades are the ability to seek after advanced education, education background of the mother, etc.

Objective:

 The objective of this project is to analyze the causes behind the average students' grades.

Outcome:

The educational institutions / mentors will be able to take necessary actions against students to improve the grades of students.

Methodology:

1. Data collection module performs tasks related to gathering information, from which we derive insights.

2. In data pre-processing, the data that has been collected is not consistent in all cases, there may be some missing values for particular fields. Hence data cleaning is needed.

3. Once data is pre-processed, machine learning algorithms deals with the various feature

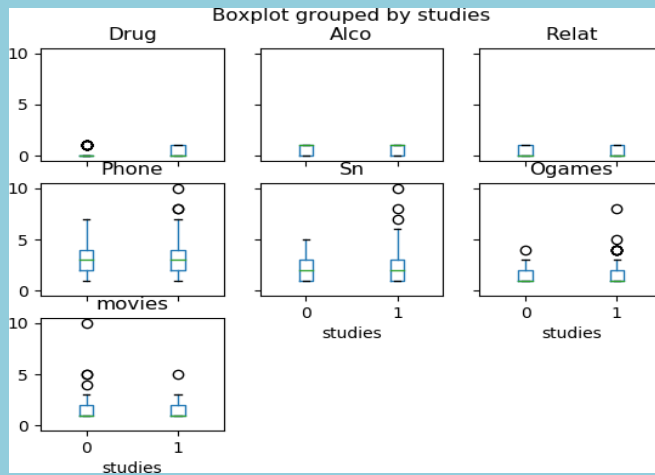sets under consideration and analyzes them in order to obtain insights from it.
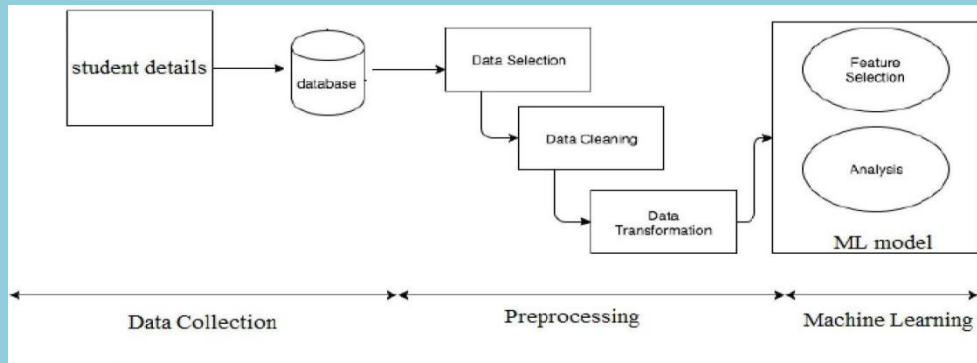
Fig.1 System Architecture

Result:

Using Random Forest as the algorithm for implementation, 65% of accuracy is obtained.

Boxplot grouped by studies

Student data
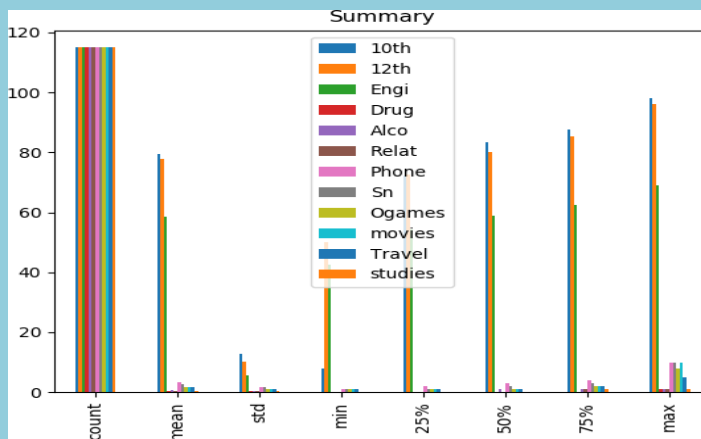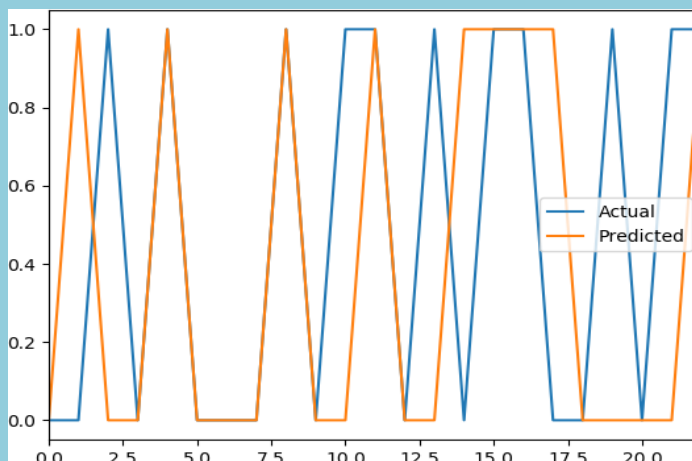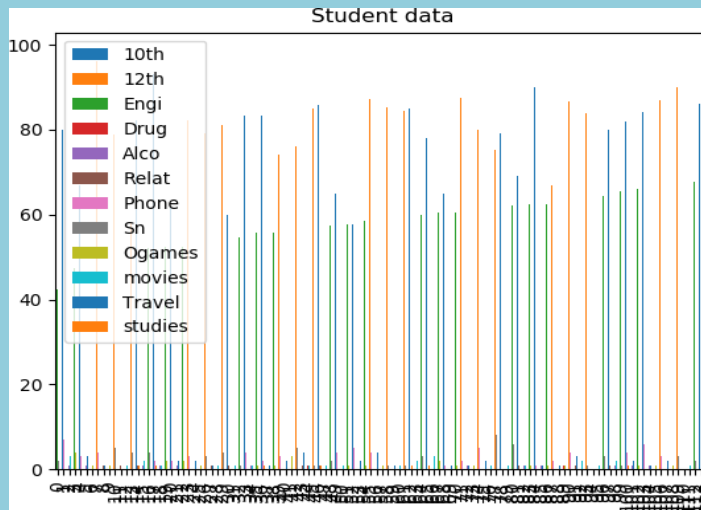
VISHRAM- APP

(CEC/CS/2018/P18)

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Abstract:

Vishram-App helps the customers (senior citizens) in requesting listed Medical & Non-medical Services. The app enables the senior citizens to carry out their daily activities independently. The App should be designed keeping in mind that the user segment is not tech savvy hence it should be a basic design. There are growing numbers of the elderly people globally who cherish to manage their own lives. It would be simpler if some help is available for those who wish to stay in their own homes and surroundings instead of relocation. Keeping this in mind - 'Vishram' has been conceived to provide a cost effective assisted living option - support services (medical and non- medical) at one's own home through a Smartphone App.

Objective:

- To provide a cost effective assisted living option for elderly people through support services (Medical and Non-medical) at one's own home through a Smartphone App.

- Vishram-App helps the customers (senior citizens) in requesting listed medical and non-medical services by themselves.

Outcome:

- An android application for the elderly people to request listed medical and non-medical services through their smart phones.

- Service providers will process these requests and provide the services to the customers (elderly people) at their own house.

Methodology:

- All the three users can Login through same Login page. After Loging in users will be directed to their respective dashboards.
- Customer can then request for the services in his dashboard. There are three categories of the services. They are Health care, Home care and Check-in care.
- Service providers can view the request and they can either accept or delay the request.
- Customers will be reminded of their booking via SMS that will be promptly sent to them before their booking date.

Result:
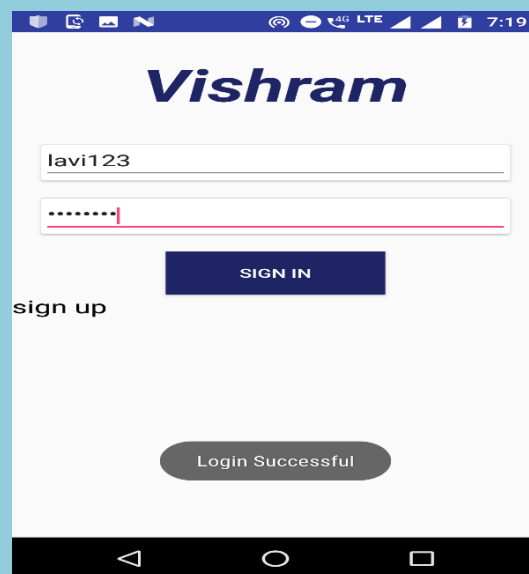
Testing Login page

Users can successfully login to the application if the username and password is correct otherwise users are not allowed to login to the system.
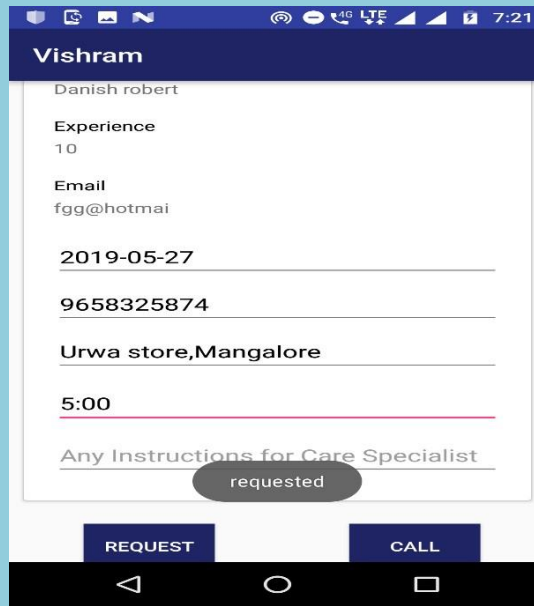
Requesting Service provider for the service

Customers can select the specific category of services and select the service provider and place their request for the service.
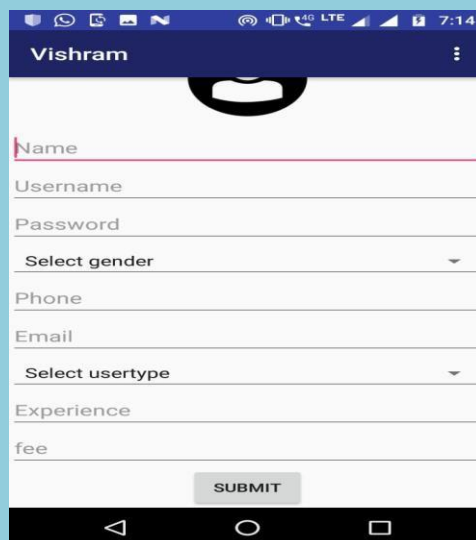
Admin adding service provider

The Admin enters username and password and login to the app. Admin adds the service provider by entering details. Admin assigns the user name and password to the service provider.
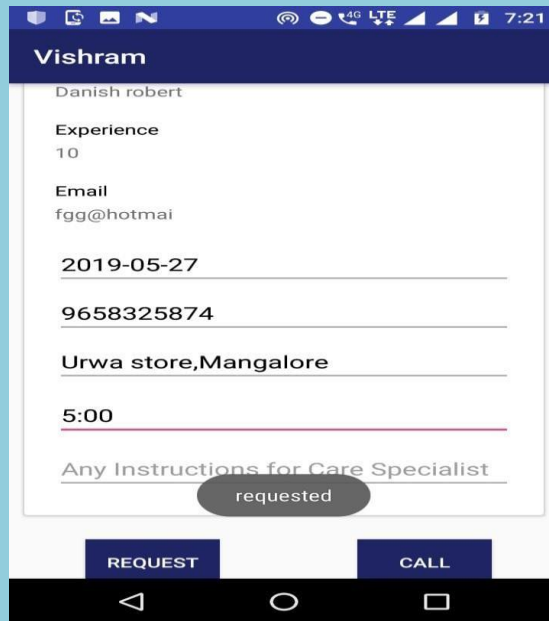
User requesting for service

Customer will choose the required service, enters the date on which service is needed, mobile number, place and time for service providers reference and sends the request. The other option is user can directly call service provider.
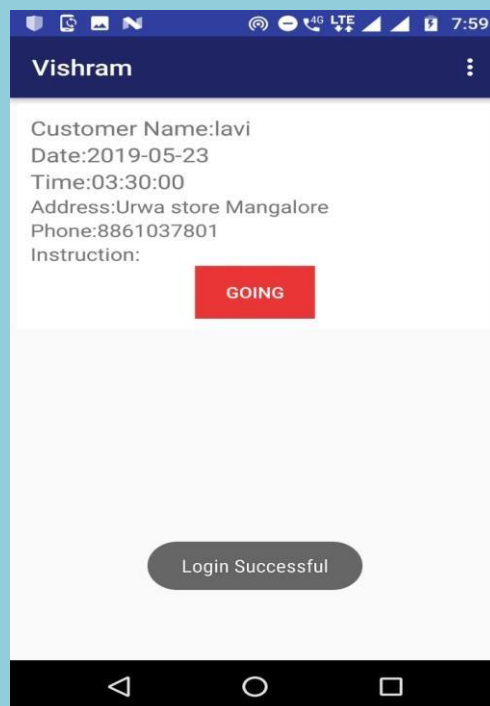
Request received by service provider

The service provider will get the request on login. Service provider can accept the request by clicking on going button.
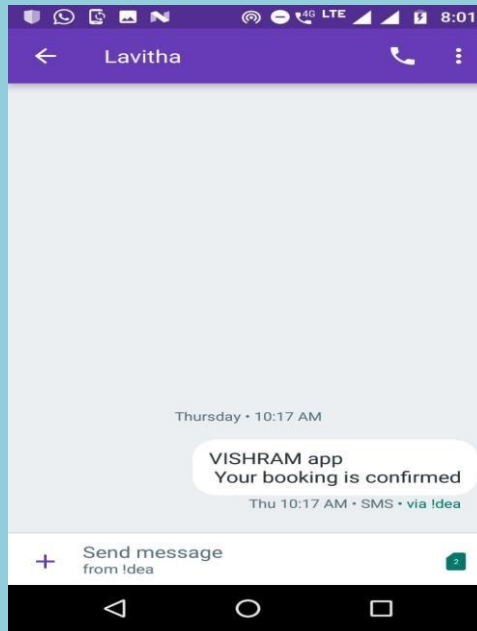
Request accepted message

As service provider accepts the users request, the user will get the confirmation message.

Development of Grievance Redressal System
(CEC/CS/2018/P19)

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Abstract

Online Grievance Redressal System for College provides an online way of solving the problems faced by the students or staff. The objective of the Grievance Redressal System is to make complaints easier to coordinate, monitor, track and resolve, and to provide an effective tool to identify the problem areas, monitor complaints and make improvements. Grievance Redressal System is a management technique for assessing, analysing and responding to student and staff complaints. It is used to record, resolve and respond to complaints. The main purpose of this project is to help the students or staff to register complaint details as and when a problem is discovered. By this system the problems faced by students or staff regarding the facilities available in the college is effectively handled. In the proposed system the problems can be registered easily and taken care effectively with the user receiving the acknowledgment about complaint from the authority.

Objective and Outcome:

- The objective of the Grievance Redressal System is

- To make complaints easier to coordinate, monitor, track and resolve the Grievances.
- To provide an effective tool to identify and target problem areas and find solutions.
- Prompt and specific retrieval of data.
- Flexibility in the system according to the changing environment.
- Controlling redundancy in storing the same data multiple times.
- Accuracy, timeliness and comprehensiveness of the system output.
- Enhancement in the completion of work within the constraints of time.

Outcome:The outcome is to solve Grievances that has been submitted through the application which has been issued by the users in the most efficient way possible.

Methodology:

Login: The login of the system is divided into two parts one for Users and another for Grievance member which is directed based upon the login credentials.

After Login:

User is directed to the user dashboard where he/she can add the complaints, edit his details, reset his passwords and track the status. Once a complaint is sent a mail is generated to the provided email by the user.

Grievance Member is directed to the grievance member dashboard where a statistical view is provided, change password, view and solve the complaint based upon the status. A pdf reader is added to each and every complaint to view.

Result:

Figure 1 shows the homepage of the web application. If the user selects Register button the his lead to registration page shown in Figure 2. If the user has an account and he wishes to log in to it then he can click login button which leads to the page shown in Figure 3.
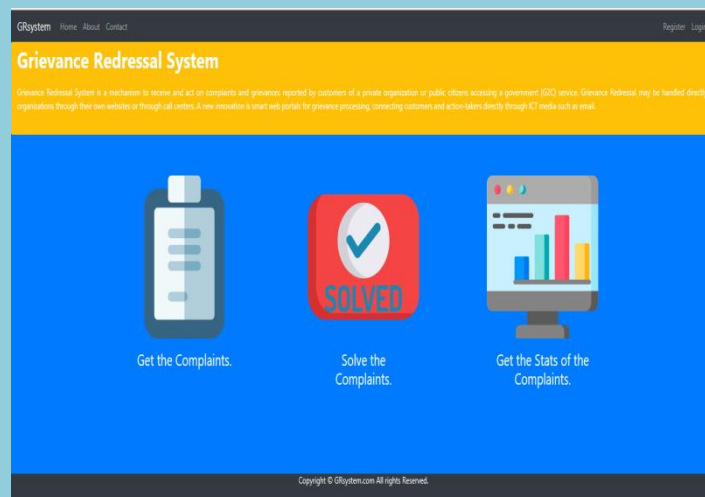
Figure 1: homepage
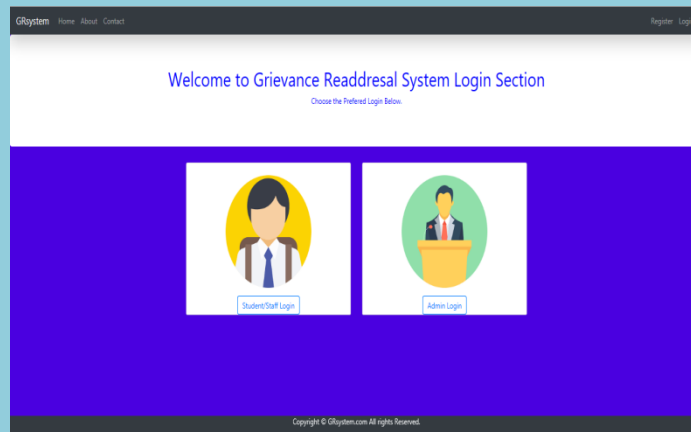
Figure 2: Login Page

After the user registers, he can then login using the login page shown in figure 4 and user cab view his profile and edit his details as shown in the page. He can then add complaints in the page shown in figure 5.
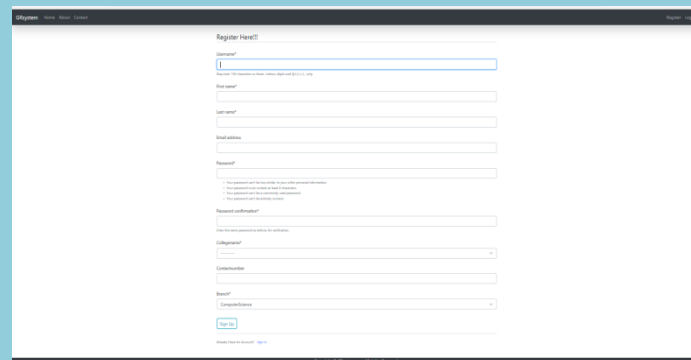
Figure 3: Registration page

Figure 4: Login page

Department of Computer science & Engineering, CEC Ay:-2018-2019
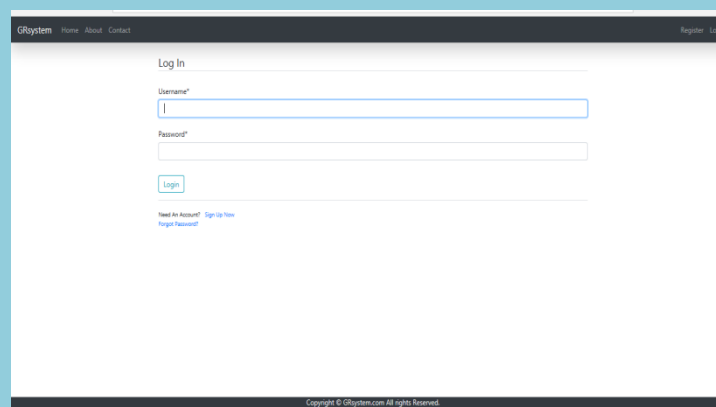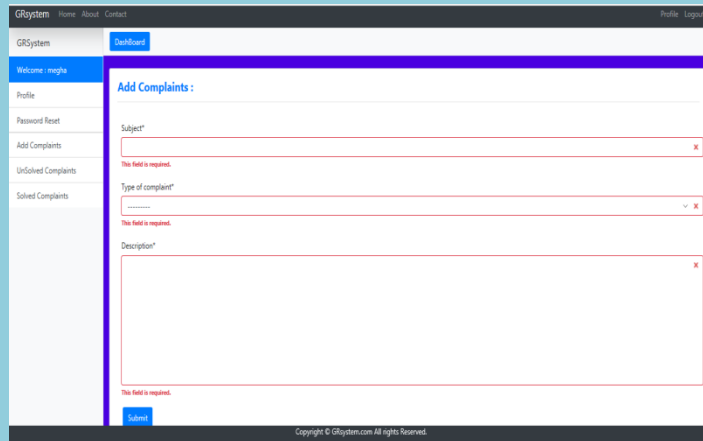
Figure 5: Add complaints

Figure 6 shows solved complaint table.Figure 7 shows the statistical analysis based on the categories of the complaints .Figure 8 shows the complaint table for admin.

Figure 6: solved complaints table
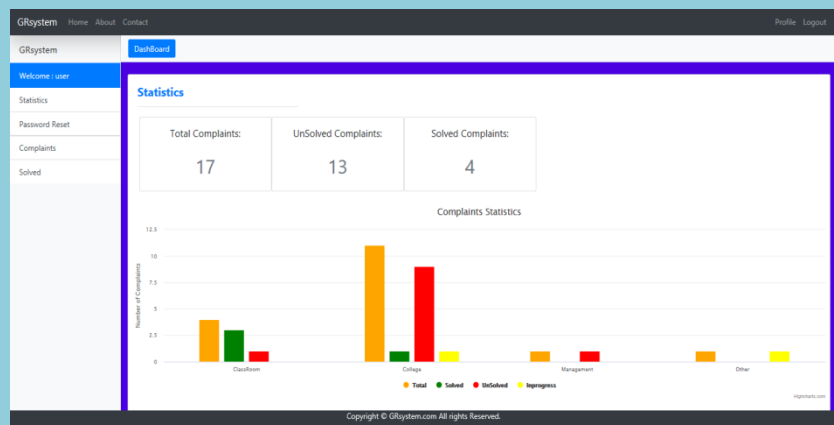
Figure 7: statistical analysis

Figure 8: complaint table

Pollution Parameter Analysis and Predictive Model Building
(CEC/CS/2018/P20)

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Abstract:

Monitoring and preserving air quality has become one of the most essential activities in many industrial and urban areas today. The quality of air is adversely affected due to various

forms of pollution caused by transportation, industries, fuel uses etc. The deposition of harmful gases is creating a serious threat for the quality of life in smart cities. With increasing air pollution, we need to implement efficient air quality monitoring models which collect information about the concentration of air pollutants and provide assessment of air pollution in each area. Hence, air quality evaluation and prediction has become an important research area. The quality of air is affected by multi-dimensional factors including location, time, and uncertain variables. Recently, many researchers began to use the big data analytics approach due to advancements in big data applications and availability of environmental sensing networks and sensor data.

The aim of our project is to implement various machine learning based techniques for air quality forecasting. The algorithm implementation and Predictive Model building is done using Python.

Objective and Outcome:

Objective:

- Building a Predictive model for each city based on different pollution parameters.
- To make user able to understand the historical trends in air quality data using attractive user interfaces.
- To find the correlation between the changes in the quality of air pollutants

Outcome:

- Build a predictive model to reproduce the research work.
- Design a webpage to display the historical trends and predictions regarding the meteorological conditions.

Methodology:

In the proposed System Air Pollutant Data is collected from Central Pollution Control Board(CPCB)through web scrapping in Python using BeautifulSoup module. The extracted data is put into Excel as a Comma Separated File. Data is cleaned using python module. Then Descriptive analysis on the cleansed data using the mathematical functions such as Standard Deviation, Skewness and Correlation is performed. Using the regression model we are building a predictive model, which can predict the value of meteorological parameters from the
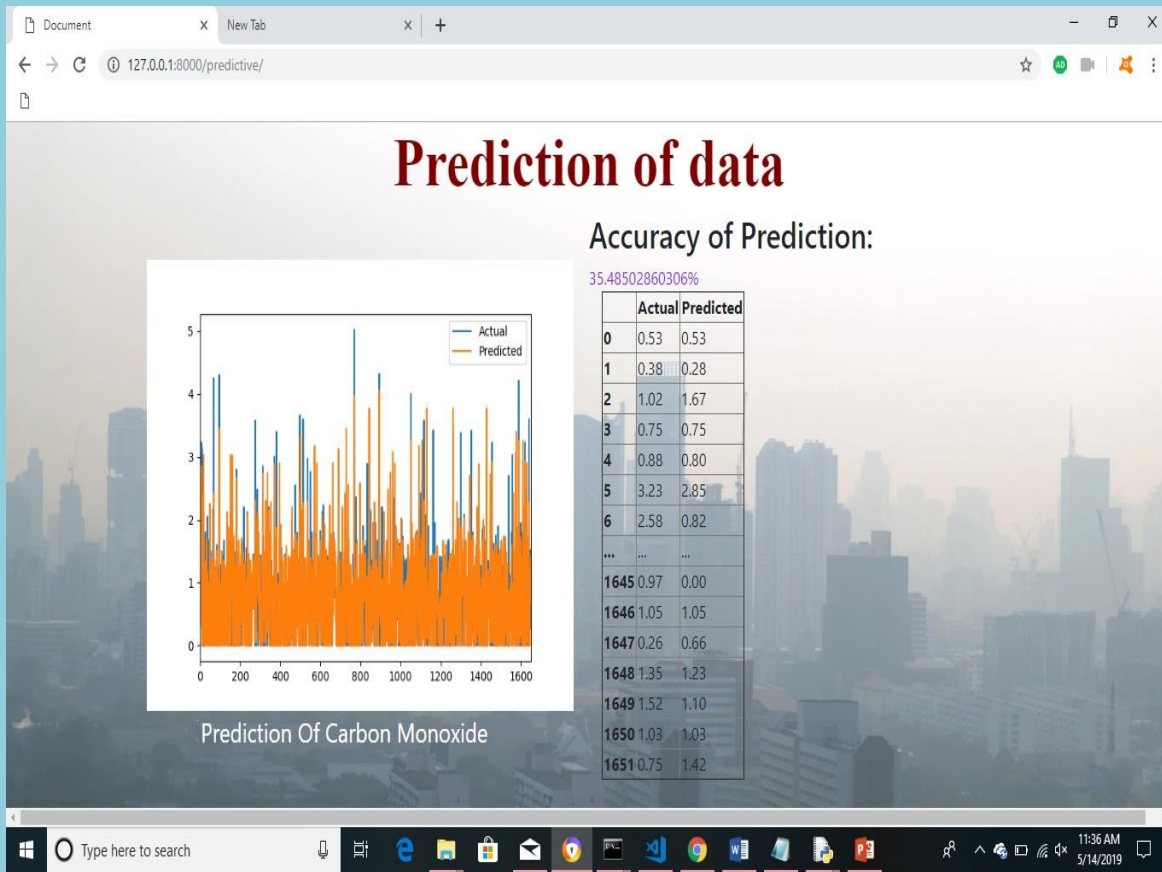
historical values and then performance of the model is measured. Later all the predicted values along with the precautionary measures will be displayed through the website to the users.

Result:

Admin performs descriptive analysis on the pollutant data and three types of results are displayed in graph.

- Summary of the data

- Correlation between the pollutants

- Skewness of Data

The value of Carbon Monoxide (CO) is predicted and the accuracy and related graphs are obtained as results.

Figure 1: Summary of data in Pollution Parameter Analysis and Predictive Model building Website

Figure 2: Prediction of data in Pollution Parameter Analysis and Predictive Model building Website

KNOWLEDGE MANAGMENT SYSTEM

(CEC/CS/2018/P21)

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Abstract:

Knowledge Management System is the way of sharing knowledge from one person to another across the world or people within an organization. The knowledge sharing will connect people to people and share information for things such as problem solving, dynamic learning, strategic planning and decision making. The objective for knowledge management system is to create groups in interested areas. It provides platform to store and retrieve information and also able to share the documents. It helps to solve the problems in faster rates and to start new line business.

Its mission is to share and grow the world's knowledge. A vast amount of the knowledge that would be valuable to many people is currently only available to a few — either not shared in people's heads, or only accessible to selected groups. We want to connect the people who have knowledge to the people who need it, to bring together people with different perspectives so that they can understand each other better, and to empower everyone to share their knowledge for the benefit of the rest of the world. This is a place where anybody can ask questions who care about and get answers that are amazing. This brings together people from different worlds to answer the same question, in the same place and to learn from each other.

Objective :

The objectives of the Knowledge Management System is to:

- Create Groups or Sub groups depicting interest areas.
- Provide a platform to store, retrieve and search sharable documents.
- Scalable solution which can be used to store large amounts data/documents.
- Versatile user management capabilities with hierarchical privileges.
- Historical database setup for advanced key word search.
- Single-sign on feature to avoid repeated singing in.

OUTCOME:

Knowledge management System connects different people from different organizations or people within an organization and share knowledge among them to improve performance.

Mathodology:

The entire project is divided into two modules:

1. Admin: He can login using his username and password. He can manage resumes and post uploaded by users. He is also able to decide the most active user depend on the star based ranking mechanism.
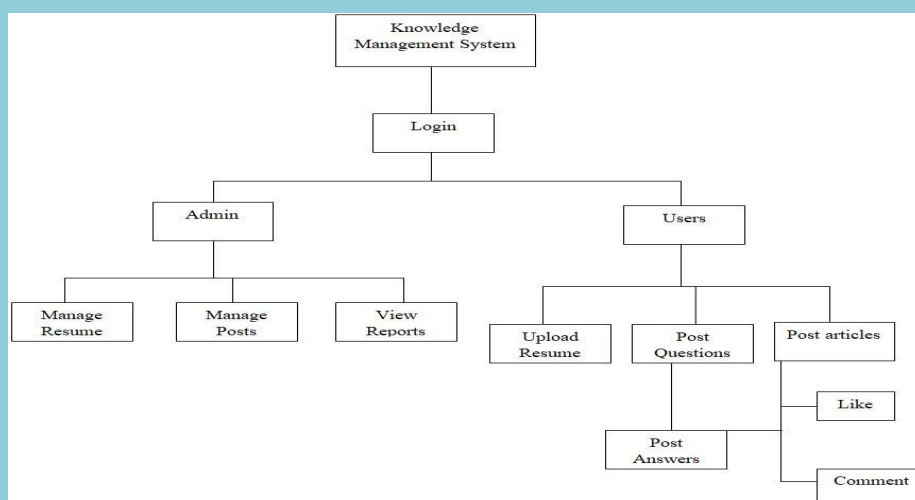
2. User: is able to upload resumes, post questions, answer to the posted questions, post articles and also comment and like the articles posted by other users.

Result:

Purpose of this project is is to bring together people from different organisation with different thoughts and share knowledge among them. Its mission is to share and grow the world's knowledge. A vast amount of the knowledge that would be valuable to many people is currently only available to a few — either not shared in people's heads, or only accessible to selected groups

Wsafe (Osare)

(CEC/CS/2018/P23)

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Abstract: With increasing crimes now a days safety of women has become a matter of thought. It is important to concentrate on the safety of women. Rather than depending on someone else it would be best if women can help themselves at the time of danger. Currently technology is at its advanced state and smartphones are cheap and affordable. Almost everyone has smartphones thus an android application would be one of the easiest way for a woman to safeguard herself. Thus we have developed an application named WSafe which is compatible with all the latest android smartphones. It makes use of the built-in sensors available in the android smartphone to trigger events and assist the users. The main focus of this application is women safety and safety of the elderly.

This application aims to provide assistance as a quick emergency tool for the user to inform their close ones that they are in an unsafe place or in danger. The is achieved by utilizing the sensors available in the android smartphone and by using gestures or by few taps of a button alert is sent to your closed ones, including your current or most recent location and a google maps link.

Objective and Outcome: An Android application which is mainly developed for women safety. With a click of power button multiple times the user can share text and location with their closed ones.

This application aims to provide assistance as a quick emergency tool for the user to inform their close ones that they are in an unsafe place or in danger.

Methodology: We have to setup a server which is used to store the registered users and their login info, have to design the database to store the user info in the server. The android app connects to the server during login or registration process. The android app has to get the permission to access the users GPS services and contact details and SMS service to be able to

properly send the SOS message to the preconfigured contacts. When the user is in a trouble

or in an unsafe place, they can press the power button a fixed amount of times to trigger the SOS message or can go to app and press the SOS button to trigger the event to send the messages to the preconfigured contact numbers. When the SOS trigger occurs the event tries to fetch the current location of the user and send it to the preconfigured contacts. If the current location is unavailable, the most recent recorded location will be sent to the preconfigured contacts. The preconfigured contacts will receive the message from the user and the message contains the users name and the most recent location and a google maps link.

Result: Fig. 1 shows the test result of sending SMS. Since the SMS sent successfully a Snackbar is popped up saying "Message Sent Successfully".
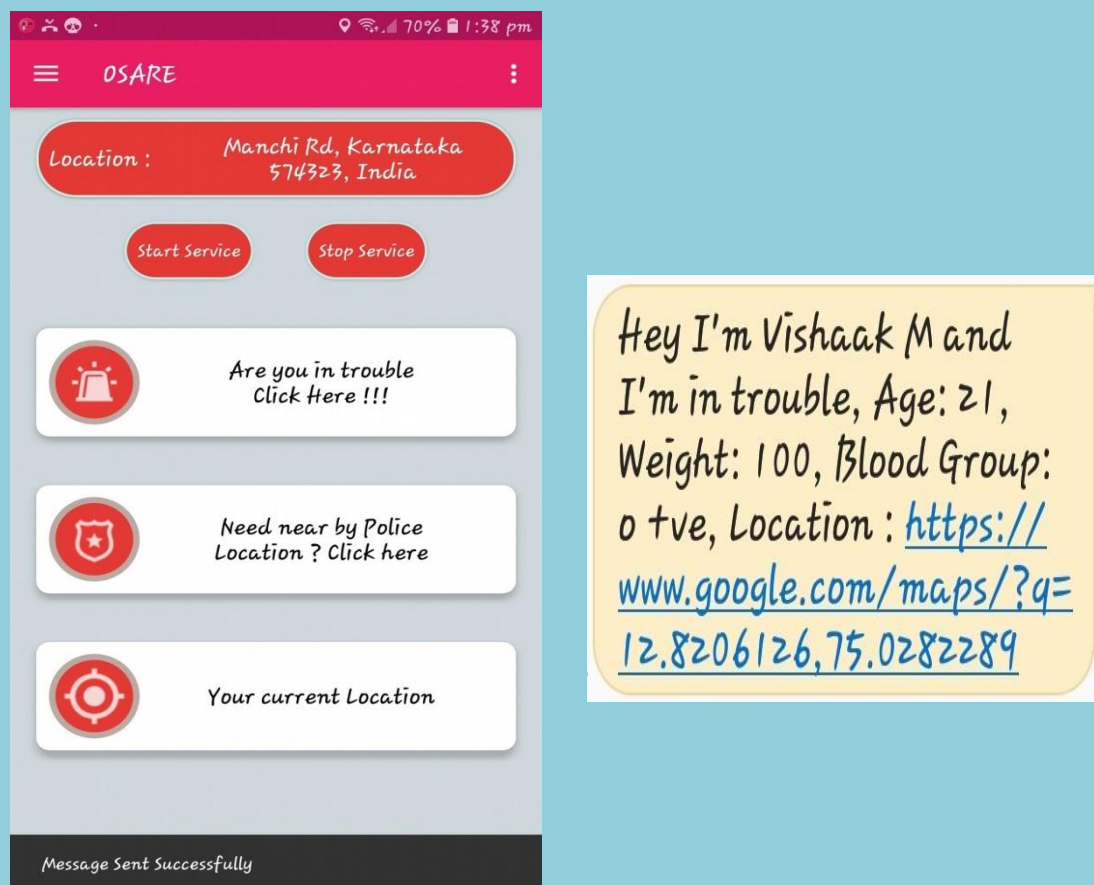
Figure 1: Test screenshot of sending SMS

Web Scraping For Real Estate

(CEC/CS/2018/P24)

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Abstract:

Web scraping is a process through which particular websites are crawled or scraped and important information extracted from them according to pre-defined parameters. This information is stored in a database or csv files for later business use. Web scraping is an incredibly faster and better way to collect data for business. Web scraping is crucial and immensely beneficial exercise in the real estate business. It helps to build the kind of data bank that is the hallmark of a thriving, flourishing real estate company. The purpose of this web scraper is to collect meaningful insights into the real estate market and to better understand off market properties that hold the most value. Preparing a specific code which has been written in a specific programming language such as Python, Ruby or PHP to scrap data from web is the best way. In this project customizing is done with web scraping tools to automatically scan, scrape real estate data and perform analysis on the extracted data.

Objective and Outcome:

- To scrape real estate data by tapping into a vast wealth of information that is present on the internet, gather that information in a structured and streamlined way, store it in a database for easy retrieval and future use.

- To build the kind of data bank that is the hallmark of a thriving, flourishing real estate company through data analysis of the collected data.

- To provide the tools to perform data analysis so as to better understand off market

properties that hold the most value for a real estate company.

Methodology:

- The major principles are URL extraction and storing them in a csv file, extracting the data from the links and storing them in a csv file and finally performing analysis on the extracted data.

- This application uses a tool called UiPath to automate the process of collecting URL's from the predefined website.

- The collected URL's are then stored in a csv file for data extraction.

- Web scraper relies on Web scraping for extraction of data from each of the URL links through two specialized python libraries: HTMLParser and Beautiful Soup.

- The extracted data are stored in csv file.

- This application comes up with the tools to provide a graphical representation of the data by performing analysis on the collected data to better understand off market properties that hold the most value for a real estate company.
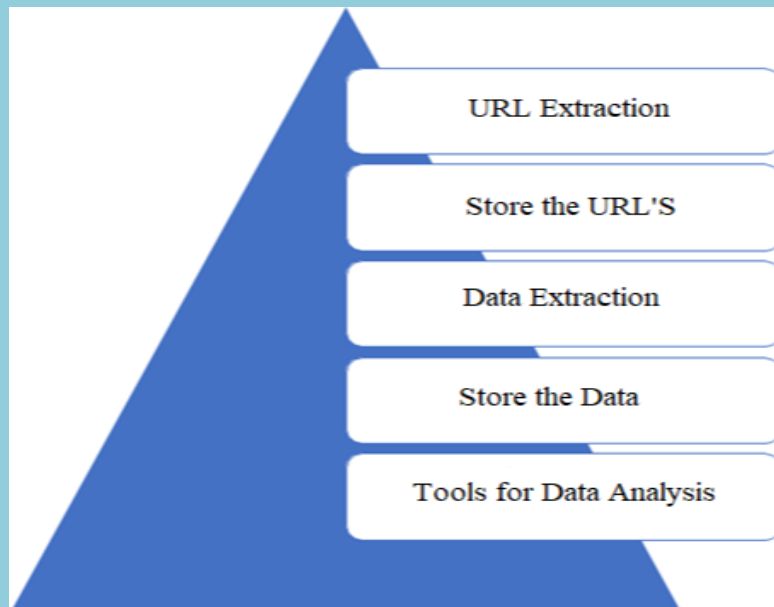
Figure: Architectural diagram representing the elements of web scraping

Result:

- The proposed system can be implemented to scrape real estate data by tapping into a vast wealth of information that is present on the internet, gather that information in a structured and streamlined way, store it in a database for easy retrieval and future use.

- This system builds a kind of data bank that is the hallmark of a thriving, flourishing real estate company through data analysis of the collected data.

- The proposed system mainly acquires its scope while it provides the tools to perform data analysis so as to better understand off market properties that hold the most value for a real estate company.

Automatic Report Generation on Email

(CEC/CS/2018/P25)

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Abstract:

Automate report generation using intuitive, easy-to-use interface that will help avoid manual report generation and updates, and improve business productivity through report automation. This software can automate reports in minutes with no programming. Time taken for manual, repetitive reporting tasks like formatting, running and emailing reports will be reduced. Automatic Report Generation on Email will automate company's report generation processes. It makes report automation quick and easy. The reporting procedures will eliminate repetitive administration & human errors. It provides a large variety of customizable options for tables, charts and graphs. Basically, any reporting task that is to be done manually, the automatic report generation software can automate them.

Objective:

- Build a complete solution for automatic report generation.
- Manipulate data and automate reporting across your organization.
- The performance charts of employees, project completion status, employees added every year in the form of graphs and charts can be viewed.

Outcome:

- A Software system is developed to perform an important and time-consuming task of generating periodic reports.
- Reports can be automatically created and sent via email.
- Reports can be refreshed manually or automatically at pre-defined intervals.
- It provides a suite of customizable options to quickly build an insightful report. You could then email the report to stakeholders, which further eliminates the need for manual intervention in the report generation and dissemination process.

Methodology:

Automatic report generation on email is an application that will provide a complete report automation solution for reporting tasks with the aim to get single-click report production. The work-flow is as follows:

- The user (engineer or manager) logs in to the web server with her or his own user name and password. Immediately after the user is authenticated, she or he is assigned a role (access level) in the system.
- The user feeds the required data into the database and the software can automatically manipulate the data according to the requirements.
- The user receives the output in the format which he wishes to, for example, it could be bar graphs and pie charts.

This can automate report generation using intuitive, easy-to-use interface and avoid manual report generation and updates, thus improving business productivity through report automation. It provides automatic and manual data refresh.

Result:
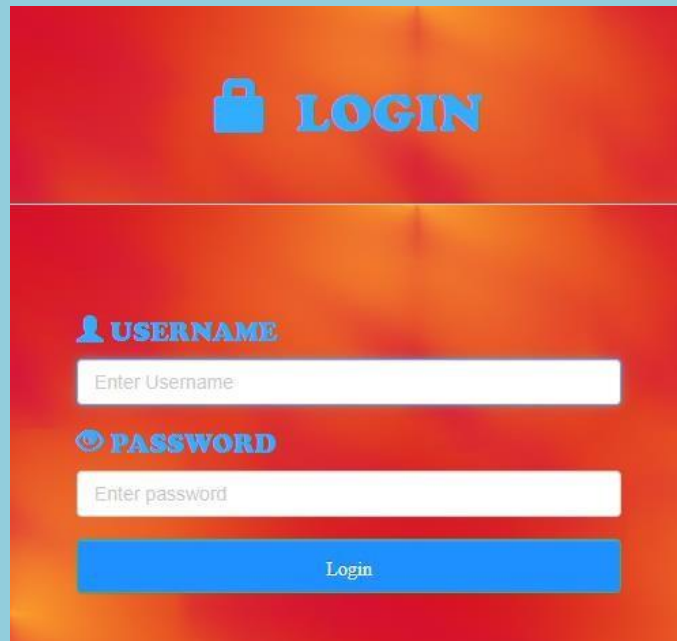
Fig. 1 Login Page

Fig. 1 shows the login page of Automatic Report Generation on Email. With the admin login in, he can add the managers, which is shown in Fig. 2 or add the employees, which is shown in Fig. 3. After the successful registration of managers and employees, the admin can assign employees to the manager as shown in Fig. 4. As shown in Fig. 5, the next task is to add projects.

Fig. 2 Manager Registration Page
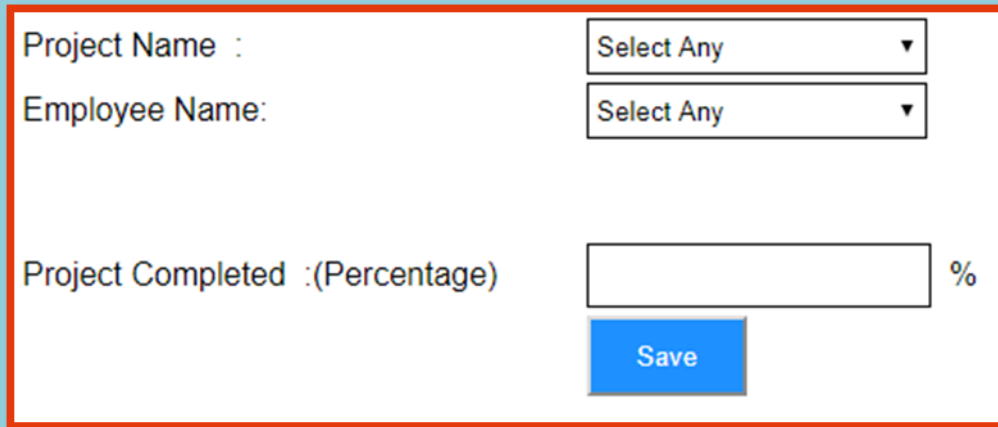
Fig. 3 Employee Registration Page

Fig. 4 Assigning employees to manager

Fig. 5 Adding projects by admin

If the user logged in is a manager, then he needs to assign projects to employees under him as shown in Fig. 6. The performance of each employee under a specific project can be viewed using the Add Performance module as shown in Fig. 7. After successful completion of inserting the required data, various reports in the form of bar graphs and pie charts can be obtained as shown in Fig. 8.

Fig. 6 Assigning projects to employees

Fig. 7 Page displaying the performance of employee

Fig. 8 Page showing various graphs

If the user logged in is an employee, then he needs to add the tasks under a give project as shown in Fig. 9. There is a provision to view the tasks under him.

Fig. 9 Adding the tasks by an employee

After assigning the projects to each employee under a manager, the manager can view the status of the tasks under the project as shown in Fig 10.

SI No	User Name	Task Name	Project Name	Date	Description	No of Hours	Other Activities	No of Hours	Status
1	Rahul	Registeration and login	c++	11-05-2014	-	6	-	0	Complete
2	Rahul	UI	c++	15-05-2018	-	6	-	0	Complete
3	Rahul	Adding users	c++	11-05-2019	-	5	-	0	Pending
4	Rahul	Collect customer requirements for game app	c++	05-10-2014	-	4	-	0	Pending
5	Rahul	Reporting	Data Analytics	06-05-2019	-	6	-	0	Complete
6	Rahul	Analyze the data	Data Analytics	04-05-2019	-	5	-	0	Pending
7	Rahul	Checking the constraints	Data Analytics	27-05-2019	-	4	-	0	Pending
8	Rahul	Collect App Features	Mobile App Development	21-05-2019	-	4	-	0	Complete
9	Rahul	Login and validation	Mobile App Development	25-02-2016	-	6	-	0	Complete
10	Rahul	Calculate transaction	Finance	23-10-2013	-	5	-	0	Complete
11	Rahul	Calculate return amount	Finance	17-07-2015	-	2	-	0	Pending

Fig. 10 Viewing the tasks of an employee

Based on the number of tasks completed under a project, the performance of that employee under that project can be obtained as shown in Fig 11.

Project Name : c++

Employee Name: Rahul

SI No	Task Name	Date	Description	No of Hours	Other Activities	No of Hours	Status
1	Registeration and login	11-05-2014	-	6	-	0	Complete
2	UI	15-05-2018	-	6	-	0	Complete
3	Adding users	11-05-2019	-	5	-	0	Pending
4	Collect customer requirements for game app	05-10-2014	-	4	-	0	Pending

Project Completed :(Percentage)   50.0000   %

Save

Fig. 11 Calculating performance of an employee

Fig 12 and Fig 13 shows the report of count of employees vs year of joining in the form of bar graphs and pie charts respectively.
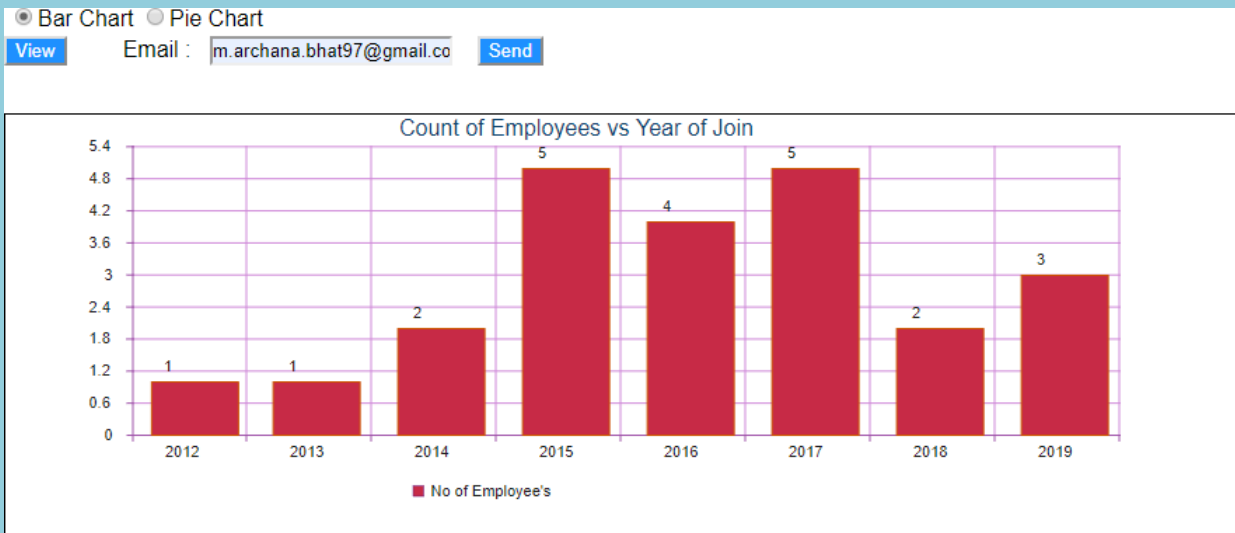
Fig.12 Bar Graph for Count of Employees vs Year of Joining
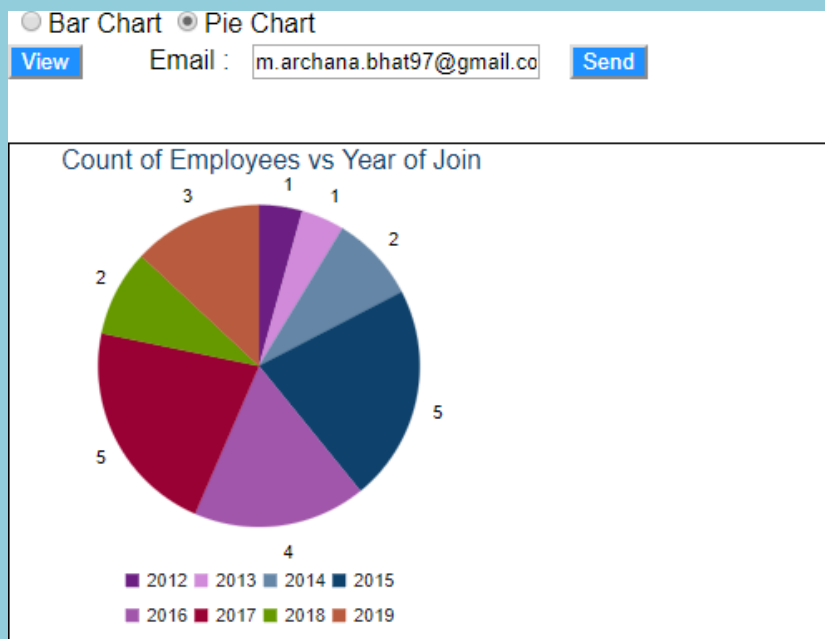
Fig. 13 Pie Chart for Count of Employees vs Year of Joining

Fig 14 and Fig 15 shows the report of number of projects worked by each employee under a particular manager in the form of bar graphs and pie charts respectively.
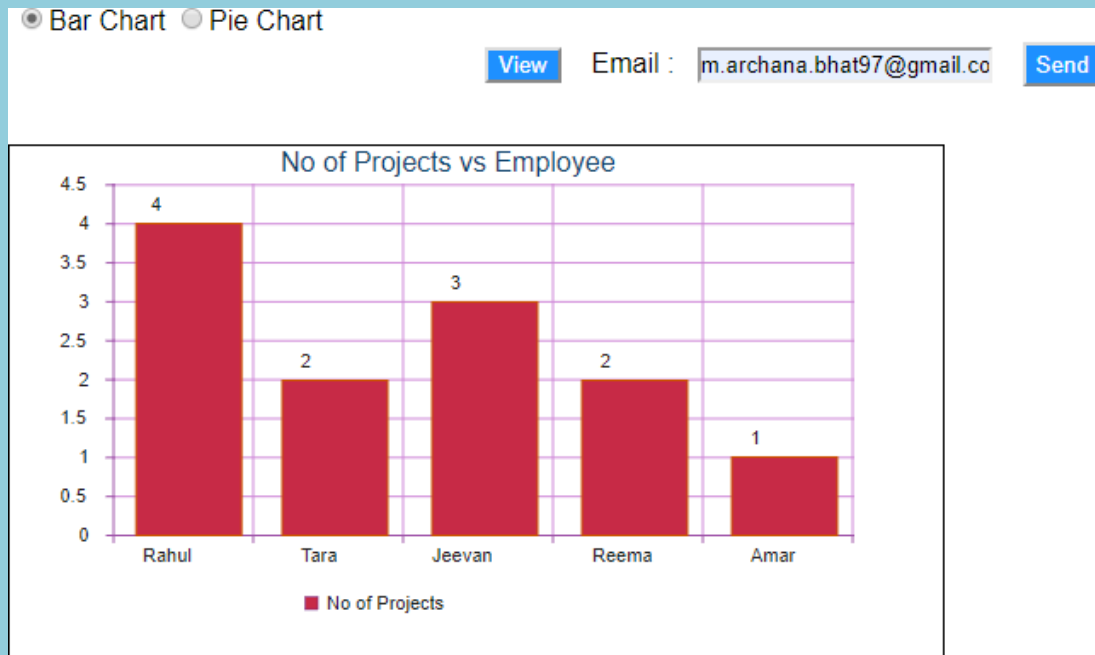
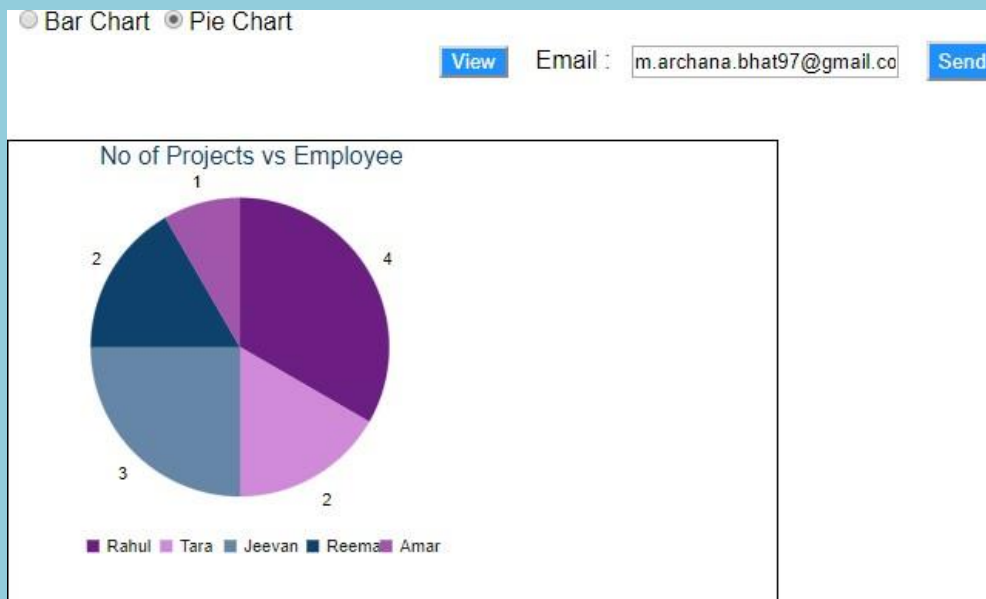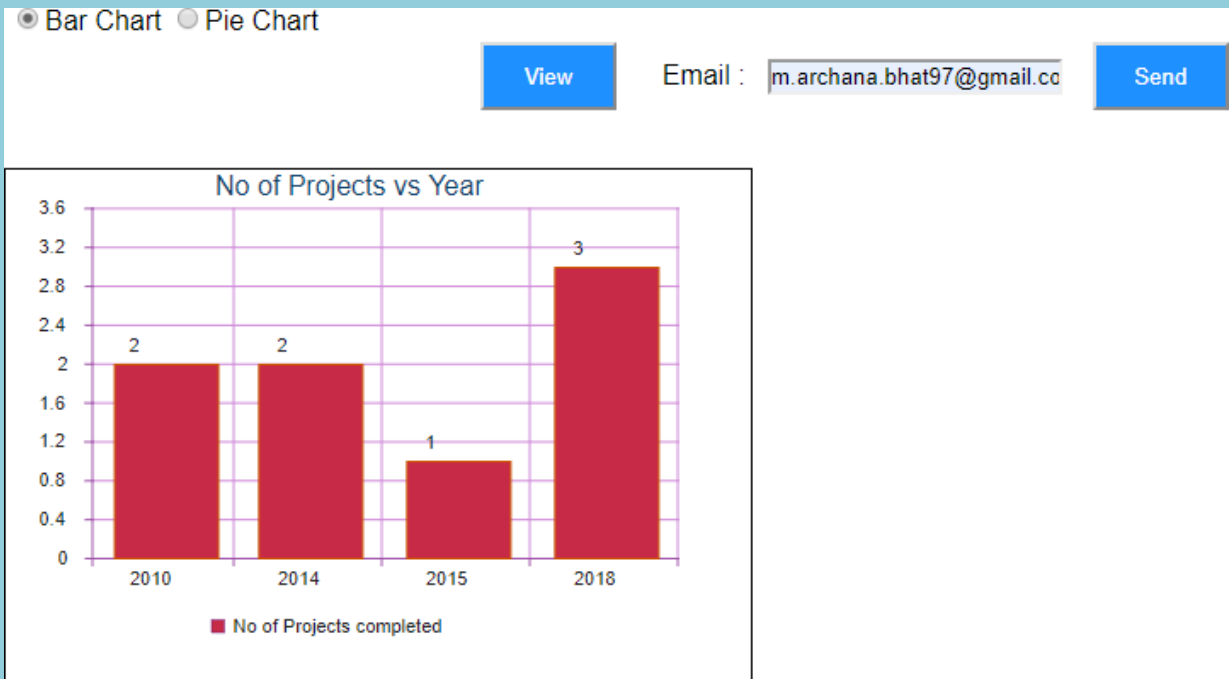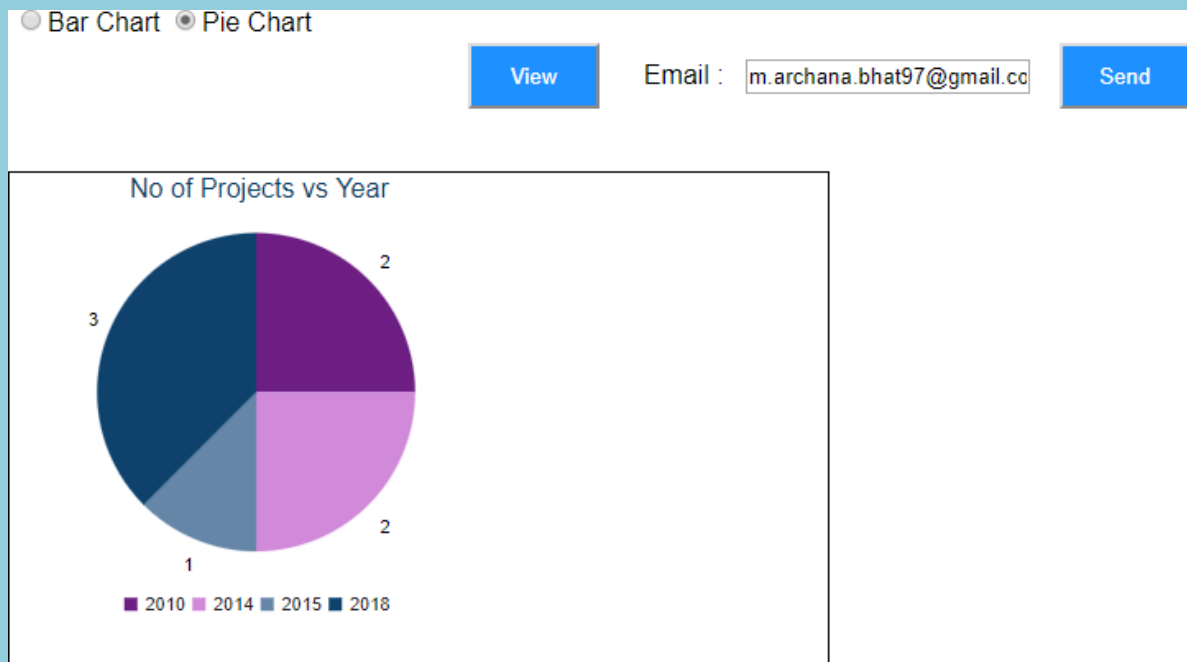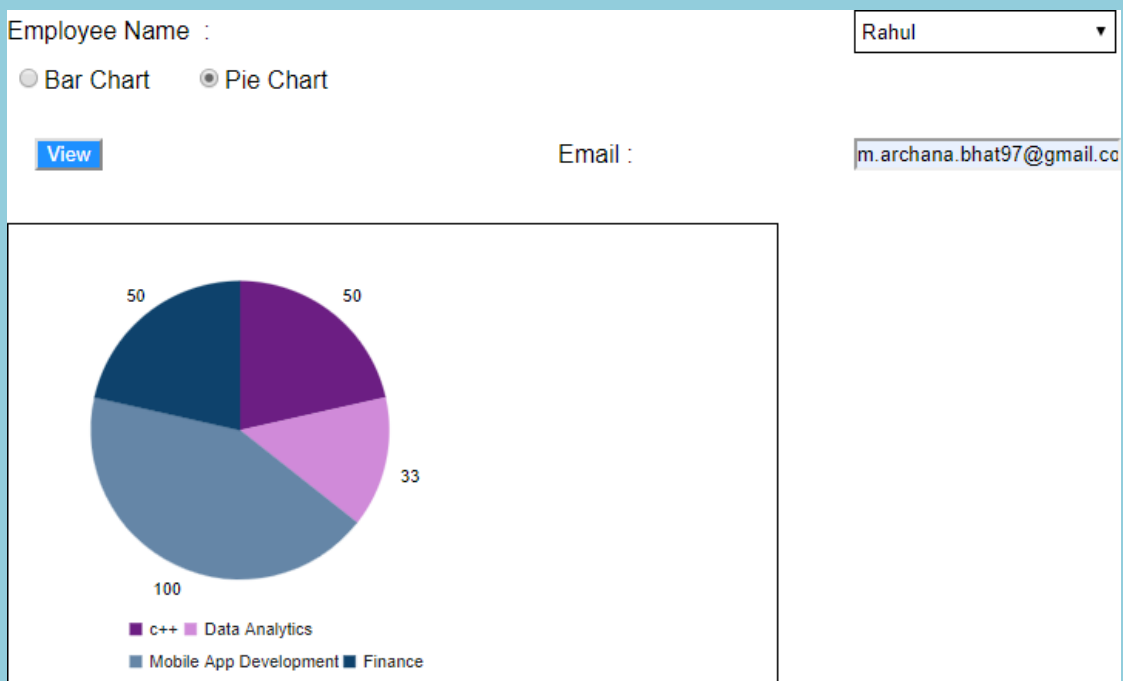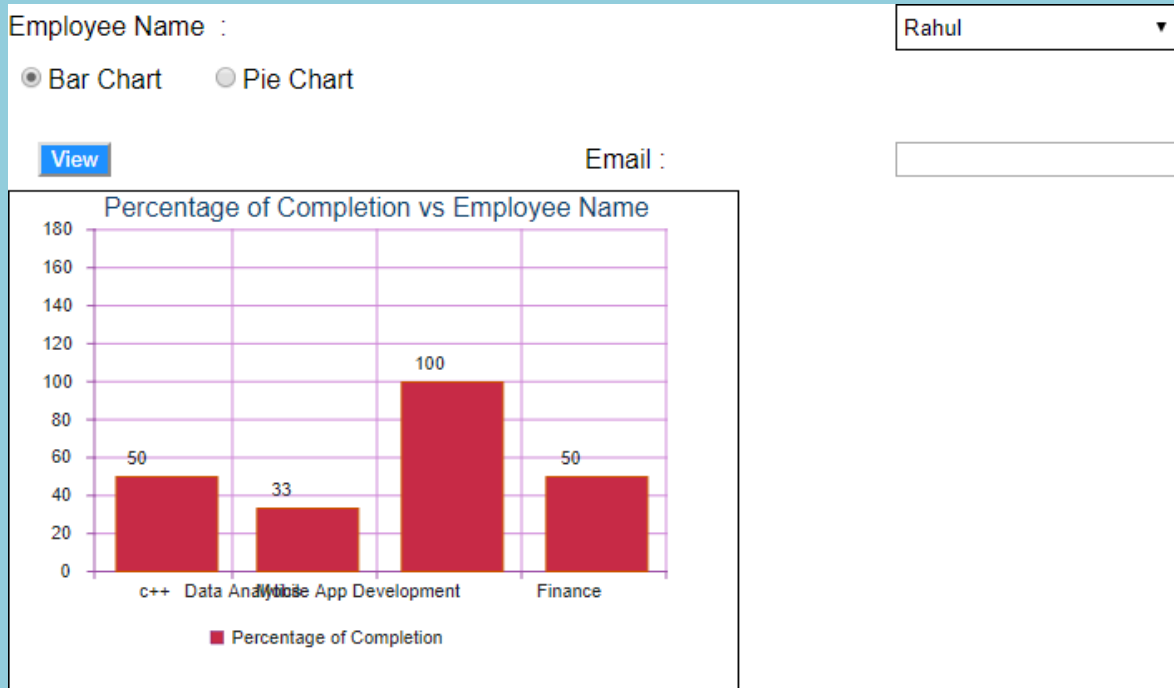**Fig.14 Bar Graph for Number of Projects vs Employee**

Fig.15 Pie Chart for Number of Projects vs Employee

Fig 16 and Fig 17 shows the report of number of projects completed in each year under a particular manager in the form of bar graphs and pie charts respectively.

Fig.16 Bar Graph for Number of Projects vs Year

Fig.17 Pie Chart for Number of Projects vs Year

Fig 18 and Fig 19 shows the report of percentage of completion of each project by an employee under a particular manager in the form of bar graphs and pie charts respectively.

Fig.18 Bar Graph for Number of Percentage of completion of project vs Employee

Fig.19 Pie Chart for Number of Percentage of completion of project vs Employee

Automatic Report generation o Email also allows the users to import an excel file, extract the required sheet from the file and the data in the excel file is plotted in the form of bar graph which is shown in Fig.20.
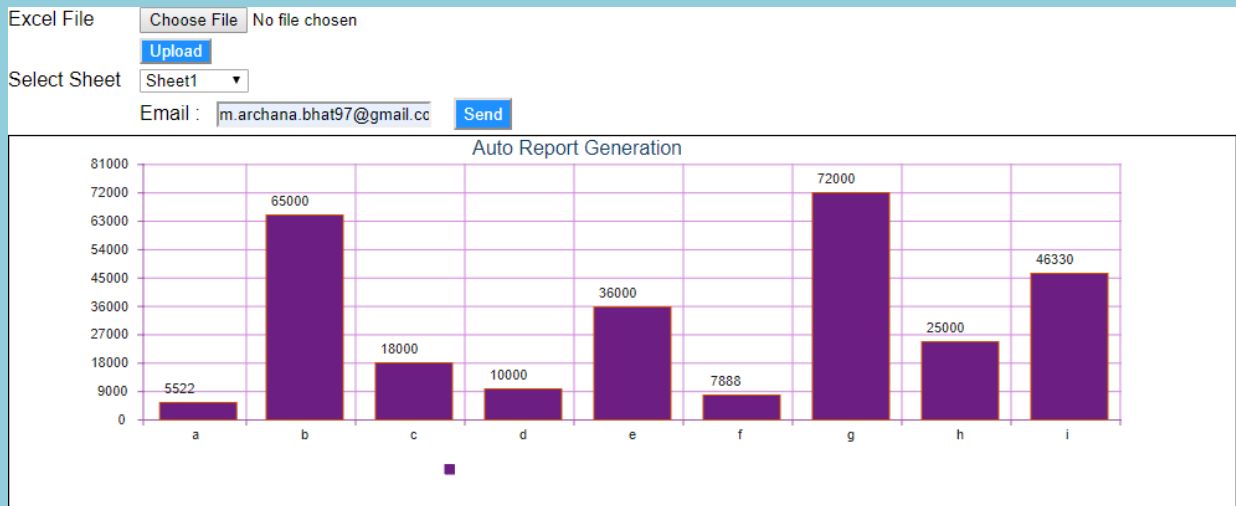
Fig.20 Data in the excel file plotted using Bar Graph

Blockchain Based Record Maintenance System For Students

(CEC/CS/2018/P26)

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Abstract: Education offers critical pathways for upward mobility and economic improvement for people everywhere. Credentials that are earned on that journey serve as important markers of skill, competency, and accomplishment. One goal of every education provider should be issuing the secret credentials in a secure way that students can take with them and build upon. With the Blockchain, the goal of student data ownership becomes a reality. This technology enables learners receive their official records in a digital format that is tamper proof and immediately verifiable by others. An individual's lifetime of education does not reside entirely within one organization. Not only do people attend a variety of schools, but learning happens outside of formal schooling and continues over a lifetime. Because of this, it is important that educational organizations issue student records in a format that learners can own and combine with future achievements. People are becoming increasingly global and mobile. Learners need to be able to take proof of learning with them- proof that remains verifiable even if the educational institutions or governments which issued the credentials cease to function.

Objective and Outcome:

Objective:

- Development of a Blockchain based platform to manage and share academic data.
- To help prevent the falsification of grades and misreporting of scores.

Outcome:

- A Blockchain based platform for issuing and authentication of academic credentials.
- A more secure and fool-proof method for handling academic data.

Methodology:

- Input to the system is the issuer and recipient details for registration and log in. The next input will be from the issuer, who will upload the certificate to be issued.
- The system checks whether the account exists and authenticates the issuer. Once the certificate is registered and uploaded, the hash of the certificate is generated.
- This certificate is then issued to the registered recipient.
- The registered recipient is able to view the received certificate and its details. The hash of this certificate can be shared with other verifiers who wish to check the authenticity of the certificate.

Result: As and when a new user enters the Blockchain environment, a new block is created for him with a certificate and all the further blocks added will be linked to the previous blocks using the hash of the previous blocks. This eliminates the need for a third-party to authenticate records since it can be ensured that no records are modified and are issued only once
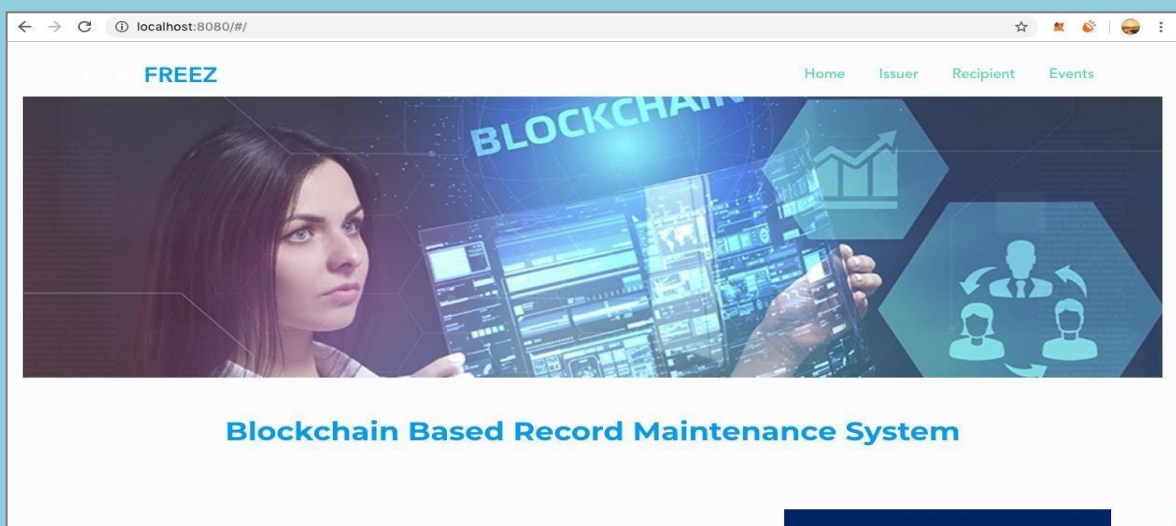
Fig 1: Home page
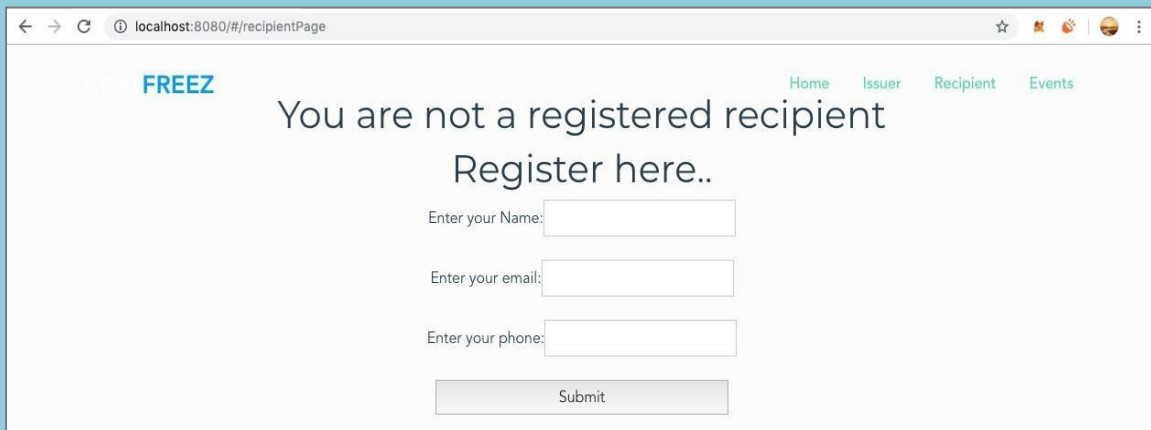
Fig 2: Recipient registration page

Fig 3: Issuer registration page
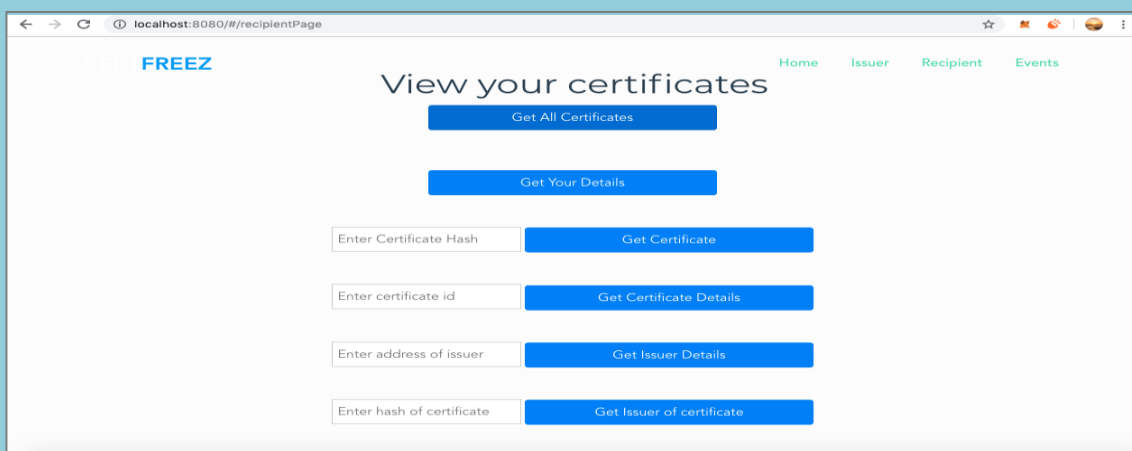
Fig 4: Recipient page
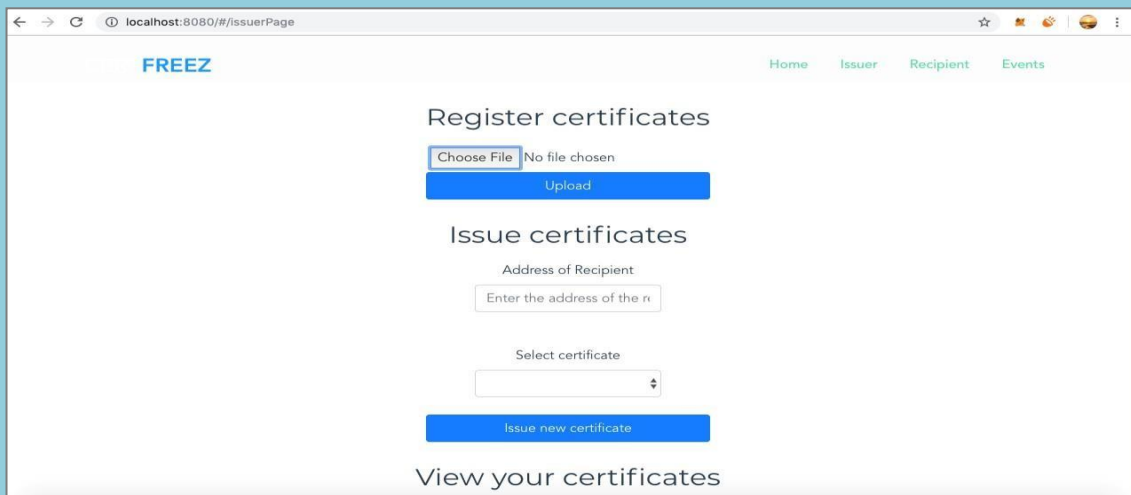
Fig 5: Issuer page
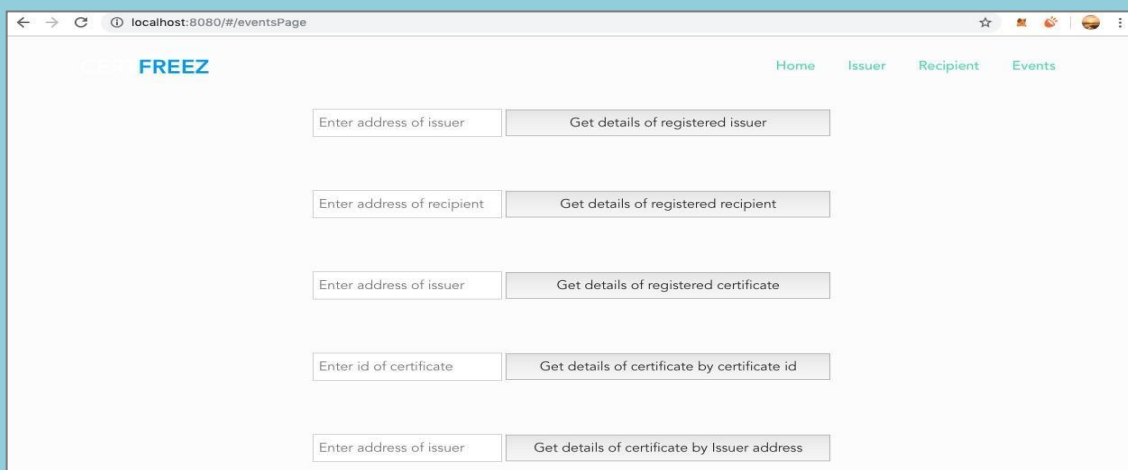
Fig 6: Verifier /Events page

Campaign Management System

(CEC/CS/2018/P27)

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Abstract:

A large number of start-ups that leverage advanced technology have erupted into the political scene of late. The innovation that seemed to abound everywhere else except in politics is now steadily enveloping political campaigning. From contacting supporters over the internet to analysing voter behaviour for targeted canvassing, these modern tools are making campaigns smarter than ever. This work modifies the existing election campaigning model with a wider perceptive over the web. The main objective of the work is Easy handling and management of large multi-stage campaigns, Wide range of communication channels for customer engagement, Automation of personalized campaigns, Easy access and manipulation of customer data, Dynamic change of the customer journey based on customer behaviour, Increased campaign effects through advertising offers better adjusted for the customer needs, Real-time campaign measurement and benchmarking and the advantage of this automated election campaign management system over the manual and traditional method of campaigning is that it keeps track of the entire campaigning in one place. The efforts required to meet individuals such as voters, volunteers is completely minimized in this automated system. Widespread of campaigning messages can now be done quickly in real-time.

The purpose of this project is to develop an online data monitoring system for the election campaigns and controlling over the NET. This system optimizes the planning process,

simplifies management, automates execution of multi-channel campaigns and facilitates tracking and measuring campaign performance. The solution also helps to optimize workflow and create clear tasks which guarantee that resources are allocated flawlessly across your organization and collaboration is efficient.

Objective :

- Simplified planning and unified collaboration across the entire marketing team.
- Easy handling and management of large, multi-stage campaigns.
- Wide range of communication channels for customer engagement.
- Easy access and manipulation of customer data.
- Real-time campaign measurement and benchmarking.
- Intuitive graphical tools and templates which increase productivity.
- Operational reporting and distribution of campaign reports to defined users.

Outcome:

- The campaign management system optimizes the planning process
- Multistage campaigning
- Managing multi channel campaign and campaign workflow
- targeting the right customer
- .Effective communication across campaigning
- Managing and controlling the campaign budget
- Tracking of campaign problem
- Report generation
- Analysis of campaign result

Methodology:
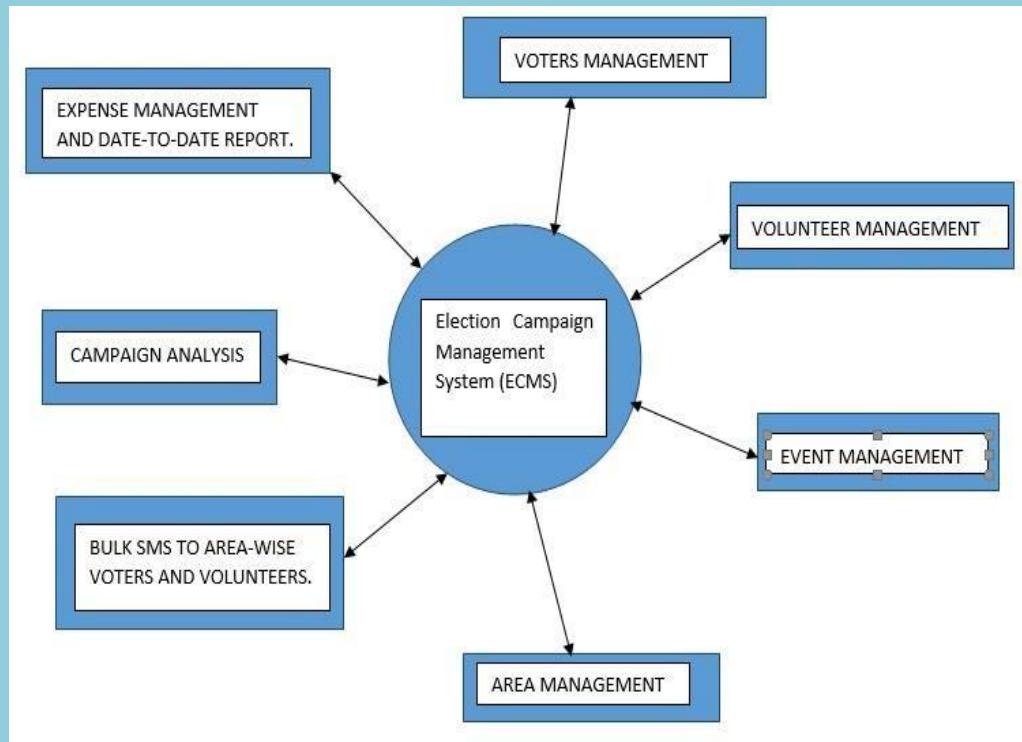
Fig: Modules of Election Campaign Management System

The proposed method takes an automatic control action upon election campaigning. There has been a move to more modern methods of campaigning, which allow greater access, can reach more voters, and faster, can target certain groups and is generally seen as more effective in both impact and use of resources. However, many modern methods help to compliment or improve traditional method.

- Election Campaign Management System is a Web development project. Initially in order to access the system the user has to login to the system by entering registered credentials.
- This system is mainly designed to manage the election activities.
- The users of this system are mainly political party team and committee members. By logging into the system, the user is provided with certain set of modules as shown in the Figure.

- In the **Area Management Module**, the political parties can enter an electoral district i.e., the voting districts in order to manage the campaign activities concentrated onto those regions.

- The **Volunteer Management Module** contains the list of volunteers that would be stored on the ECMS database. Also the user can enter additional volunteers into the system when required to do so. The system would take into consideration Name, Email, Address ,phone , Area and profile of the volunteer.

- The system also provides the facility to send SMS in bulk to all voters, volunteers, including specific volunteer and to volunteers as per the Area-List. So, this facility is provided to the user under **Bulk SMS for Voters and Volunteers Module**.

- Another important module available is **Voters Management Module**. This includes the voter's database. Here the system takes into account the Voter Id, Image, Name, Area, Phone, Email, Birth Date, Blood Group. These can be edited and deleted by the team members of political campaigning .There is also provision to add the Team Member who can also have the accessibility over the system. The team members will be assigned a particular task in the system.

- There is **Event Management Module** that include details regarding the organizer, Location, Contact Details, Date of the scheduled event, subject of the event ,other related description and this also includes if there are any guests attending the event.

- As per the finance aspect of the Election Campaign Management System, it includes **Expense Management and date-to-date Report Module.** Here the expense can include the amount spent on campaigning like transportation, food, advertisements.

- Also for the analysis purpose the system generates the Expense report periodically, which is included in the **Campaign Analysis Module**.

Result:
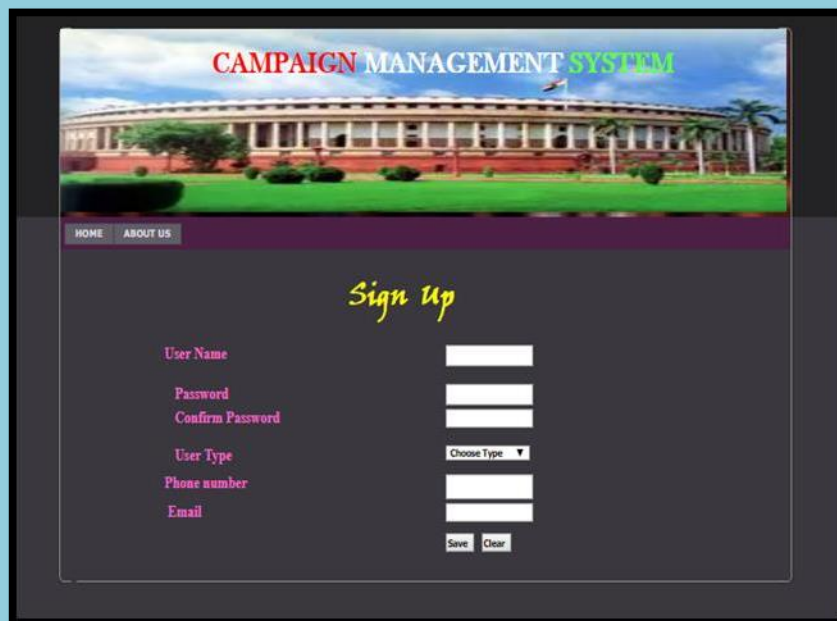
Fig (a): Signup for campaign management system

This page is used for signup of admin. Upon signup the user will be registered into the system.

Fig (b): Login for campaign management system

This page is used for login of both, the admin and other users (volunteers).Upon successful validation of user credentials; user will be allowed to access the system.
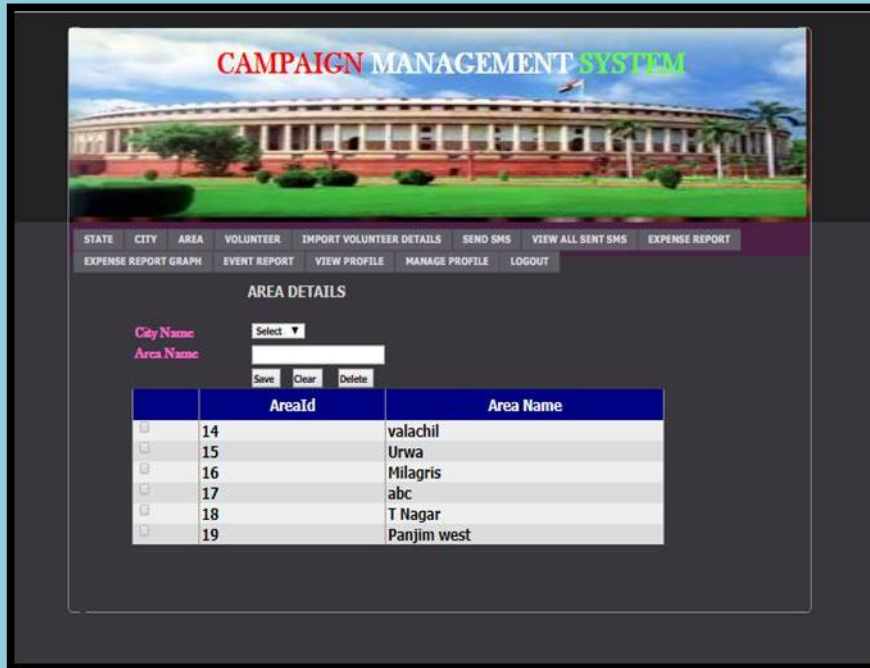
Fig (c): Add area details for campaign management system

This page is available to admin, used to add area details based on the state details and city details. Further the added area details will be stored in the database.

Fig (d): Import volunteer details for campaign management system

This page is available to admin, used to import volunteer details from excel sheets. The imported volunteer details will be further added into the database.
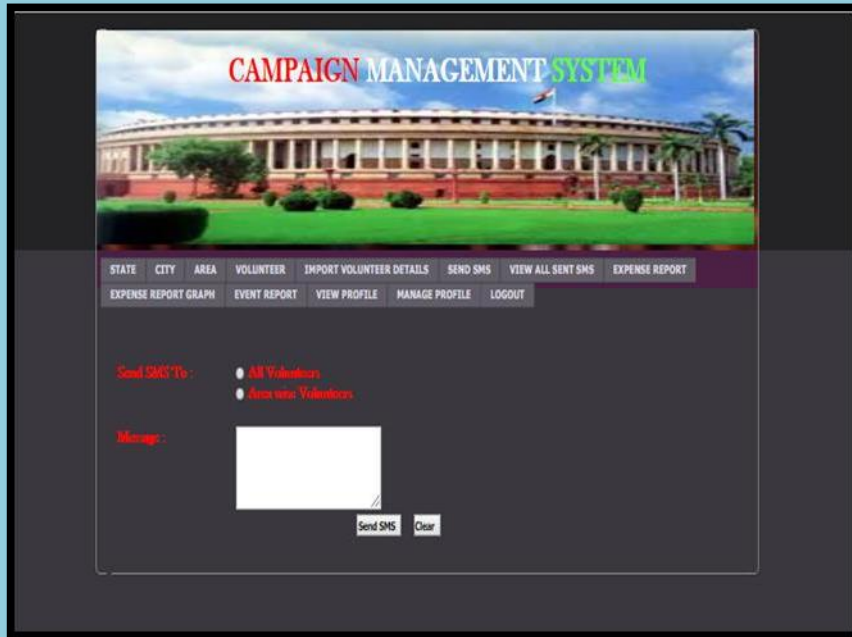
Fig (e): Send bulk sms for campaign management system

This page is available to admin, used to send bulk sms to all volunteers and area-wise volunteers.

These messages will be sent in real-time to registered mobile numbers of volunteers.

Fig (f): View date-to-date report of sent sms for campaign management system

This page is available to admin; here the admin can view the date to date report of all the sent messages. It displays the date on which the message was sent, the content of the message and the recipients of the message.

Fig (g): View expense report for campaign management system

This page is available to admin; here the admin can view the date to date expense report. It displays the category of expense and the corresponding amount.
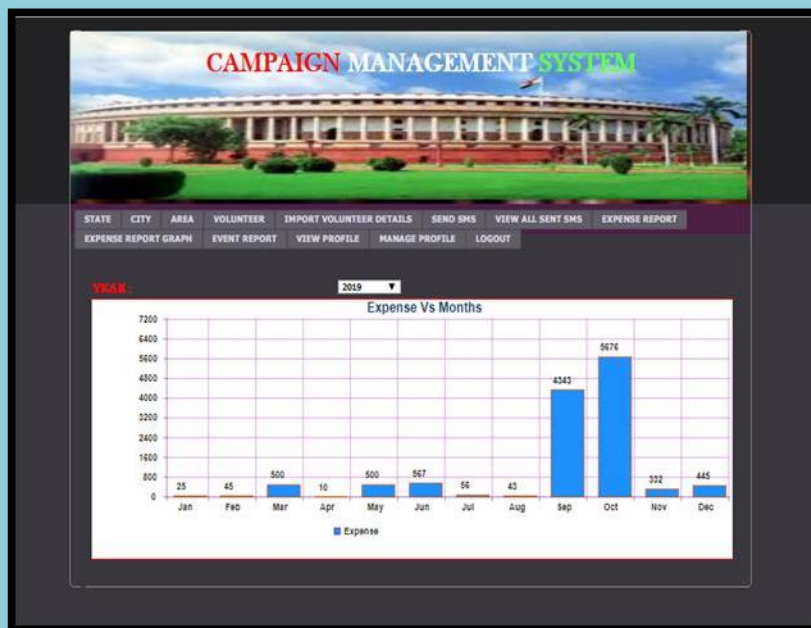
Fig (h): View expense report graph for campaign management system

This page is available to the admin, used to display the expense vs months graph based on the expense report. This graph is generated based on the year selected by the admin.
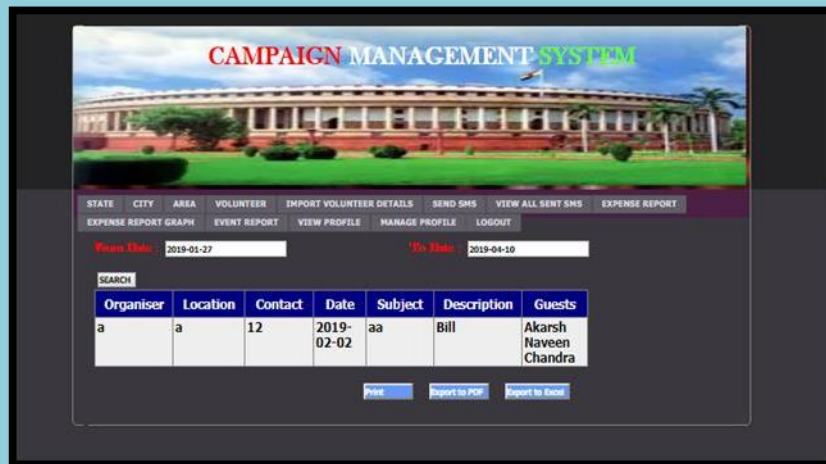
Fig (i): View data-to-date event report for campaign management system

This page is available to admin; it is used to display the date to date report for events. It consists of details such as the organiser, location, contact, date, subject, description and guests of the event.
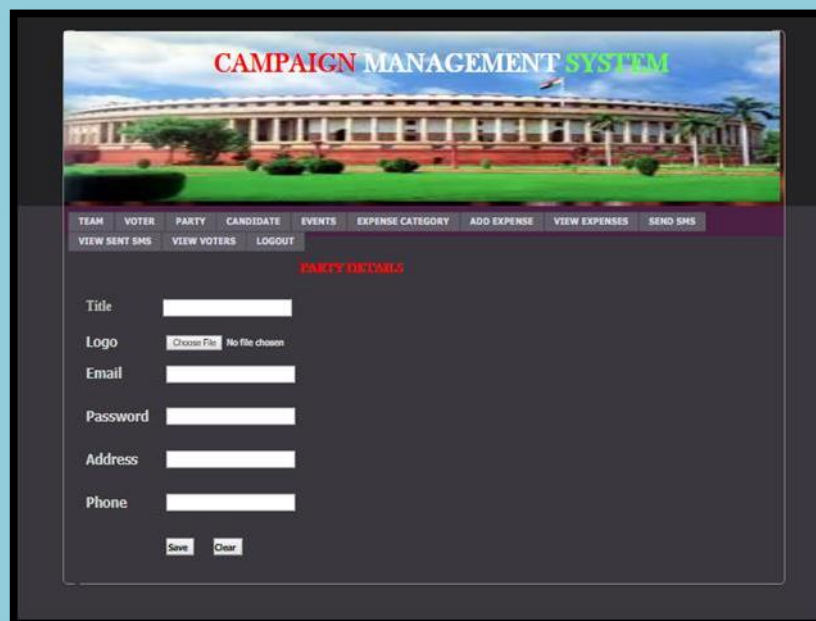
Fig (j): Add party details for campaign management system

This page is available to other users (volunteers), used to add political party details. It includes details such as title, logo, email id, password, address and phone number of the political party.

Fig (k): Add candidate details for campaign management system

This page is available to other users (volunteers), used to add details of the candidates belonging to a particular political party.

OCR/ICR BASED CHARACTER RECOGNITION FOR KANNADA
(CEC/CS/2018/P28)

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Abstract:

Intensive research has been done on optical character recognition OCR,Many commercial OCR systems are now available in the market, but most of these systems work for Roman, Chinese, Japanese and Arabic characters. There are no sufficient number of works on Indian language character recognition especially Kannada language. Kannada, the official language of the south Indian state of Karnataka. . Kannada script is more complicated than English due to the presence of compound characters. So the main purpose of this project is to develop a system that will extract whatever the kannada characters we have and detect the characters and then gives the proper kannada text. Here we are mainly considerer four steps like pre-processing, segmentation, feature extraction and finally the classification.

Objective and Outcome:

- Character recognition of kannada in printed documents.

- It is the technology that focuses on various aspects, few of which are mentioned below:

  o Kannada texts from magazines and textbooks.

  o Recognizes the kannada characters.

  o Abstracting all the character that which is recognized.

  Finally we are making voice recognition for extracted character.

Methadology:

Pre-processing:

pre-processing techniques is thresholding that aims to binaries the image based on some threshold value. The threshold value can be set at local or global level. Different types of filters such as averaging, min and max filters can be applied. Alternatively, different morphological operations such as erosion, dilation, opening and closing can be performed.

Segmentation:

Segmentation is the next stage where we differentiate each character from the entire word by circumscribing them into boxes and saving them each separately. There are mainly three segmentation we are using that is line segmentation, word segmentation and character segmentation.

Feature extraction:

Where features are a set of numbers that capture the salient characteristics of the segmented image. As font and size independent recognition is required, template matching is not advisable for recognition of segments. Segmented symbols are unequal in size and they are normalized to one size so that the classifier is immune to size changes in the characters. There are different features proposed for character recognition.

Classifier:

where it compares the extracted image with the CNN model then it will print the result character.

Result:

The below figure represents the results of this project figure(1).user want to select the image that he wants to upload. figure(2)line segmentation will be performed for the given image .Figure(3) Word Segmentation of the image. Figure(4).character segmentation will be done in the figure(5).resultant image wil be printed.
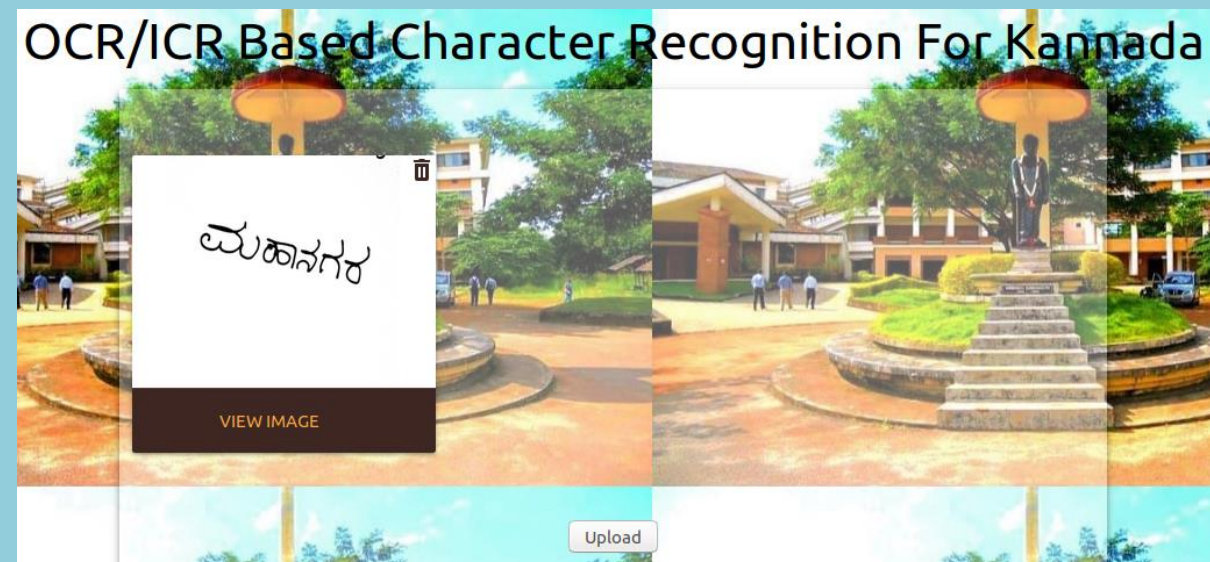
Figure 1 :Uploading Image

Figure 2 :Line Segmentation
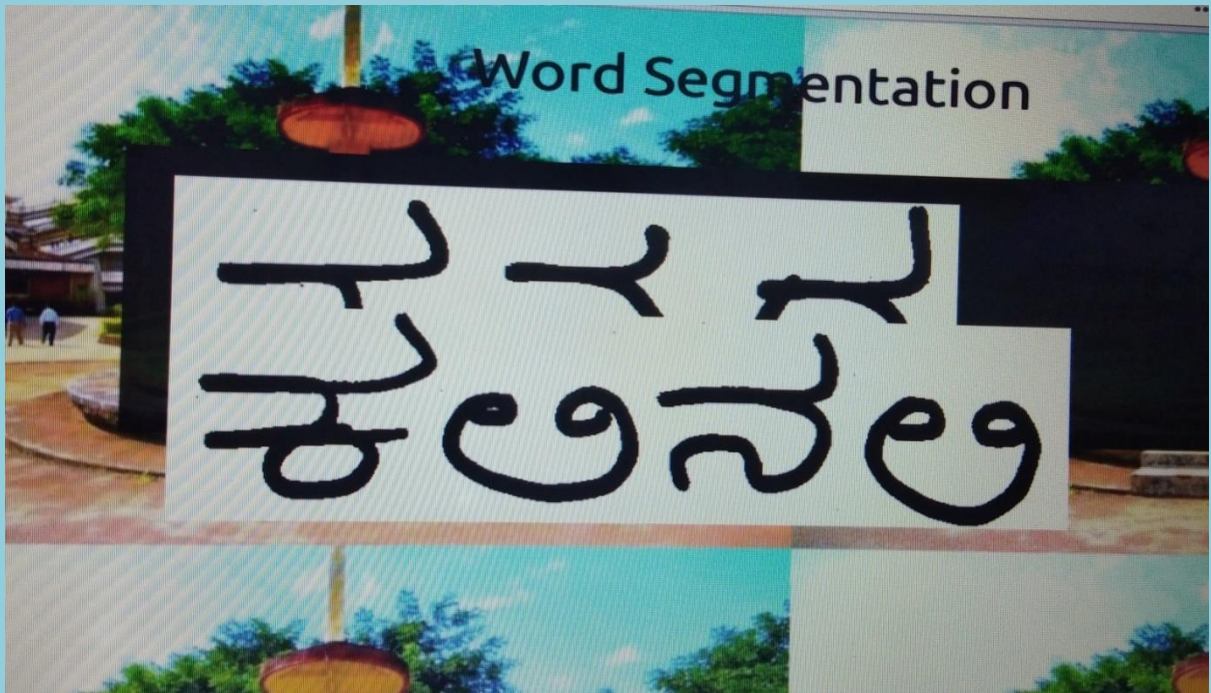
Figure 3 :Word Segmentation
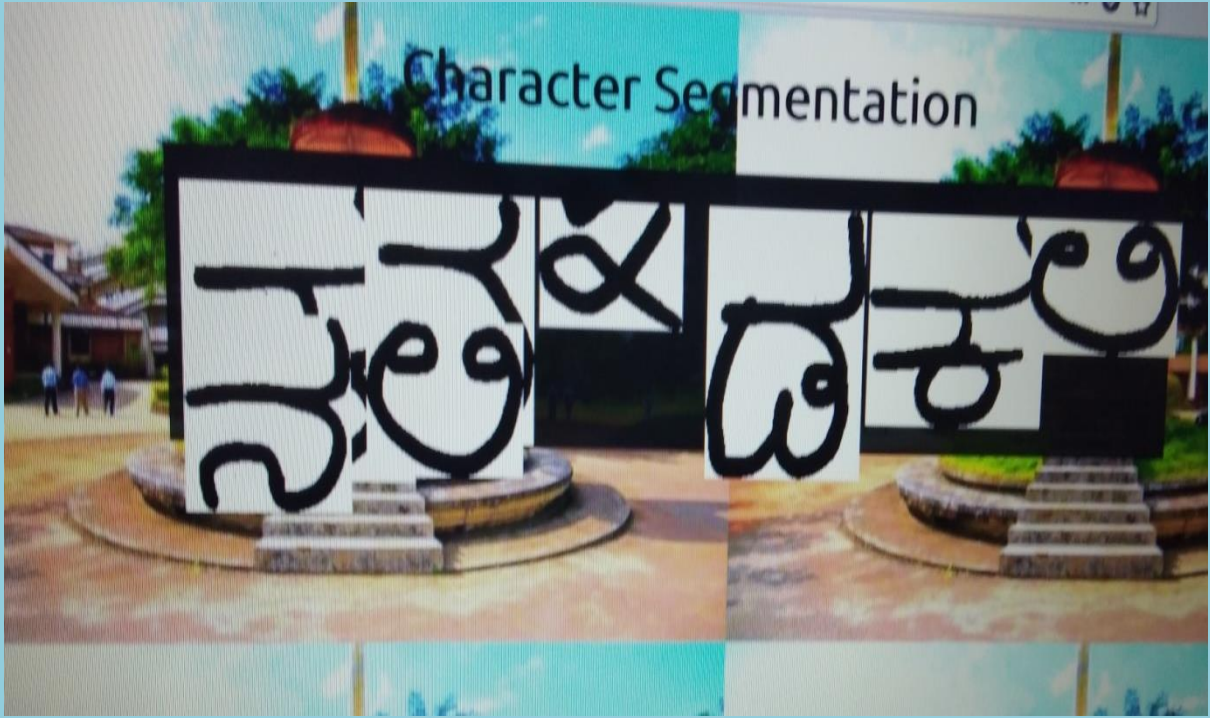
Figure 4: Character Segmentation
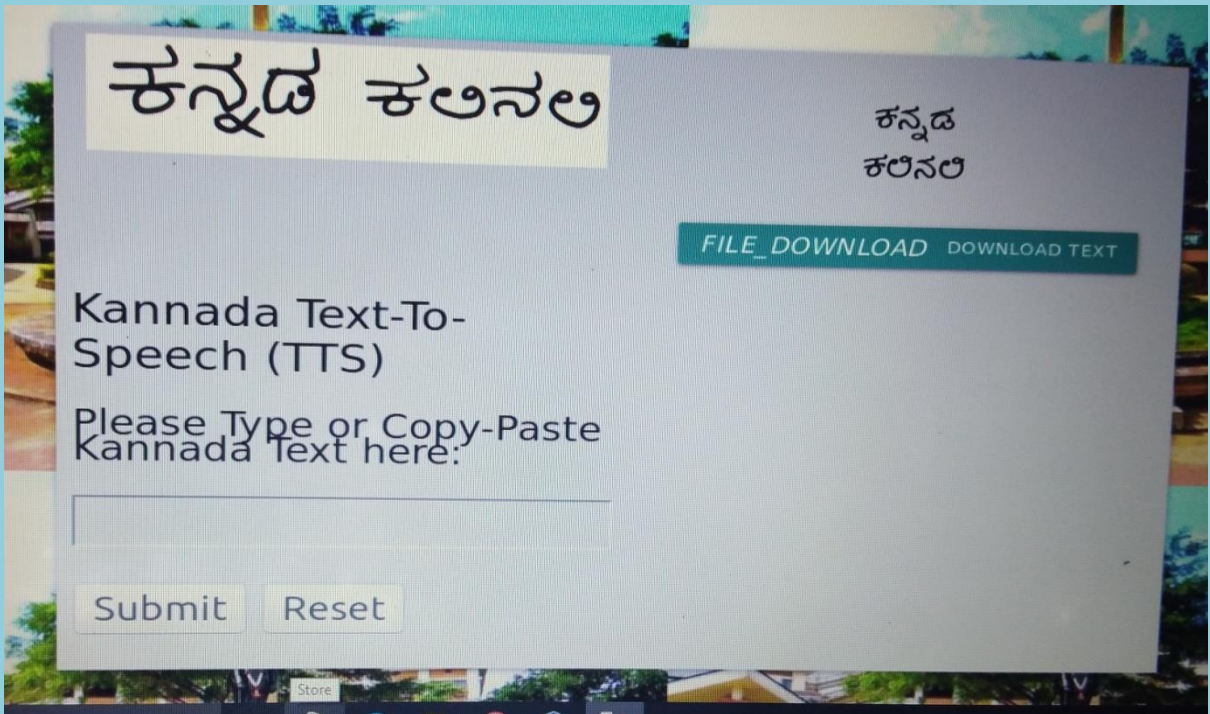
Figure 5: Result Image

Home Food

(CEC/CS/2018/P29)

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Abstract:

Home food is served and prepared in home kitchen by people who share love for food and passion for cooking. Restaurant food is cooked very differently due to the constraints of restaurant business. When we eat at a restaurant, we pay for not only the food, but also the costs of running that business. The lights, the water, the building, and the staff in addition to the meal we are eating. The same goes for the pre-made or frozen meals at grocery stores. Eating homemade foods is usually much healthier and cheaper than eating at a restaurant or buying processed foods from the market. Adults also reap considerable benefits from eating home-cooked meals. Research finds that people who eat home-cooked meals on a regular basis tend to be happier and healthier and consume less sugar and processed foods, which can result in higher energy levels and better mental health. Taking this into picture we have created a Home cooked food application. Home food application is a service designed for the people who have inconvenience of healthy, fresh and home cooked food. Home Food service application delivers freshly prepared home food at your door step. The app provides easy navigation for customers to choose best available menu for order. The application has own delivery service and definitely deliver the food quickly on time

Objective and Outcome:

- Should allow users to create a profile and display their "Menu-for-today" service.

- Must provide helps in providing recognition for small business from home.

- Main motive is to both-make money and have access to good, healthy, homemade delicacies.

- Solid payment processing to decrease overall number of fraudulent cases must be avoided.

- Simple search & browse functionality to order meals, shopping cart are to be provided.

- Review system for both users and cooks must be featured.

- Application must be able to provide food according to age groups.

Outcomes:

- Food ordering is made convenient with the help of android application.

- The investment to setup a restaurant can be avoided.

- Helps chefs and developer to improve food items and their quality

- Online payment methods like Tez, Paytm etc.

- Helps to provide good and healthy home food anytime and anywhere.

- The home food helps to maintain healthier life style.

- Helps to provide food according to the age groups.

- Chef can provide the user to select food according to their favourite cuisine.

Methodology:

- The Home Food android application has different modules which includes menu card module, favourite cuisine module, recommendation module, payment module, and feedback module.

- The proposed method takes an Automated Food Ordering System upon home food.

- The app provides easy navigation for customers to choose best available menu for order.

- In this system both buyer and seller are the users of the application.

- Buyer purchases the food items and Seller sells the food items through this application the home food application.

- In order access this system the user has to initially login to the system by entering essential details like username and password. By logging into this system, the users are provided with certain set of The Menu Card Module provides the menu for the day to the customer.

- The customer can also order the food based on his favourite cuisines. This facility is provided under Favourite Cuisine Module.

- In this module the customer is provided with the option to select what variety of food he would like to order.

- As he chooses any of the options, the customer is provided with details of cooks who preparesthefooditems.

- In this system, only admin can add the chefs and then only the chef can able to add the food items he/she prepared.

- Finally after ordering the food the customer need to pay the bill.

- The customer can pay the bill by cash on delivery or online payment can be done through credit card or debit card and this facility is provided under Payment Module.

- The rating is also provided for each food item which is based on the feedback given by the customer who ordered the food items.

- The admin provides the username and password for the chef through which the chef can sign in and add the food items. Chef can also view the user reviews

- The Feedback Module provides the customer the facility to give feedback about the food and cook who prepared the food so that it will be helpful for other customers to order the best variety of food.

Result:
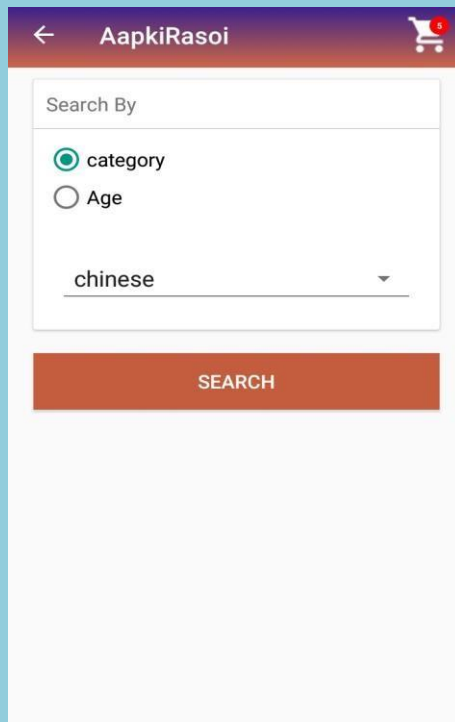
Figure 1. Search based on Category

Figure 1. Shows another type of category of food items based on different types of food. Here there are mainly four types of food items and the user can choose any item. The different types are North Indian, South Indian, and Chinese etc.
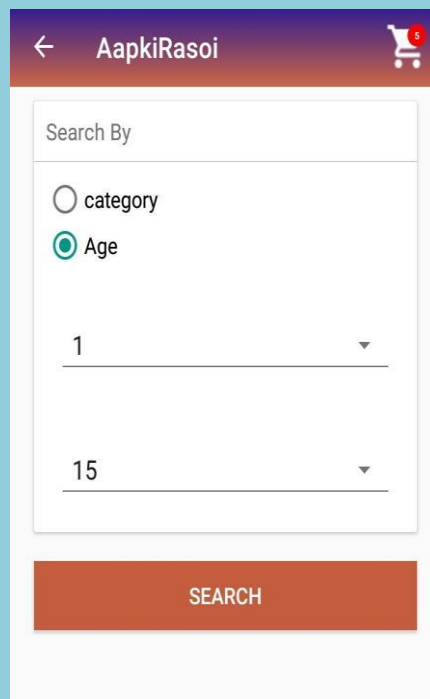
Figure 2. Search based on Age

Figure 2. Shows one of the category of food items that is category of food items based on age. This type of category helps people to know which type of food item is good for their health. The age value ranges from small kid to aged people.
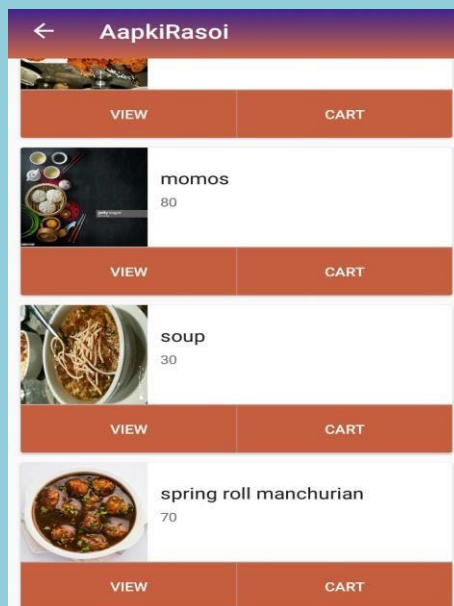
Figure 3. List of food items

Figure 3. Shows the list of food items that can be obtained when the user searches the food item based on age and different category of food.
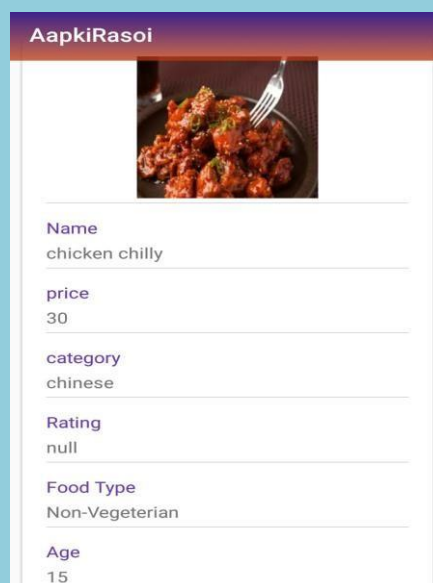
Figure 4. Description of a food item

Figure 4. Shows the description of a food item. If the user want to see the cost, rating, food type, the user can click view button. The rating for each food item is provided based on user review.

Figure 5. Sign In form

Figure 5. Shows the sign in form for the user those who want to order the food items. The user has to provide his or her name, username, password, gender, email-id and phone number.
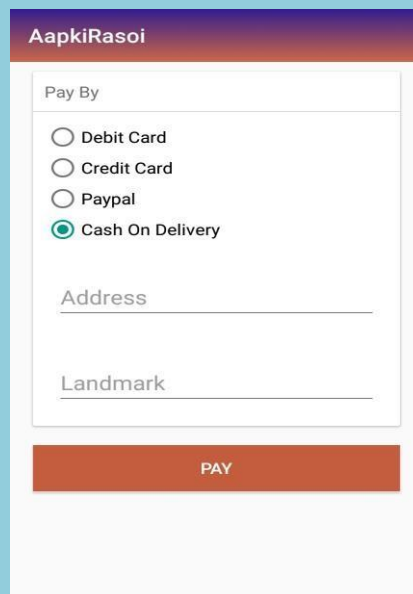
Figure 6. Order Details table
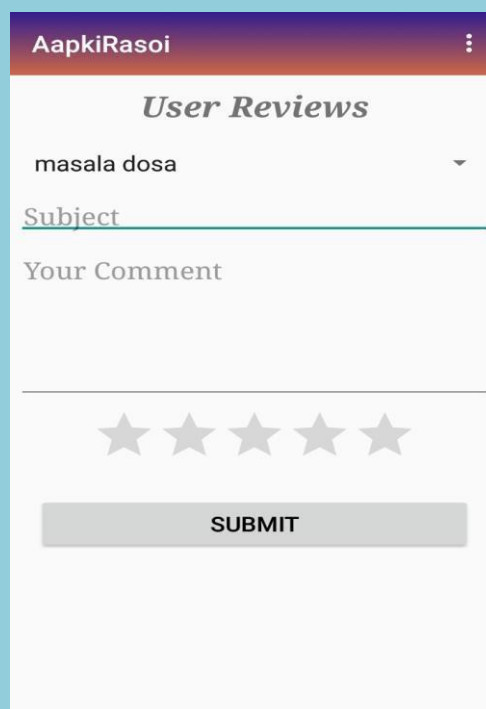
Figure 6. Shows the order details once the user selects some of the food items and adds it to cart. The user can remove the food item that he added to the cart. Final payable amount is also shown to the user.

Figure 7. Payment Form

Figure 7. Shows the payment form for the user. Once the user conforms his or her order of food items, then the payment form will be displayed through which the user has to select the payment method.

Figure 8. Review Form

Figure 8. Shows user review form though which the user can give feedback to the food item he bought. It is possible to give the comment and also to give the comment as stars. According to the user review the rating is provided.
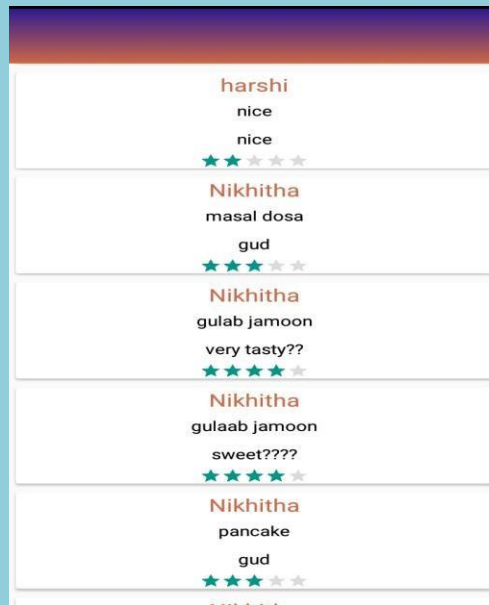

Figure 9. User reviews for food items

Figure 9. Shows the reviews provided by the user. It is possible for the chef to see the user reviews. If chef gets any negative review then he can improve the quality and taste of food items
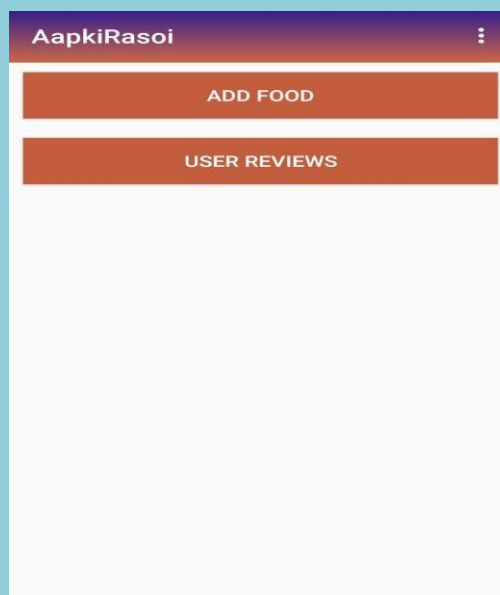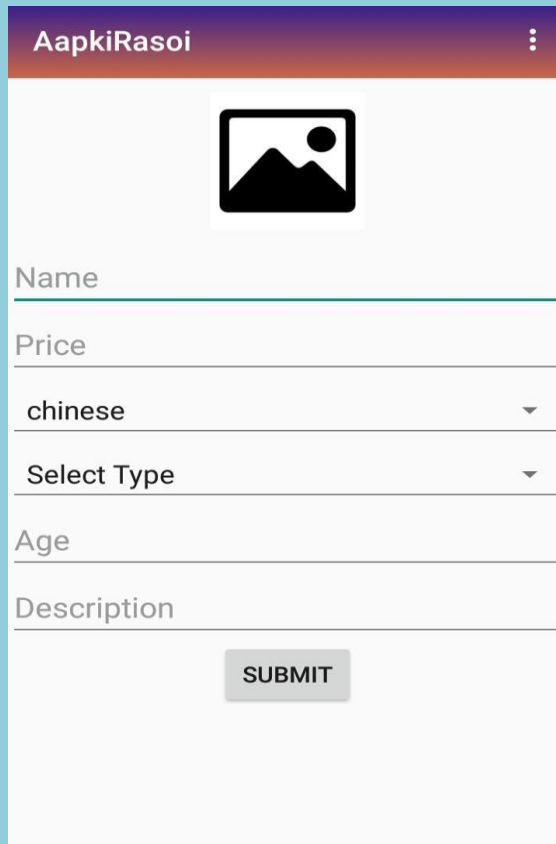

Figure 10. Chef adding food items

Figure 10. Shows add food and user reviews page for the chef. The chef can add his or her food items to the app through this page only after signing in with the username and password given by the admin. The chef can also the view the user reviews provided by the user to the food items.

Figure 11. Chef adding food items.

Once the chef clicks add cart button, Figure 11. Will be displayed through which the chef can add the food items prepared. The chef has to provide name, price, category, type, age and its description.

TASK MANAGEMENT FOR FIELD ENGINEERS

(CEC/CS/2018/P30)

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Abstract:

Task management is the process of managing a task through its life cycle. It involves planning, tracking, and reporting. Task management can help either individual achieve goals, or groups of individuals collaborate and share knowledge for the accomplishment of collective goals. Tasks are also differentiated by complexity, from low to high. Effective task management requires managing all aspects of a task, including its status, priority, time, human and financial resources assignments, recurrence, dependency, notifications and so on. These can be lumped together broadly into the basic activities of task management. Managing multiple individuals or team tasks may be assisted by specialized software.Every project or event involves series of tasks, activities, people, budget and deadlines. No matter how big or small the project is, the success or failure of the project depends on the execution plan and the order in which the tasks are fulfilled. It takes a great deal of skill to do this well, the time invested in building good project management techniques can pay off enormously and helps to achieve projects on time within the resource constraints. When one knows how to organize, schedule and delegate tasks it is an easy step for them to obtain the success of the project. This is where the application task management for   field   engineers

comes into pictureTask management for field engineers application help members of the team to manage the task efficiently in stipulated time. It helps the team members to coordinate the project among themselves and to successfully deliver the project to the customer on time.Task management is as integral to the project management discipline as a ball to the game of football. For this reason, task management is the primary foundation of any project

management application. In other words, there could not be a good project management software without a very good task management software as an integral part of it. Individuals use task management tools like a pen and a pad or software tools to organize and accomplish personal goals for every day's chores. Teams rely on task management software to collaborate and achieve group goals together. Task could have status, start date, due date, people who are assigned to work on them, comments, tag. The market is saturated with to-do list and task management tools in varying maturity and functionality. There are three levels of task manager, each targeting different project complexities, team's experience, team's structure, and team sizes. We have grouped these task management members as admin, manager, employee.

Objective

- The main aim of this application is to bridges the gap between the members office team.
- It is a way for the manager to manage , assign task, set task priority .
- The progress of the task done by the employee is needed to be measured.
- To Schedule work and monitor various members working on the same project.

Outcome

- To Schedule work and monitor various members working on the same project.
- Monitor the project.
- Analysis of the development of the project using progress bar.
- Prioritize the various task.

Methodology:

The proposed system is used to manage the task very efficiently. It is used by the manager to control the task and assign the task to his employee. Priority of the task can be given according to which the employee must complete the task. The manager can also view the percentage of task completed by the employee. Admin assigns the project to each manager   and also assigns the employee who works under him. The manager can verify if the field engineer has reached the destination by seeing his current

location.

Architectural Design

An architecture diagram is a graphical representation of a set of concepts that are part of architecture, including their principles, elements and components.

The project is divided into admin, manager, and employee. The admin adds task, adds project, view progress, adds file. The manager will assign and view the task done by the employee and prioritizes the task, view the progress of each employee, and view the location of the employee. The employee views the task given to him by the employee, uploads file and view progress of the project.


```
                        ┌──────────────┐
                        │    LOGIN     │
                        └──────┬───────┘
          ┌────────────────────┼────────────────────┐
          ▼                    ▼                     ▼
    ┌──────────┐        ┌──────────┐          ┌──────────┐
    │  ADMIN   │        │ MANAGER  │          │ EMPLOYEE │
    └────┬─────┘        └────┬─────┘          └────┬─────┘
         ▼                   ▼                     ▼
  ┌──────────────┐   ┌──────────────┐      ┌──────────────┐
  │ Add Member   │   │ Add task     │      │ View Task    │
  │              │   │ View task    │      │              │
  │ Add project  │   │ View         │      │ Add task     │
  │              │   │ location     │      │              │
  │ Assign project│  │ View         │      │              │
  └──────────────┘   └──────────────┘      └──────────────┘
```
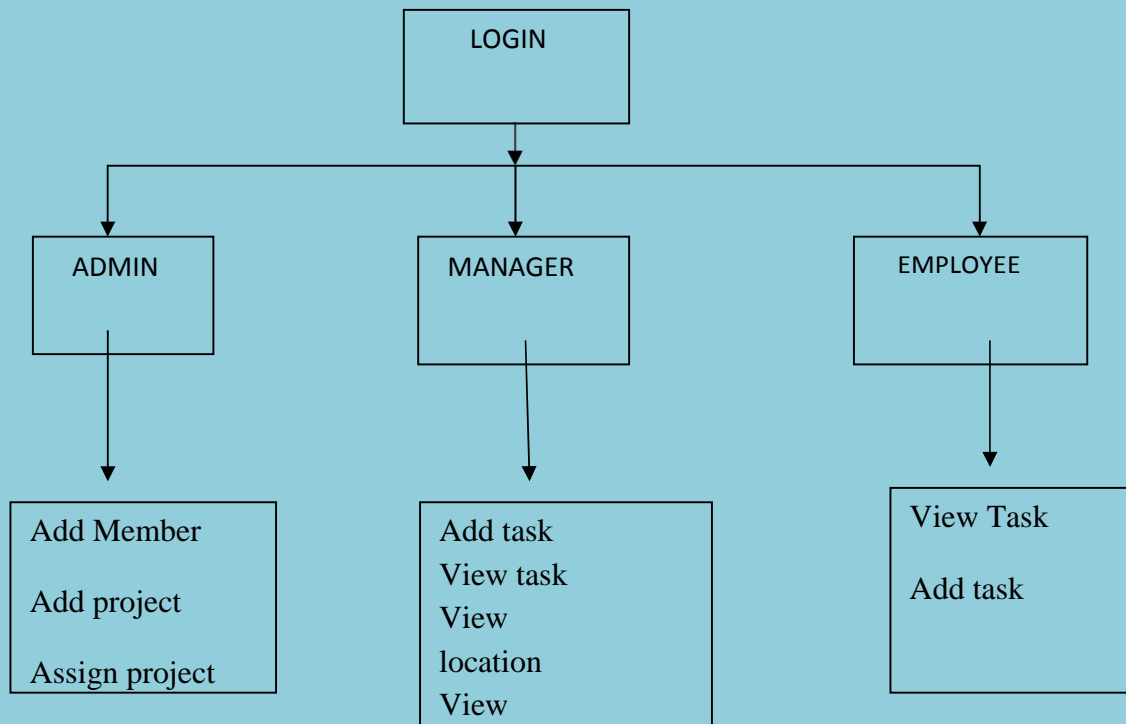
Figure 1: Architectural design for task management for field engineers

Result:

The admin logins in and he is taken to admin dashboard. In the dashboard he can add members, add projects and assign Employee task. In the add members he provides username and password to the employee and the manager. In add projects he adds all the project handled by the company. In assign project he gives manager the project

that should be handled by him.

The manager logs in and he will taken to the dashboard. Here he adds the task that must be done by the employee .When the employee finishes the project manager can view all the project done by him. The manager can view the current location of the entire employee. The manager can also view the progress of the employee.

The Employee will login and will be taken into his dashboard. Employee can view the task that is given to him by the manager. After the completion of he task he adds the completed   task which can be viewed by the employee.
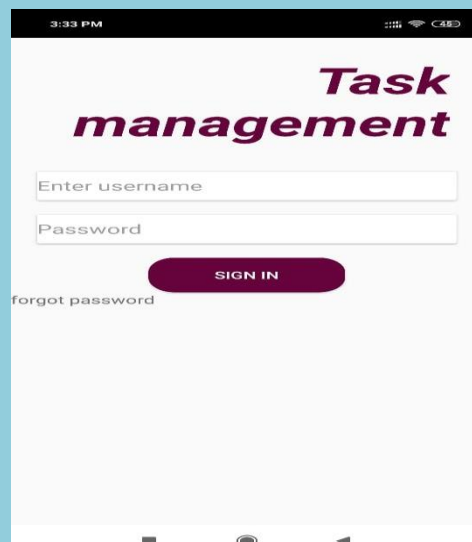
Figure 1 First Page

Figure 1 First Page of the application is a login page where one can login and based on username , password the respective dashboard will be accessible for the user. The admin dashboard consists of add members, add project, assign task. The manager dashboard consists of assign task, view task, view location, view progress. The employee dashboard consists of view task, completed task.
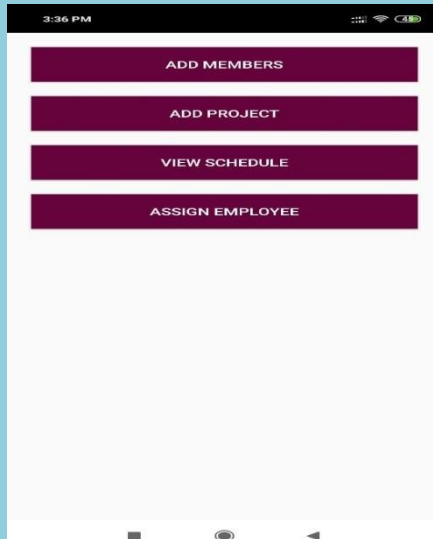
Figure 2 :Dash Board for Admin

Figure 2 represents the dashboard for Admin. Admin can add members, project, assign Employee and also view schedule. In add member he assigns username and the password. In add project he adds the project. In assign project he assigns the project to the employee and the manager.

Figure 3: Add Members

Figure 3 represents the Add members page where Admin needs to add details of the members. The admin provides the username and password to the employee and

manager. The employee and the manager can login only through this username and password.
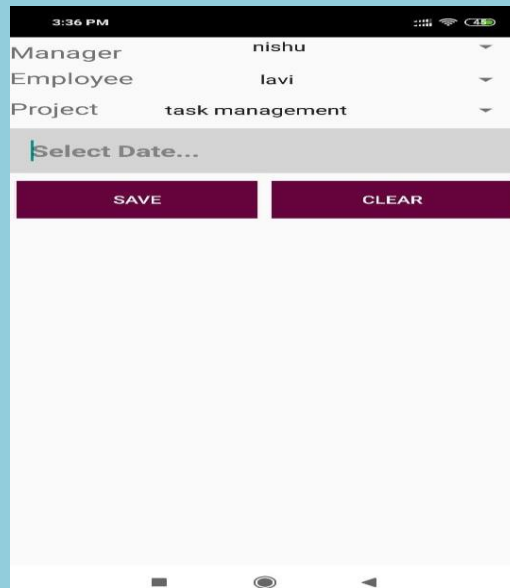
Figure 4: Assign Project

Figure 4 represents the Assign Project page where Admin can assign manager and employee. So each manager is given employee and project here.
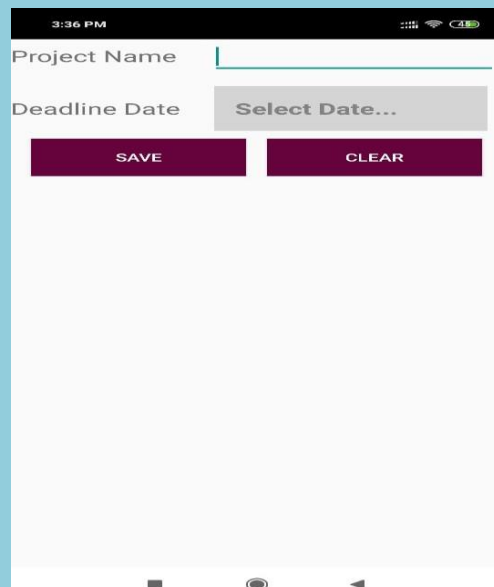
Figure 5: Add Project

Figure 5 represents Add project page where Admin can add project for the Manger .He can also assign the deadline within which the project must be completed. This project that is assigned to him can be viewed by him in his dashboard.
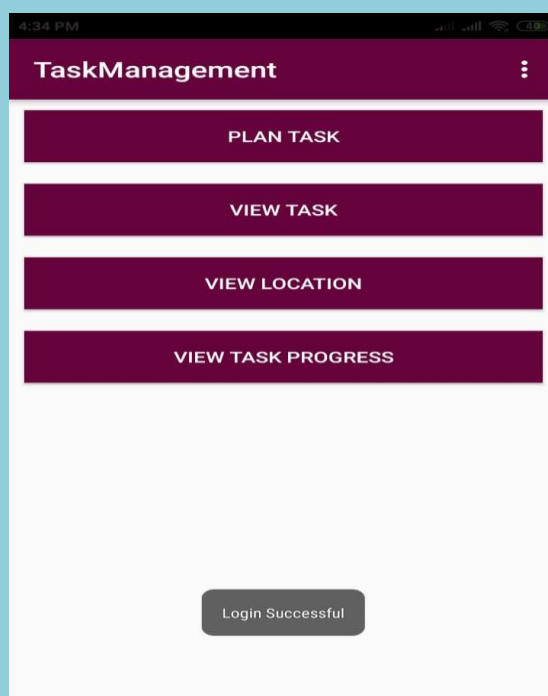

Figure 6: Dashboard for Manager

Figure 6 represents Dashboard of the manager, where manager can view Project and Plan Task, view task, view location and view task progress.
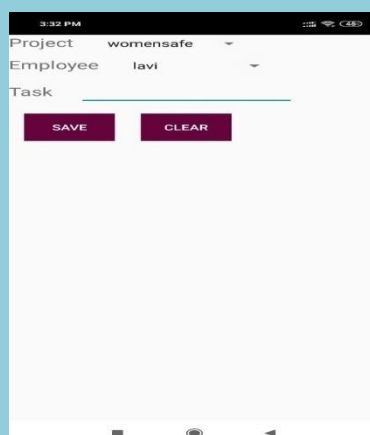

Figure 7: Assign Task To Employee

Figure 7 represents Assign Task where Manager can assign task for the employee

Figure 8: Task completed by the employee

Figure 8 represents the details of employee and the task completed by them
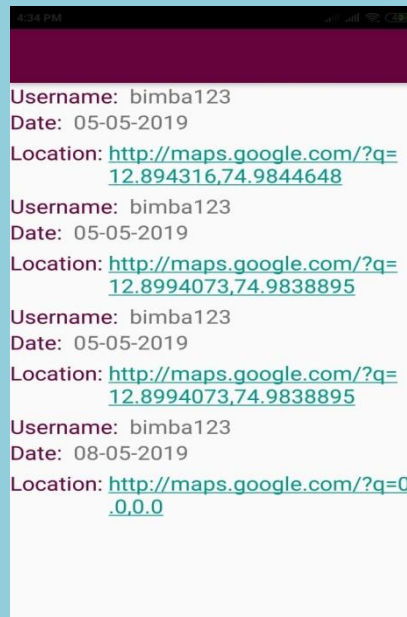

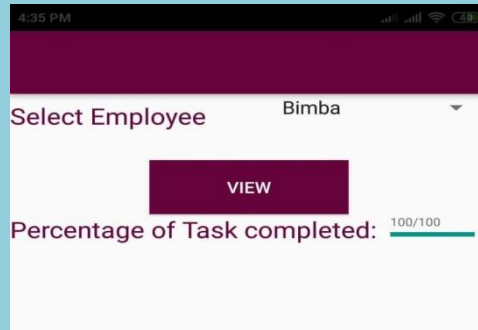Figure 9 is used to see the current location of the employee.

Figure 10 This module is used to see the progress of each employee.

Figure 11 Dashboard for Employee

Figure 11 represents dashboard for employee where he has to add task and can view his task.

Figure 12 represents Add task completed where he can add how much task he has completed.

Port Trust Management

(CEC/CS/2018/P31)

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Abstract:

Ports play a vital role in Indian economic development. As in most of the developing countries, the ports in India have found increasing attention in recent years as one of the cheapest and eco-friendly harmless modes of bulk transport system. About 13 major ports and 185 intermediate ports are located in about 9 Maritime states in India. So the project is about developing an Android Application which maintains all functions in port trust management and the information is stored in a database. The main aim of developing this application is to maintain all the information, transaction, and notices on a handheld device makes the work easier for any user. The features added in this application avoid the user to login desktop for simple and quite difficult tasks. User authentication and encryption are done which provides great security for the management system.

Objective and Outcome:

The objectives of Port Trust Management application are:

- Accessing and Managing activities such as the movement of ships, containers and other cargo, the loading and unloading of ships and containers, tenders etc.

- Providing Freight booking facility to users.

- Providing users features such as Vigilance complaint, Grievance Redressal and feedback.

- Storing the port management information in the database for the future reference.

Outcome:

- An Android Application which maintains all the features involved in port management.
- Unauthorized person cannot access the user data.

Methodology:

We have two types of user in our project. Admin and user. The admin uses website to manipulate the data and the user access the data through an android device.

Admin will have the following facility on the website,

1. Login: Contains user name and password field.

2. Dashboard with these options: Daily Vessel Position, Tenders, Media, Grievance Redress, Freight Booking, Vigilance complaints, circulars etc.

User will be given with following facility on Android Device

1. Login: Contains user name and password field.

2. Registration: To create an account with OTP authentication.

3. Forgot Password: user will be sent a mail to change his old or forgotten password.

4. Navigation Drawer: This will contain following options - Daily Vessel Position, Tenders, Media, Grievance Redressal, Freight booking, Vigilance complaints, circulars etc.

5. Logout: To logout of the application

Result:

- The user access the Port data from the database through Port Trust Management android application.

- The user is provided with a registration option to create an account.

- After successful login the user can access the Port data from the database stored by the admin.

- The user is also provided with the feedback option to give his feedback.
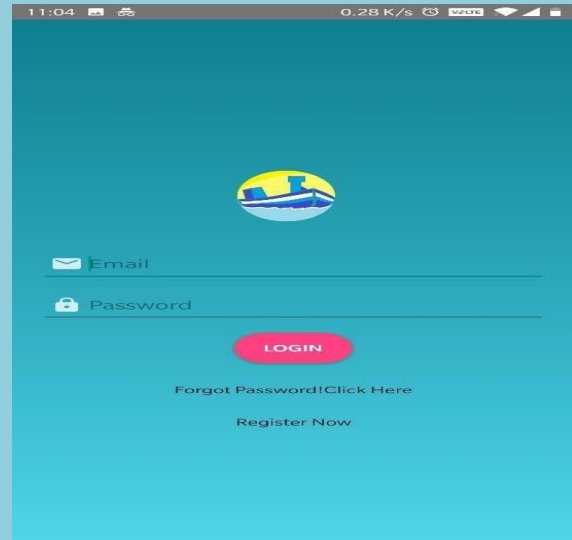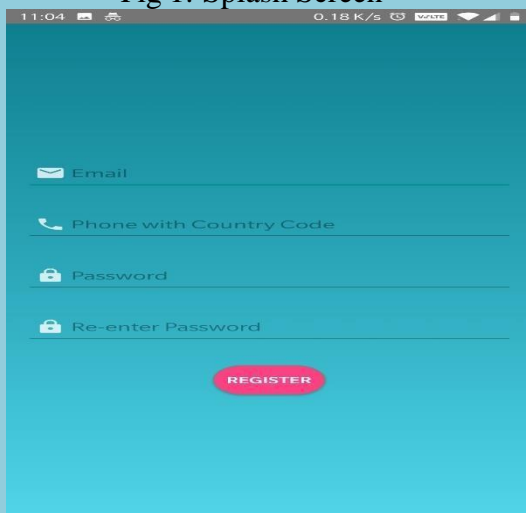

Fig 1: Splash Screen

Fig 2: Login Screen
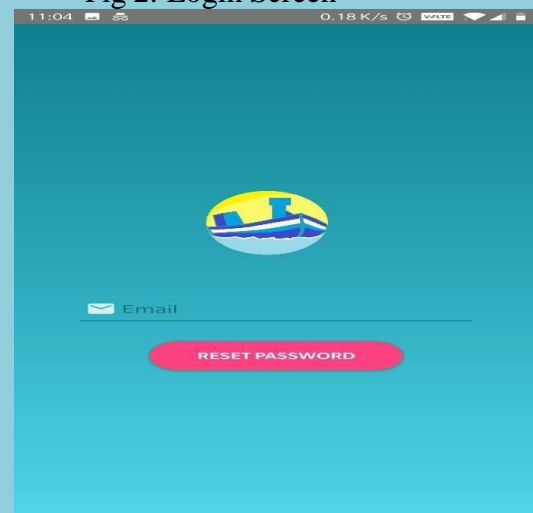

Fig 3: Registration Screen

Fig 4: Forgot Password Screen
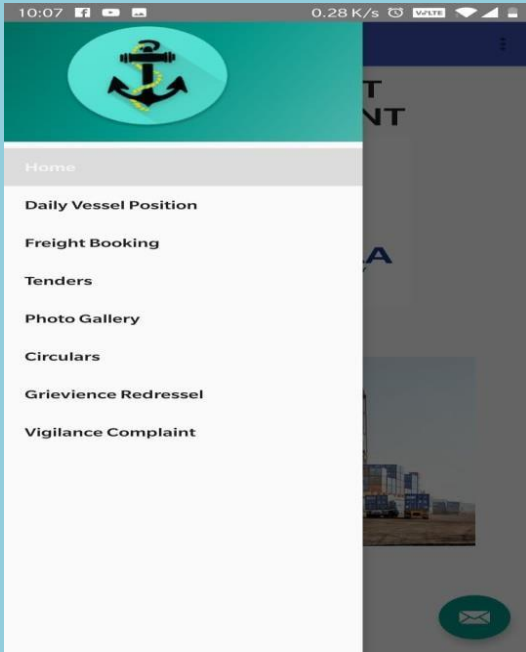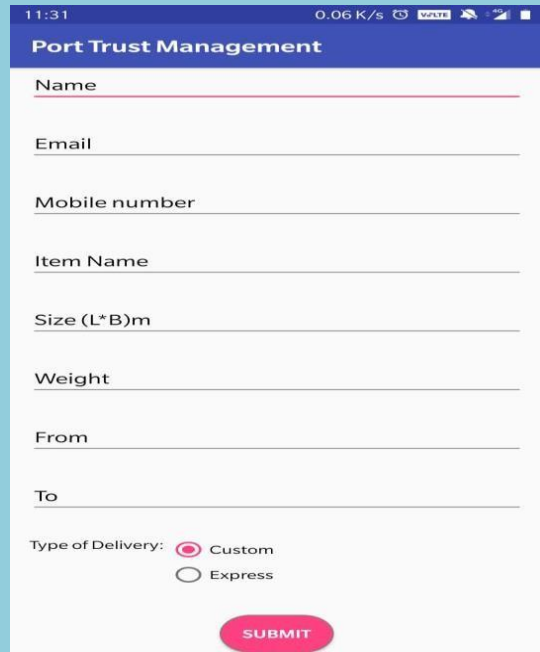
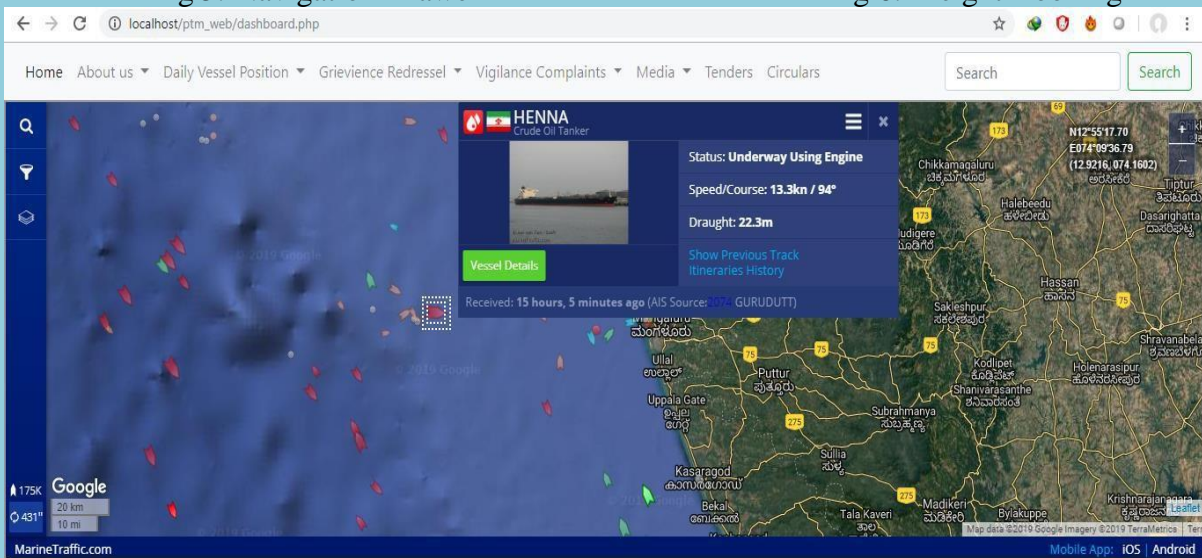Fig 5: Navigation Drawer   Fig 6: Freight Booking

Fig 7: Admin Home Page

Sentimental Analysis of Kannada Responses From Polls

(CEC/CS /2018/P32)

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Abstract: Opinion mining is a process for tracking the mood of the public. Sentiment analysis and opinion mining is the study that analyzes people's opinions, sentiments, evaluations, attitudes, and emotions from written language. In this project, we extend our ideas about Sentiment Analysis to the regional language Kannada, In this project, we extend our ideas about Sentiment Analysis to the regional language Kannada, spoken mainly in Karnataka, a state in southern part of India. We have explored the usefulness of semantic approaches and machine learning approaches for Kannada data set.

This project can be made use in analysing reviews in Kannada blogs. It can also be used in extracting opinions that are posted in Kannada article online. In today's world, there is an explosive growth of data on the internet. The major problem is not the availability of data but starving for knowledge from the data. Sentiment analysis is an important research area in the field of web content mining. We have applied specific methods for categorizing the review as positive, negative and neutral . In the current scenario, this field has turned out to be an essential business module as the profit of an organization deals with the customer satisfaction which is specifically reviews. This project focuses on sentiment analysis in Kannada and also facilitates a comparison between analysis using direct Kannada dataset.

Objective and Outcome:

Initially the dataset is collected from the media (e-paper).Analysis of opinions which are expressed in the form of comments/reviews/feedback can be done using NLTK model. The user can obtain well classified positive, negative and neutral review. The graphical output of overall analysis is obtained

Methodology:

- Retrieve data from social media (News Paper).
- Parsing the data.
- Analysis the data using NLTK
- Results are shown in the form of Graphs (pie chart, bar graph).
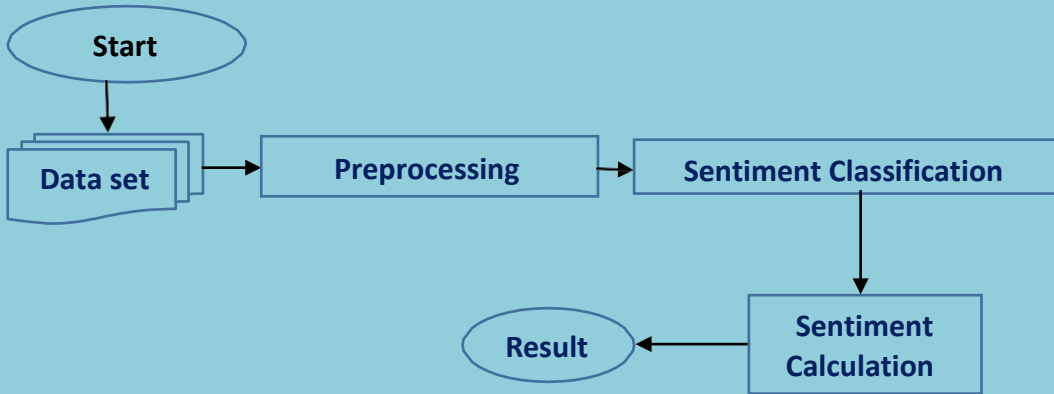
Result:
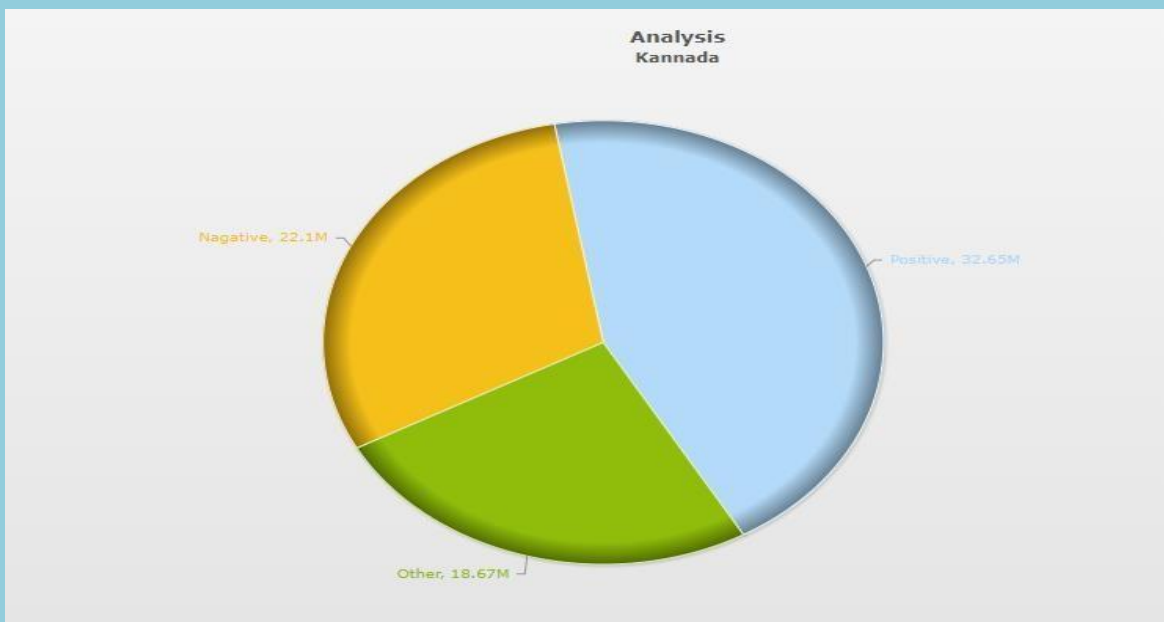
The analysis is done using NLTK. The above graph represents the words that have been classified as positive, negative and neutral in terms of percentage.

ANDROID APPLICATION FOR POULTRY FARMING

(CEC/CS/2018/P33)

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Abstract:

According to world's agricultural produce survey, chicken is the most favourite produce, since it is a nutrient rich food providing high protein, low fat, low cholesterol and lower energy than other kinds of poultries. Nowadays its digital age and technological innovations and inventions have greatly helped poultry farmers and farmers in other fields of agriculture. The use of smart phones is on the increase and automation plays very important role in our life and hence here we concentrate on the combination of wireless sensors and mobile system network to manage and remotely monitor environmental parameters in poultry farm. The environmental parameters like temperature, light intensity and ammonia gas are monitored and controlled automatically. The proposed system even concentrates on the egg production and analyzes the acquired data. In addition, we have also designed to control and monitor the food valve so that sufficient food is always available in the plate, as well as remote monitoring is done and with the help of this facility, the person in-charge can observe the situation of internal structure of poultry by sitting in a one room as data will be display on an android application. The intelligent system can reduce cost, time, labor and is user friendly to the farmers.

Objective and Outcome:

- To monitor and control the environmental parameters like temperature, humidity, light intensity and ammonia gas automatically.

- To provide optimized Food Control Mechanism for a poultry farm.

- To monitor the egg production and analyze the production on the weekly basis.

Methodology:

The user of the application is the manager of the poultry farm he will be able to access all the pages of this application form. The Fig.1.1 gives a view of the android application.
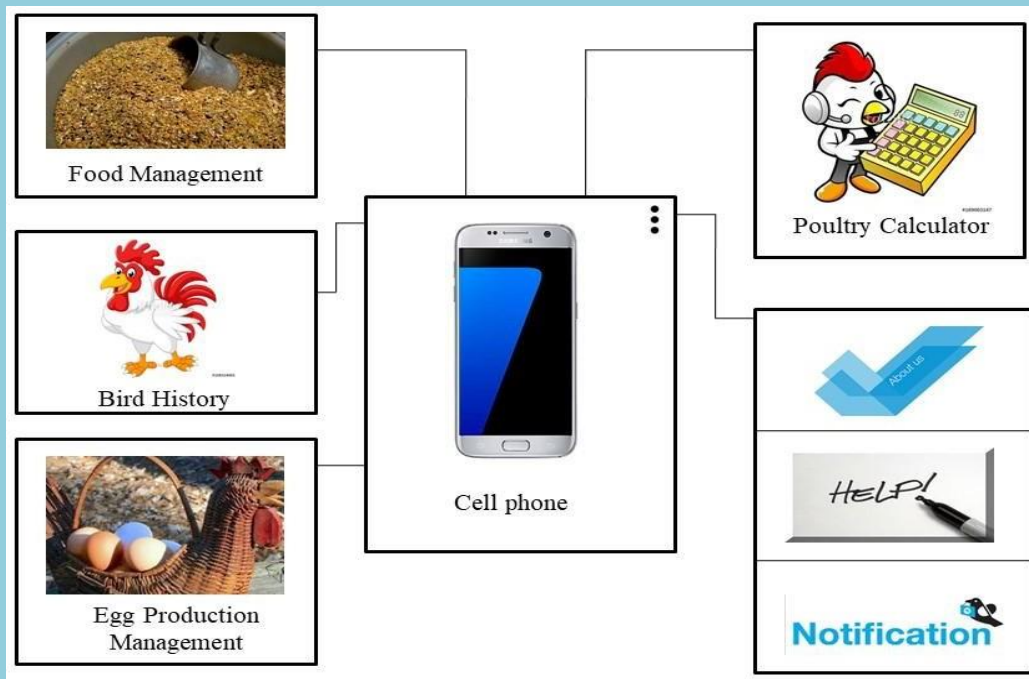

Figure 1.1: Block diagram of Android Application

This application is used to collect the information of environmental parameters in the poultry farm and monitor the parameters under the threshold in order to provide a healthy atmospheric condition for the growth of the chickens. It maintains the record of the poultry farm, and also analyses the egg produced on the weekly basis and plots the graph based on the acquired information. This application maintains the details of the birds such as death rate of the chickens, cause for the death. This Automated poultry farm has a great impact on increasing the productivity of chicken by monitoring and controlling the environmental parameters of the poultry farm, it even has a control over the Food valve of the poultry farm.

At the end of each day he needs to enter the details about the egg production, and the chicks bought. These details will be stored and can be accessed anytime thereafter. The environmental parameters such as temperature, humidity, light intensity, gas content in the air are updated in the android application. If the environmental parameter crosses the threshold value, specific tasks are automated and the notification is sent to the user. In addition to that, a poultry calculator will be available that eases the task of calculation.
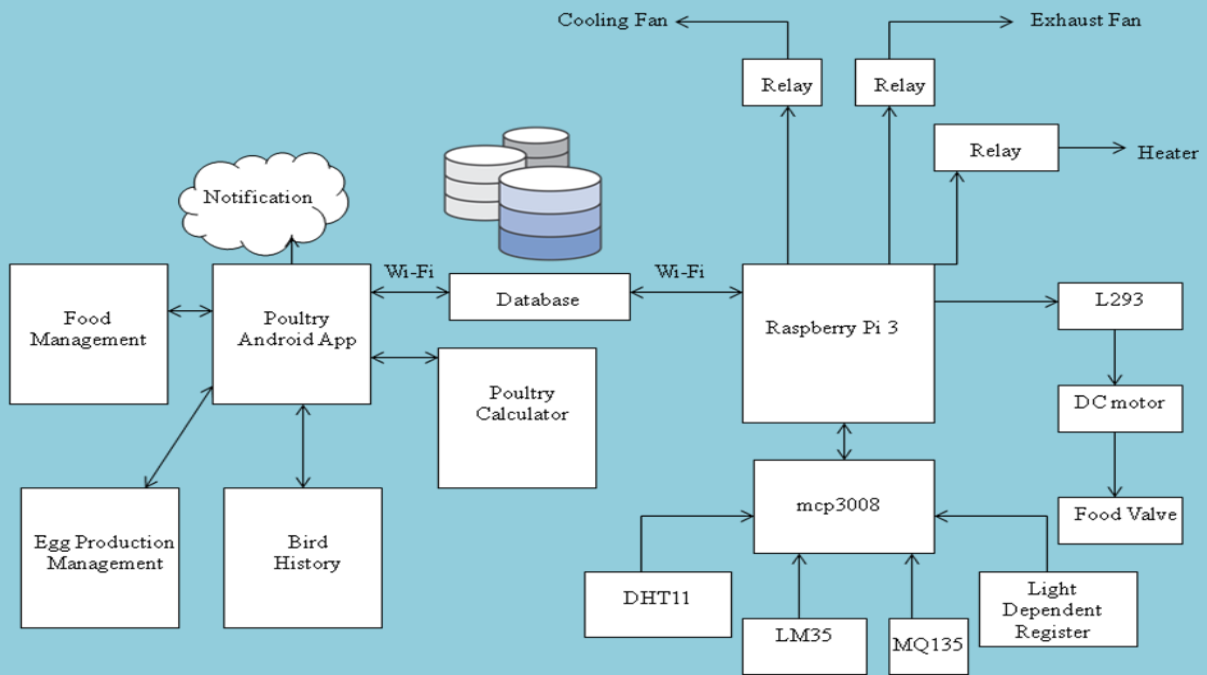
Figure 1.2: Architectural Design of proposed system

The block diagram of the proposed system is shown in the above Figure 1.2; LM35 is the temperature sensor that reads the temperature of poultry farm. MQ135 is the gas sensor used to detect the ammonia gas inside the poultry farm. Light Dependent Register (LDR) will sense the intensity of light. Based on the climatic condition, heater will be ON or OFF by using relay. Food will be dropped on the tray for a determined time interval with the help of DC motor and the quantity of the food is updated in the android application. The system is able to monitor the real-time data of environmental parameters and checks whether the environmental values are above or below the threshold temperature, percentage of ammonia content in the air, intensity of light. Humidity is sensed using the DHT11. All the sensors are connected to raspberry pi and the data from the raspberry pi is stored in database using Wi-Fi. If humidity crosses the threshold, the exhaust fan will be turned on and the buzzer will be turned on. If the temperature in the poultry goes above the threshold, heater is turned off and cooling fan will be turned on. If there is darkness in the poultry the bulb will be turned on. This poultry farm has a great impact on increasing the productivity of chicken by monitoring, controlling the environmental parameters which effects on the growth of chickens.

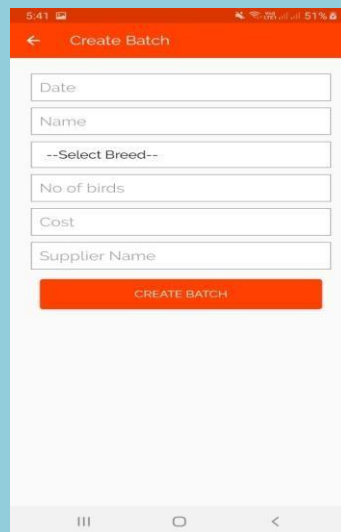**Result:**

Screenshots of Android Application:

Figure 1.3: Batch Creation Page

As shown in the figure 1.3, after logging into the system the user can create a batch for the chickens by providing required details.
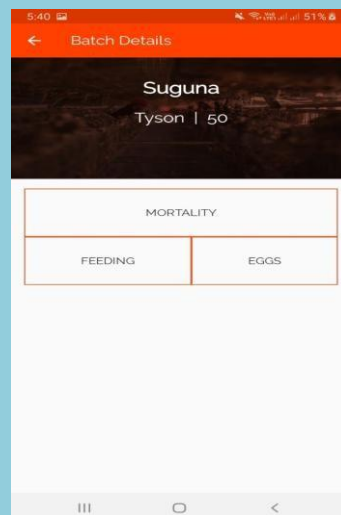

Figure 1.4: Details of a Batch

The above figure shows the details of a particular batch. It shows the name, type of chicken in the farm and count of the chickens. This page navigates to other pages like mortality, feeding and egg production.
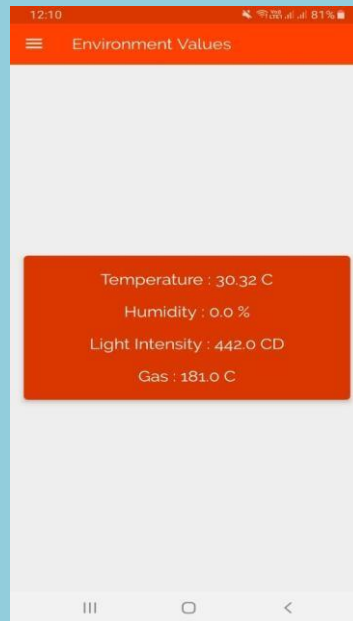
Figure 1.5: Shows Environmental Parameters

As shown in the figure 1.5, the environmental conditions of the poultry farm are updated in android application.
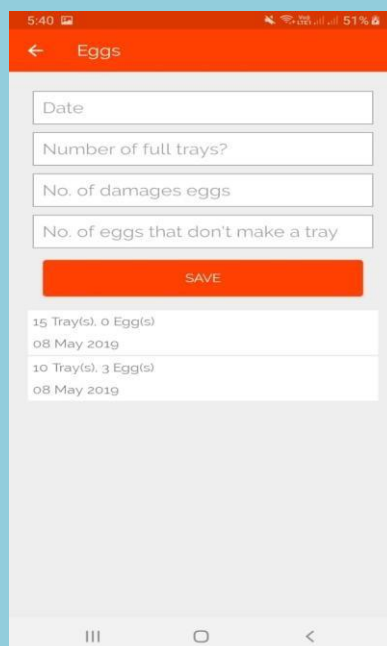

Figure 1.6: Updating Egg production details

The user can store the details of egg produced in the poultry farm. As shown in the figure 1.6, the manager can update the date with number of full trays, number of damaged eggs and the number of egg that doesn't make a tray. At the end of the week the application provides the egg
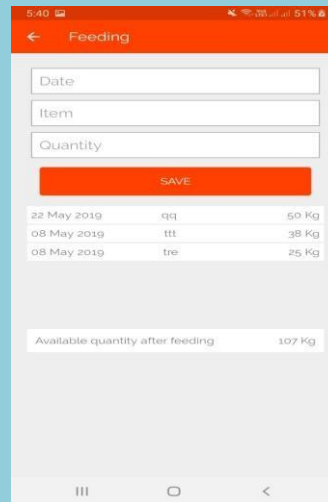
production analysis graph.

Figure 1.7: Updating food details

As shown in the figure 1.7 the user can update the food details in this page. Food will be dropped on the tray for a determined time interval with the help of DC motor and the quantity of the food is updated in the android application.

Figure 1.8: Updating Mortality details

As shown in the figure 1.8, the user can enter the number of birds died in the farm and cause for the death.

Figure 1.9: Egg production analysis graph

Figure 1.9 represents the egg production graph. The user will get the analysis graph on weekly basis.

As shown in the figure 1.10, the proposed system includes remote sensors and raspberry Pi. The LM35 is a basic, integrated-circuit temperature sensor which is used to measure temperature (in Celsius). The MQ135 is a Gas sensor which detects ammonia gas in the poultry farm Sensors continuously read the environmental parameters values in the poultry farm. DHT11 is a humidity sensor which senses the water content in the air. LDR, Light Dependent Register is used to measures the light intensity in the poultry farm. Whenever the environmental value crosses the threshold, required task is performed and the notification is sent to person in-charge. Whenever the temperature is less than the threshold value, it checks whether the heater is on or off, if the heater is on, it turns off the heater and turns on the cooling fan using L293 motor driver. If the light intensity crosses the threshold it turns on the light. If the gas intensity is more than the threshold, it turns on the buzzer and the notification is sent to the user by saying that the poultry farm is not clean. If the temperature is more than the threshold value, it checks whether the heater is on or off, if the heater is off, it turns on the heater using L293 motor driver. If the humidity is more than the threshold value, it turns on the exhaust value to balance the humidity level in the farm.

Figure 1.10: Hardware Implementation of proposed system

Food will be dropped on the tray for a determined time interval with the help of DC motor. The person in-charge can observe the environmental parameters of poultry farm. This intelligent system can reduce cost, time, labor and it is user friendly to the farmers.

Various environmental parameters have been continuously monitored and controlled to improve the health and growth of the chicken. It also explains the method of Food Control Mechanism for a poultry farm. Hence the owner can be able to get all details of the poultry farm at anytime. This intelligent system can reduce cost, time, and labour and it is highly user friendly to the farmers.

- Environmental parameters like temperature, humidity, light intensity and ammonia gas are monitored and controlled automatically.

- Provides optimized Food Control Mechanism for a poultry farm.

- Monitors the egg production and analyses it on weekly basis.

- Maintains the data about the birds in the farm and the available food in the poultry.