

ST. FRANCIS INSTITUTE OF TECHNOLOGY (ENGINEERING COLLEGE)

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CATALOGUE OF B.E PROJECT REPORTS

BATCH 2016-2017

[BRANCH – CMPN,
EXTC, INFT]

ABSTRACTS

INTRODUCTION

The Library and Information Resource Centre team is happy to bring out this catalogue listing B. E. Project Reports submitted by the 2016- 17 batch students to the Institute. This document covers abstracts of the 131 projects and are listed in alphabetical order under each year by the project title. Each entry of the project provides the bibliographical details, such as authors, title, name of the guide and abstract. Accession Numbers have been provided to enable the user to locate a specific entry in this catalogue. Hope you will find this document useful. We would be happy to have your comments and suggestions, if any, to improve this catalogue further.

BRANCH: CMPN YEAR: 2017

ABSTRACTS

Fire Detection System (Image Processing)

Prathamesh More, Akhilesh Kashikar, Rahul Ulman

Project Guide: Dr. Kavita Sonawane

Fire is a disaster that can strike anywhere and can be very destructive. A method to detect smoke and fires would allow the authorities to detect and put out the fires before it becomes out of control. One of the cost effective methods would be to use cameras which are already on the roads to detect the fires early in order to inform the relevant parties. This project suggests a method to use surveillance cameras in order to monitor occurrences of fire anywhere within camera range. Since cameras are already installed in most places, this method would be cost effective as there would be no need to purchase and install the hardware required. The response can also be quicker due to information being gathered early. An algorithm that can process videos in order to detect smoke is developed in this project. Using properties of smoke, such as its color and seemingly random motion, the video is processed, and elements which match the properties are determined to be smoke. The results of this method show that visible smoke can be reliably detected in relatively bright or well lighted areas, such as indoors and on highway roads. Although the performance of the algorithm degrades on darker areas, as smoke is not so visible and difficult to trace, this can be overcome by coupling it with another fire detection algorithm.

Acc. No.: CMPN 444 / PR 1445

C++ to C# conversion

Kenneth Saldanha, Yudhister Singh, Mohit Shetty

Project Guide: Varsha Shrivastava

C# is a distinct language from C++. C++ is designed for general object oriented programming in a command line-based user interface. C++ is a general-purpose programming language with high-level and low-level capabilities, whereas C# is a multi-paradigm programming language encompassing strong typing, imperative, declarative, functional, generic, and object-oriented and component oriented programming. However it is also undeniable that these two languages are very similar in both their syntax and in that they are both designed to facilitate the same paradigm of programming, in which code is based around hierarchies of inherited classes. There is a requirement for a functional C++ to C# conversion application. We intend to create a code converter from C++ to C#. We intend to take important tokens from the C++ program, analyze the program based on tokens, run on C++ compiler to check if code is correct, compute the amount of resources available to be used and then convert into C#. The entire coding of the

given application will be done in Visual studio and help would be taken of its library files for efficient conversion.

Keywords: C++,C#,UML,.net

Acc. No.: CMPN 452 / PR 1453

Vehicle Tracking Using GPS, GSM and Rash Driving Detection

Chirag Bhoir, Akash D'souza, Ian D'souza

Project Guide: Ms. Nidhi Gaur

Vehicle tracking is one of the most critical aspects involved in vehicle security. Due to large number of vehicle thefts that happen these days the best way to ensure the security of your vehicle

in an event of a theft is to install tracking system in your vehicle. Also with the advent of cab services like uber and ola it's become imperative for managers to track the positions of their vehicles and also monitor how they are being driven.

A vehicle tracking system is a system that combines the use of automatic vehicle location in individual vehicles with software that collects these fleet data for a comprehensive picture of vehicle locations. Modern vehicle tracking systems commonly use GPS or GLONASS technology

for locating the vehicle. These systems however do not provide information about whether the vehicle is being driven rashly. To overcome this we can integrate the above vehicle tracking system

with a rash driving detection module

A rash driving detection module makes use of an accelerometer as its main component and provides information about the direction in which the vehicle is travelling as well as the changes in its acceleration. The aim is to create a system that is easy to use and cost effective so that it can

be used on a large scale.

Acc. No.: CMPN 402 / PR 1403

IMAGE SECURITY

Mit Doshi, Saurav Ghosh

Project Guide: Mrs.Vincy Joseph

A digital image is defined as a two dimensional rectangle array. The elements of this array are denoted as pixels. Each pixel has an intensity value (digital number) and a location address (row,

column). Many applications like military image databases, confidential video conferencing, personal online photograph albums, medical imaging system, Cable TV requires a fast and efficient way of encrypting images for storage as well as in transmission. Many encryption methods have been proposed in literature, and the most common way to protect large multimedia files is by using conventional encryption techniques. Private Key bulk encryption algorithms, such as Triple DES or Blowfish, are not suitable for transmission of large amounts of data. Due to the complexity of their internal structure, they are not particularly fast in terms of execution speed and cannot be applied for images in the real time scenario. Also traditional cryptographic techniques such as DES, AES, etc. cannot be applied to images due to the intrinsic properties of images such as bulk data capacity, redundancy and high correlation among pixels. A wide variety of cryptographic algorithms for images have been proposed in the literature. The images are first decomposed into vectors and the sequentially encoded vector by vector. The time taken for encryption is relatively less in comparison with the algorithms proposed in the literature. The above mentioned features make the algorithm suitable for image encryption in real time applications.

Acc. No.: CMPN 430 / PR 1431

DETECTING MALICIOUS EXECUTABLES

Smithson Dmello, Melroy Dmonte, Winston Machado

Project Guide: Ms. Jayashri Mittal

In recent times, rapid growth in the amount of malicious software is causing a serious global security threat. Unfortunately, widespread signature-based malware detection mechanisms are not able to deal with constantly appearing new types of malware and variants of existing ones, until an instance of this malware has damaged several computers or networks. In this research, we apply an anomaly detection approach which can cope with the problem of new malware detection. First, executable files are analyzed in order to extract operation code sequences and then n-gram models are employed to discover essential features from these sequences. A classification algorithm based on the iterative usage of support vector machines is applied to analyze feature vectors obtained and to build a benign software behavior model. Finally, this model is used to detect malicious executables within new files. The scheme proposed allows one to detect malware unseen previously. The simulation results presented show that the method results in a higher accuracy rate than that of the existing analogues like the signature based methods etc.

Acc. No.: CMPN 415 / PR 1416

Automatic Subtitle Generation

Alria Fargose, Alina Fargose

Project Guide: Tejal Carwalo

The use of videos for the purpose of communication has witnessed a phenomenal growth in the past few years. However, non-native language speakers or people with hearing disabilities are unable to take advantage of this powerful medium of communication. To overcome the problems caused by hearing disabilities or language barrier, subtitles are provided for videos. The subtitles are provided in the form of a subtitle file most commonly having a .srt extension. Several software have been developed for manually creating subtitle file, however software for automatically generating subtitles are scarce.

The main objective of developing this system is to present an automated way to generate the subtitles for audio and video. By replacing the tedious method of the current system will save time, reduce the amount of work the administration has to do and will generate the subtitles automatically with electronic apparatus. The system will first extract the audio, then recognise the extracted audio with the available speech recognition. Later the recognized audio is converted to the text and saved in text file having extension “.srt”file. The .srt file is linked to the video and video is played with subtitles.

Acc. No.: CMPN 408 / PR 1409

Intelligent Heart Disease Prediction System Using Neural Network and Genetic Algorithm

Swati Shetty, Megh Shah, Priyanshi Shukla,

Project Guide: Mrs.Sneha Nikam

Data mining is the process of finding previously unknown patterns and trends in databases and using that information to build predictive models. In today's world data mining plays a vital role for prediction of diseases in medical industry. In medical diagnosis, the information provided by the patients may include redundant and interrelated symptoms and signs especially when the patients suffer from more than one type of disease of same category. The physicians may not be able to diagnose it correctly. So it is necessary to identify the important diagnostic features of a disease and this may facilitate the physicians to diagnosis the disease early and correctly.

In this project to detect heart diseases, we use a combination of techniques and algorithms namely, Genetic algorithm and Neural networks. It presents a way to enhance the performance of a model that combines genetic algorithms and neural network for feature selection and classification. The main objective of this research is to develop a prototype Intelligent Heart Disease Prediction System with NN and genetic algorithm using historical heart disease

databases to make intelligent clinical decisions which traditional decision support systems cannot. The given model integrates GA with a modular neural network to rapidly and accurately approximate complex functions.

Acc. No.: CMPN 440 / PR 1441

Home Management System

Simran Monteiro, Aarti Dave, Pranjali Naik

Project Guide: Ms.Priya Karunakaran

We all know that it is troublesome for any person to daily keep a track of all the required necessities. Especially, how cumbersome it is for a person handling a kitchen to keep a track of the quantity of the groceries and other food items. We also know that many a times we find it difficult to decide upon a recipe to prepare based on the items available at our place. A person handling the monthly expenses also finds it difficult to keep a track of the various bills to be paid, their deadline and salary to be given to the servants. In today's fast-paced lifestyle, everyone from a housewife to a student at a hostel or a working individual requires a little help keeping track of everything happening on the home front. This is where our site comes in. This site aims to simplify the process of grocery buying and organization, along with cost analysis of monthly grocery expenditure and daily services expenditure (such as newspaper delivery, maid services etc.). It automatically calculates when a certain grocery item needs to be bought, based on usage settings set by the user, and sends notifications to the user with a grocery list.

Acc. No.: CMPN 414 / PR 1415

Chemist ERP

Krathi Bhat, Shruti Mavani, Shraddha Parekh

Project Guide: Ms.Snehal Kulkarni

An Enterprise Resource Planning system is an integrated; Computer based application used to manage internal and external resources, including tangible assets, financial resources, material and human resources. This ERP is focusing on Customized form of Enterprise Resource Planning for pharmacy shop. The Objective of developing ERP System is to provide a valued software solution with technology, functionality, ease of implementation, and effective cost. The ERP system is developed for a Chemist Retail Shop wherein isolated modules such as Inventory control, Sales, Purchase and Accounts are integrated as to deliver customer satisfaction through various service offers. The system involves a powerful workflow engines that manages the entire process flow within the enterprise increasing efficiency and control at the same time. This project will enable better management of financial data; elimination of redundancy, timely availability of information would facilitate better strategic decisions.

Acc. No.: CMPN 419 / PR 1420

A New TRS for E-Commerce Application

Neha Parmar, Monika Phadtare, Pradnesh Naik

Project Guide: Mrs. Pradhnya Pradhan

Robust Trust Reputation Systems (TRS) provide a most trustful reputation score for a specific product or service so as to support relying parties taking the right decision while interacting with an e-commerce application. Thus, TRS must rely on an appropriate architecture and suitable algorithms that are able to improve the selection, storage, generation and classification of textual feedbacks.

In this work, we propose a new architecture for TRS in e-commerce applications. In fact, we propose an intelligent layer which displays to each feedback provider, who has already given his recommendation on a product, a collection of prefabricated feedbacks related to the same product. Our main contribution in this paper is a Reputation algorithm which studies the user's attitude toward this selection of prefabricated feedbacks. As a result of this study, the reputation algorithm generates better trust degree of the user, trust degree of the feedback and a better global reputation score of the product.

Acc. No.: CMPN 450 / PR 1451

Collective buying and selling between farmers and retailers

Gavin Dias, Akshay Adhude, Ninad Chavan

Project Guide: Dr. Vikram Shete

Fifty-six percent of India's workforce is in the agricultural sector, but its contribution to the GDP is only 13.9%. One of the many problems is the supply chain management from farmer to the consumer. There are many intermediaries between the farmers and the end consumer. Moreover, due to lack of education and minimal choices, a farmer has to sell his produce at a very low rate decided by the middlemen. He has no other choice, and as the produce moves over in the supply chain, various agents take out their commissions, so the end retailer has to sell the produce at increased rates to the end consumer.

In this project, we build a software system that will enable collective buying and selling of produce between farmers and city based retailers. The software system will have dynamic inputs and algorithms to decide to price. The main functionality of the software product will be to check the feasibility of produce allocation and transportation based on real world parameters like logistics costs and quantity of produce.

Our system collects produce information such as quantity and quality of produce from the farmers before the crop is harvested. The system database has collective produce information of numerous farmers which is entered till the farmer side window is open. Once the farmer side window closes and the retailer side window opens, retailers can place order till stocks last or till the retailer window is open. At each stage, the system performs multiple feasibility checks

(logistic feasibility depending on the quantity of produce) to ensure a successful transaction. Also, the pricing is fixed for the retailers by the system, depending on the current market prices. On the farmer's side, a ceiling price is calculated by the system depending on the location of the farm. If the farmer quotes a price lower than the ceiling price, his offer will be accepted. The motto is to pre-plan the selling-buying process before harvesting, as the produce involves fruit and vegetables, which are perishable items.

The general idea of the project can be applied to any “farmer to city based retailer” supply chain. The basic idea can be modified according to the geographical and regional requirements for specific applications. For this project, we have considered the city of Mumbai and Maharashtra based farmers as the users of the system. The algorithms are designed considering the supply of produce from various locations in Maharashtra to Mumbai-based retailers. The various constraints to be considered while modifications are- supply strength of a region (also considering a variety of produce cultivated), geographical location of the city under consideration with respect to farm regions and transportation routes. Acc. No.:

CMPN 413 / PR 1414

School ERP Solutions

Rupal Desai, Anup Mulay, Anina Vadukut

Project Guide: Varsha Nagpurkar

This project focuses on Customized Enterprise Resource Planning. The objective of development strategy is to provide a valued software solution with technology, functionality, ease to implementation and effective cost.

Here the ERP system is developed for School, the idea behind this is every month end there is a half day in school nowadays for the clarification work, which in turn is consumption of lot of time and resources like paper work and these time can be utilized in other important things. ERP is basically integration of the information of different departments, which can be managed from one system. Reliability, accuracy, efficiency and timely availability of information are the benefits of the ERP system. Redundancy within organization can be eliminated.

The scope of the project is to manage the school details and make their work less. This is basically be done by using modularization. The ERP system is developed for school wherein several isolated modules such as Student Data Management, Staff Management, Courses and Subject Management, Student Attendance and Leave Tracking, Staff Attendance and Leave Tracking ,Exam and result Management ,Student Fees payment& balance tracking and Staff payroll. In this system, all the departments get access to data i.e. the integrated data as per their designation and requirements. This system is a desktop application and it is completely from administrative side. The system gives the administrator complete access to the system and the right to decide which department should or should not be able to access the system.

Acc. No.: CMPN 416 / PR 1417

Automated Power Saving System

Vikesh Mewada, Jay Mishra, Pravin Vishwakarma

Project Guide: Rupesh Mishra

According to the British tabloid Daily Mail, “not switching off electronic devices can account for up to 16 per cent of the average electricity bill.” The idea is to automate, by creating a system that monitors "changes" in the environment and respond to the situation by switching off devices in a timely manner.

We propose a generic and frugal system that can be implemented in Work-Places like libraries, staff room and offices. The system detects human presence within a confined space over intervals of time and controls the appliances like light, fan and AC and if it finds no human presence then power supply is disabled. The main goal of this proposal is to help various organizations to play an effective role in saving electricity.

Acc. No.: CMPN 446 / PR 1447

Stock Prediction Using Recurrent Neural Network and Sentiment Analysis

Christopher Rodrigues, Akshay Shaligram, Ayush Tickoo

Project Guide: Mr. Shamsuddin S. Khan

The stock market is very complex and has a dynamic structure which makes its forecasting and prediction a challenging task for people. An artificial recurrent neural network is a proper way to model such dynamic factors and make a successful and reliable prediction of stock prices.

Market sentiment has a strong correlation with future stock performance. Numerous factors like world politics, inflation/deflation, economic shock, value of foreign currencies, interest rates etc. result in the stock market either rising or falling. In order to gauge the stock market effectively, it is necessary to utilize sentiment obtained by analyzing tweets. Tweets are important resources that carry sentiment value useful to monitor the market sentiment.

The proposed system uses historical data to calculate the trend of stock closing price and performs sentiment analysis of tweets pertaining to the stock market to forecast the nature of the stock market and makes these available to the user. The system will serve as a decision support system and serve investor needs by providing the necessary information. The investor can then make an informed decision about what to do: Buy, Sell, or Hold stocks.

Acc. No.: CMPN 442 / PR 1443

Human Motion Detection using camera motion sensor

Jenil Mehta, Rushabh Nagda, Rohan Nerurkar

Project Guide: Ms. Prerana Kushe

Human motion detection system helps to identify the motion of the human and send the image of the motion to the user. This helps in monitoring motion in nearby areas by sensing sensitivity of the area and as soon as sensitivity reaches desired limit the system knows that a motion has taken place. Video surveillance is focused on people counting and tracking mainly for real-time applications such as security system, traffic monitoring, etc Human Motion Detection using camera motion sensor helps to overcome the problem of continuous monitoring as the user will be notified about intrusion at that very instance . This application will help to suffice the need of security in expensive places like bank lockers, jewelry shops etc. The system also provides feedback to the end user in terms of visuals rendering the system useful for spying purposes .This application is aimed at accelerating the process of apprehending a thief.

Acc. No.: CMPN 431 / PR 1432

Secure Network Monitoring

Glary Crasto, Neville Gonsalves, Sagar Gonsalves

Project Guide: Bidisha Roy

There is a tremendous growth in computer network which demands efficient and secure network monitoring and network management. Mostly SNMP (Simple Network Management Protocol) based client server architecture is used for network management which uses SNMP as a protocol to provide Centralized approach of network management which is quite efficient in terms of performance. Foremost problems related to this architecture are heterogeneity in networks, limited amount of bandwidth, lack of resources, lack of fault tolerance capability and huge amount of traffic generated on central Server which can degrade the performance of network. We have developed a system which follows distributed and decentralized approach for the purpose of network monitoring and management which reduces the traffic over the network. To facilitate distributed and decentralized monitoring, we proposed a secured multi-agent based architecture in which, we created different mobile agents for the purpose of getting network related information. Mobile agents retrieve network related information, which act as an Input for network administrator. It keeps an eye on an activity of each and every registered client using the mobile agent .This system will monitor each client and will send the reports to server for appropriate action. This system will alert/notify administrator agent about various client components like running processes, open network connections, open ports, data usage, running applications, addresses of destination systems connected, performance of client machine etc. This application also focuses on reducing the network bandwidth used for monitoring the network by using agent per client architecture (mobile/roaming agent).

Acc. No.: CMPN 453 / PR 1454

Housing Society Application

Rucha Bari, Viren Fernandez, Mansi Vaidya

Project Guide: Mrs. Varsha Nagpurkar

Generally, in Society all the work is decided during an AGM that is conducted once a year in any respective society. According to the terms of the minutes of the meeting the following changes are considered and later on put into action. In society, the treasurer has to maintain a hardcopy of the maintenance bill for each and every member. Keeping in mind, the few problems faced in today's emerging technologies and new inventions, the age old terms and condition are difficult for every person in today's world to adhere to them. To do so, there hasn't been any automated system to record matter that actually takes place in society. It is necessary to implement a technology that will enable transparency between the members and the committee. The Society Management System allows members to login with their own account and get updated with the activities the society undergoes. Society Management System is the website portal to reduce conflicts among society members. The system has automated functionality for calculating monthly maintenance bill and member can view their bill status on their account. The main functionality of this project is that, there is a voting system for different positions like Chairman; Treasurer Etc. Member can online vote the deserving candidates. The system provides a unique interface to every user to interact with the system. System accepts queries from users and evaluates the need of the query and fires it over the database and results are displayed to the user.
Acc. No.: CMPN 449 / PR 1450

Natural Eye Movement Tracking and Detection System

Michelle Alva, Neil Castellino, Rashmi Deshpande

Project Guide: Dr. Kavita Sonawane

Communication is an essential part of human life which paralytic patients with locked-in syndrome are deprived of. In locked-in syndrome, the patient cannot move any of his voluntary muscles except the eyes. Taking this into consideration, the proposed system is designed to detect the face and pupil of the patient through a standard webcam using Haar cascade classifiers and Circular Hough Transform algorithm respectively. The proposed system displays different images of daily activities. The patient will have to look at an image for a period above a pre-decided threshold time in order to select it. Subsequently, the system will track the point of gaze of the patient and will select the image accordingly after a confirmation from the patient. Based on this confirmation, the aide will be notified via text or audio. Successful implementation of the system will help the paralytic patient to easily communicate his needs to the aide.

KEYWORDS Locked-in syndrome; Haar cascade classifiers; Circular Hough Transform; threshold time; gaze.

Acc. No.: CMPN 412 / PR 1413

BLIND EYE

Manan, Meghani, Divya, Dave,

Project Guide: Rujata Chaudhari

Although mobile devices include accessibility features available for visually impaired users, the user interface of the majority of the mobile apps is designed for sighted people. It is clear that “Design for Usability” differs depending if the final user is a sighted user or a visually impaired user.

The project Blind Eye is an artificial intelligence based human interaction system that assists the visually impaired people in using their basic cell phone functionalities like making a call, sending a text message by a two way interaction method using speech as the source of input.

Since speech recognition is now being increasing preferred by the normal users as well as purely due to the convince factor involved this project can be expanded to include normal users as well.

This system is supposed to act like a personal assistance for the blind using simple techniques like speech-to-text, and text-to-speech. Also there is a lot of future scope to this system like including responses in different regional languages, and many more features can be added later on.

Blind Eye would be supported on Smartphone devices specifically android based operating system as most of the crowd today opts for such devices and they are available at affordable rates too. Hence we believe that this system will be of great help to total as well as partial visual impairment victims.

Also, the blind eye application will act as a navigator to the blind as it will help them to travel from one place to another. Suppose a blind user wants travel from place A to place B then to do so the application will notify the user the directions to go in order to reach the destination.

Overall the application will be useful to the blind user in such a way that it will become an indispensable tool in the user’s life.

Acc. No.: CMPN 429/ PR 1430

VEHICLE IDENTIFICATION SYSTEM

Dhara Khant, Namita Powar, Parna Salian

Project Guide: Prof. Aslam Nandyal

With the development of vehicles and increasing number of cars in the modern society, people pay more and more attention to the vehicle license plate recognition system. License plate recognition is an automatic system that will be using a number of steps in order to recognize the license plate of a vehicle. License number plate recognition system is very important component of intelligent transportation system. We will be using this system at tolling areas in order to process a vehicle whether the user has all the correct documents and also information regarding stolen cars can be retrieved. This system also helps the user to get away from the police who cheat public by issuing heavy fines. So the basic problem statement is, given the image of a scene in which the license plate of a car is visible. Here in such a scenario the owner of the vehicle and license validity has to be identified hence reducing car thefts. The system maintains a database which consists of information like car owner's name, car no plate, etc. The license number plate is compared with the database and checked. The users will be having registered accounts on the system. By this, the system can have full information about the owner with the help of the documents that the owner has uploaded on the system. There will be a separate database of those who have registered a case in the police station regarding their stolen cars. The database will be having the license plate number and the owner details.

Acc. No.: CMPN 441/ PR 1442

Customer Incentive and Counterfeit Product Detection
Shriya Karkal, Swapnali Kurhade, Paritosh Morparia

Project Guide: Ms. Purna Kushe

FMCG companies are one of the largest conglomerates in the world, a part of everyday life, across all consumer types. From the masses to the uber rich, these companies play an integral part in our day to day life. From the time we wake up, to the time we go to bed and even while we are asleep, we use products manufactured by these companies. However, these companies have an inherent problem – they have no way of identifying their consumer. And as a result, we as loyal consumers receive no benefits for our loyalty to our favorite brands / products.

This app connects consumers to everyday brands and products and enables brands to provide offers and loyalty benefits to consumers. It also empowers a consumer to ascertain that the product they are purchasing is genuine, along with quintessential information regarding the brand and product, all at their fingertips, on their phone.

This project details the development of a smartphone based loyalty & marketing solution, along with a proprietary anti-counterfeit algorithm, based on a unique code integrated on the product packaging. The key objective of the platform is to create a brand specific loyalty, incentivize the consumer which can be accessed through an Android application.

The project uses image processing for the unique code printed on the product. It uses the smartphone camera to scan and verify the code with that of the brand to check for the authenticity of the product. It will automatically detect the code and the encoded-decoded pattern of it which will be present in the database of that brand. The user will have access to all the brands and their respective products. If the authentication is successful it will show the user full description of the product that the brand puts up.

Once a user purchases and scans a product, the user is automatically enrolled in to the loyalty & marketing program of the brand and receives incremental benefits & discounts for purchasing products manufactured by the same brand. The user can also check & redeem applicable offers & rewards through the app itself. This will create a global offer & marketing system rather than offer restricted to a particular store (ie. more you buy from a brand you will receive offers accordingly from the manufacturer directly). This will also encourage billing in customers bringing legitimacy in the business environment.

In addition to these benefits at a consumer level, the project entails an analytics solution at the backend. The platform provides brands with valuable data regarding purchase patterns of consumers and consumer profiling. It also enables brands to access a loyal consumer base to sample new products and receive relevant feedback for new product launches.

This is a first-of-its-kind solution that will be deployed for mass market, non-electronic consumer brands for loyalty, marketing & anti-counterfeit in India.

Acc. No.: CMPN 447/ PR 1448

Colour Shuffling Password Scheme

Ketki Bapat, Saurav Dubey, Trishell Menezes

Project Guide: Ms. Ankita Karia

Text-based password schemes are vulnerable to shoulder surfing. Authentication schemes like token based, biometric based authentication systems, graphical password schemes have been proposed. However, biometric based authentication is expensive and graphical password schemes are not secure and efficient. Most users prefer the text based authentication schemes. We propose a hybrid of text and graphical password scheme by using sectors and colors. The system will be shoulder surfing as well as key logger resistant. The user can easily and efficiently log into the system without any problem of shoulder surfing.

Acc. No.: CMPN 432/ PR 1433

Staff Leave Management And Time Table Rescheduling

Alina Dmello, Rilsina Pegado

Project Guide: Ms. Snehal Kulkarni

The current process of applying for leave consumes time and includes lot of paperwork. We propose an online leave management system that is of importance to the organization. The staff Leave Management and timetable rescheduling (SLMTR) is a web based application that can be

accessed by the staff of a certain educational institute after being registered by the administrator into the system. This system can be used to automate the work flow of leave applications, their approvals and time table rescheduling. There are features like email notifications, automatic approval of leave, time table rescheduling etc in this system. This system will reduce manual work and maintain record in more effective way.

The SLTR gives detailed report of all things associated with leave. The most important feature introduced in the system is rescheduling of time table. This feature aims in reducing manual work of searching a substitute faculty to fill in the vacant time slot.

Acc. No.: CMPN 451/ PR 1452

Electronic Toll Collection

Sweenal Furtado, Vinen Furtado, Sneha Gonsalves

Project Guide: Mr. Rajkumar Shende

Roads are the conduit of life's activities. Their maintenance has always been vital. India has a long history of providing market roads for farms and providing road improvement monies to townships, which have limited authority to raise money for services, some part of the money for the maintenance is collected from the people using this facilities , In majority of the places in India the toll collection is manually done so Manual toll collection requires In-Lane Toll Equipment, toll collectors/staffs .So the overall cost increases as the staff has to be paid and equipment's have to be maintained. The receipt generated requires printer and lot of paper is wasted. Entries are not stored on server automatically. Collector enters data manually, so there are chances of corruption and fraud. A manual lane can process approximately 400 vehicles per hour. .To overcome this we are working on developing an intelligent transportation system which minimizes the time, cost and provide security and ease of implementation.The system will electronically classify the vehicle and calculate the exact amount to be paid by the vehicle owner, ensuring no pilferage of the toll amount high operating efficiency, low travel time, improved highway safety, and low level of pollution Moreover the system can have SMS based notification system.. An ETC system with all these desirable features is still in great demand

Acc. No.: CMPN 404/ PR 1405

Automatic Answer Correction System using Artificial Intelligence

Jason D'souza, Tomrock D'souza, Ricky Gourea

Project Guide: Sridari Iyer

The automatic answer corrector evaluates and grades answers based on a specific predefined parameters set by the paper setter. This software application is built to check subjective answers in an online examination and allocate marks to the user after verifying the correctness of the answer and grammar. The paper setter can add additional questions and the solution to it. When a

user takes the test he is provided with questions and area to type his answers. Once the user enters his/her answers, the system tries to identify keywords in the answer then compares this answer to the keywords stored in the knowledge base and allocates marks accordingly. As a single system evaluates all the answers the grading of marks is uniform.

Acc. No.: CMPN 410/ PR 1411

College Cloud Printing System

Keith Dias, Liston Jiu

Project Guide: Mr. Aslam Nandyal

There are various anomalies that occur for every student while taking the printouts. They have to stand in long queue, sometimes the Pen drives don't work properly and there is always fear of virus infection to pen drives. The goal of our System is to fully automate the process of Printing in a college environment. In this system, we will be building a software system that will enable college students as well as the college faculty to print their documents whenever required and at any time any place from the convenience of their PC or smartphones. College cloud printing system works from various devices such as tablets, smartphones and desktop computers. Our aim is to provide friendly service for the users who know nothing about printers. Here every student maintains a prepaid account in which he/she can recharge the amount which will be used for printing expense. With the help of this option the user don't need to pay while taking the printouts. As soon as the user will send the documents for printing they will be sent to the cloud server where the documents will be automatically printed, User just need to collect them without payment since the charges will be deducted from the account, which makes the system efficient.

Acc. No.: CMPN 409/ PR 1410

Image Context Analysis and Contextual Caption Generation using RNN/LSTMs

Achilles Rasquinha, Kenneth Sequeira

Project Guide: Vincy Joesph

This project aims to identify the purpose behind a visual depiction of an image captured, analyse the context behind a visual image and generate an artistic caption for the same. The resultant caption will not necessarily be descriptive, but rather contextual and creative. There does not exist a direct mapping between the image and its corresponding descriptions generated but an abstract mapping that denotes the image into sentences which is very much artistic and aiming to exhibit a kind of computational creativity. A user interface is built for users to upload, paste a remote image URL or click an image via a capture device.

Initially, an input image is captured from a client which is then encoded into a base-64 string and is sent to our Application Program Interface (API) running on a configured server. The said API awaits for a base64 image string which is then passed through a pre-trained Convolutional Neural Network which generates descriptive image captions. Such image captions are then transformed into artistic sentences using our proposed architecture thereby providing a variable sized artistic description of the same.

Acc. No.: CMPN 443/ PR 1444

Anuvad : Translator which makes travelling easier

Prithi Maria, Parchi Ranade Naithika Shetty

Project Guide: Ms. Sridari Iyer

The translator is aimed to translate the text (written in Indian language) in an image taken by the camera in a smart phone, to desired language. The users have to hold up their phone to the image they want to translate, take a photo, and wait. The image captured by the camera will be processed and the text is fetched from it. The fetched text is then translated to desired language, and users can watch the text magically translated. For people who are travelling and want to know some signs written in Indian language can get to know instantly. User can do it in seconds; flipping the pages and watching the items get translated in real-time. Not only it does translate but also provides an advantage for illiterate people by making the translated text audible to the user. It uses audio technology to read out the translated text to the user. The translator makes use of OCR (Optical Character Recognition) to fetch the text from an image and translate it to English language.

Acc. No.: CMPN 437/ PR 1438

Online Law System

Lydia Barretto, Snehal Dalmat, Liasha D'Souza

Project Guide: Mr. Rupesh Mishra

There is a rise in the amount of crime in our country and most of the people are unaware of the criminal laws under IPC (Indian Penal Code). Therefore it becomes necessary to make the citizens aware of all kinds of laws put forth by our constitution against crime so that people come forward to register case against it. This project is executed especially for this purpose. The project online law system is a software system that contains all the laws of IPC so that people

can come and search for the law for respective crime. The laws are categorized into different sections according to some keywords. There is also search option available where user can find or search according to his requirement by entering his query. There is also a facility available for users to get contact of lawyers. An enquiry forum is also provided where user can ask their query where lawyers can reply their queries. The system contains the crime rates of various states for different years from which the users can compare the crime statistics for different years. This project also contains information of all the respective courts in area for respective crimes.

Acc. No.: CMPN 418/ PR 1419

CREDIT CARD FRAUD DETECTION SYSTEM

Pranjal Baptista,, Sheron Coutinho, Bhushan Redkar

Project Guide: Mr.Rajkumar Shende

Due to a rapid advancement in the electronic commerce technology, the use of credit cards has dramatically increased. The most accepted payment mode is credit card for both online and offline in today's world, it provides cashless shopping at every shop in all countries. It will be the most convenient way to do online shopping, paying bills etc. As credit card becomes the most popular mode of payment for both online as well as regular purchase, and cases of fraud associated with it are also rising. Hence, risks of fraud transaction using credit card has also been increasing.

In the existing credit card fraud detection system, fraudulent transaction will be detected after transaction is done. The fraud is reported after it has been done. Thus in the proposed system, our aim is to detect the fraud before the transaction is completed. During the transaction we generate questions using verification engine. This process of generating questions is done every time for more security. If all the questions are not answered then the transaction fails and a message is generated of the same.

We repeat the same process of generating questions for every transaction just for higher security purpose and minimum frauds. We present detailed experimental results to show the effectiveness of our approach and compare it with other techniques available in the literature.

Acc. No.: CMPN 421/ PR 1422

Speakup

Bronson Dias, Wilfred Dsouza

Project Guide:Ms.Dakshata Panchal

In our Day to Day life "communication" plays an important role. The ability of speaking is the natural gift for human beings to express their self to the outer world. As we are living in modern world most of our applications are based on "communication". In our Day to Day activities

“communication” is very necessary and without communication life is very difficult.

Nowadays communication is growing rapidly, and due to which invention of new researches done and new technologies are designed which makes communication more efficient.

Our project has proper Distribution of communication. As we know many problems are created during communication, our project is developed to avoid this problems faced by the users.

Implementation of different programs are designed in the application for the avoidance of communication problems.

Acc. No.: CMPN 454/ PR 1455

SMART PARKING BOOKING APPLICATION

SUSSAN TUSCANO, ALDRICH FARGOSE

Project Guide: Mr. JERIN THANKAPPAN

Most of us own a vehicle use our private vehicles almost on regular basis. Most common problem that people face is to find a parking space. The development of technology has an impact for the transportation sector. One of them is about finding parking space for your vehicle. To find an empty parking spot, a driver must look up for a parking lot that has been allowed for parking, it is quite difficult to find a spot because the space available for parking is very limited and the number of vehicles that need parking is very high. It requires relatively longer time for a driver to get a parking spot which can cause traffic jam in the parking lot. This is the reason why we proposed an application for parking lot using Android Smartphone. Hence, we propose a parking system which can be used by a simple android smartphone.

We aim to make our system less human dependent by automating the entire parking lot's way of working, on the other hand existing system requires manual efforts. Our system offers a web based reservation where users can view various parking areas and select the space to view whether space is available or not. If the booking space is available, then the user can book it for specific time slot. It is also beneficial for the parking lot owner as there is atomization in the traditional way.

Acc. No.: CMPN 417/ PR 1418

C++ to C# conversion

Yudhister Singh, Kenneth Saldanha, Mohit Shetty

Project Guide: Varsha Shrivastava

C# is a distinct language from C++. C++ is designed for general object oriented programming in a command line-based user interface. C++ is a general-purpose programming language with high-level and low-level capabilities, whereas C# is a multi-paradigm programming language encompassing strong typing, imperative, declarative, functional, generic, and object-oriented and component oriented programming. However it is also undeniable that these two languages are very similar in both their syntax and in that they are both designed to facilitate the same paradigm of programming, in which code is based around hierarchies of inherited classes. There is a requirement for a functional C++ to C# conversion application. We intend to create a code converter from C++ to C#. We intend to take important tokens from the C++ program, analyze the program based on tokens, run on C++ compiler to check if code is correct, compute the amount of resources available to be used and then convert into C#. The entire coding of the given application will be done in Visual studio and help would be taken of its library files for efficient conversion.

Keywords: C++,C#,UML,.net

Acc. No.: CMPN 452/ PR 1453

Self Defense Training Using Virtual Reality

Ashok More, Divya Kamat, Omkar Manjrekar

Project Guide: Ms. Dakshata Panchal

Virtual reality is an emerging computer technology that simulates an environment for user interaction. This project aims at developing a virtual reality system for self-defense training with human body motion tracking and creating a virtual environment to achieve educational and entertainment goals. Self-defense training would be provided in two phases- training phase (where the user will get to learn the moves) and simulation phase (where the user can practice his moves) Virtual environment will consists of things we find in real world which can be interacted and used as required by the user. It will consist of Non Playable Characters (or Artificial Intelligence characters) which can interact with our user to make his experience of the world lively.

Motion tracking will be done using Microsoft Kinect which will allow the player to maneuver easily since he wouldn't have to use a keyboard or joystick to control himself in the environment. Whatever actions he does in the real world will be reflected in virtual environment. Virtual environment will be built using a game engine (unity 3D) with VR support. The graphics of the game will be developed using a 3d modeling software. The logic of the environment will be designed using principles of AI and concepts of game development.

Acc. No.: CMPN 428/ PR 1429

Home Design Using Augmented Reality

Kevin Pereira, Floyed Pinto, Rolwyn Quadras

Project Guide: Mr. Shamsuddin Khan

Augmented Reality based application to augment 3d models of furniture to give an idea to the user how the furniture mode
Will appear in his/her living room

Acc. No.: CMPN 403/ PR 1404

Idea Plagiarism Detector

Manan Satra, Jatan Rathod, Anurag Upadhyay

Project Guide: Mr. Jerin Thankappan

Plagiarism relates to the act of taking information or ideas of someone else and demands it as your own. Basically it reproduces the existing information in modified format. In every field of education, it becomes a serious issue. Various techniques and tools are derived these days to detect plagiarism. Various types of plagiarism that exists which include text matching, idea plagiarism, copy paste, grammar based method etc .We find a lot of plagiarized content among students' assignments and papers. As many of them are unaware of academic requirements, which leads them to copy-paste other's work and pass them on as their own.

In this project to detect plagiarism, we use text matching to compare the submitted document for plagiarism. The checker shall look out for key words between the given and the original documents and after checking shall determine whether it is copied or an original work. As mentioned above, idea plagiarism, sometimes the plagiarism can be in such a format that even though the words are different, they convey the same idea. Identifying that kind of plagiarism is the main function of this project.

Acc. No.: CMPN 434/ PR 1435

Canfod: Application for Detection of ADHD in kids

Shannon D'silva, Minu Jos, Kiran Pinto

Project Guide: Ms. Vincy Joseph

User friendly game that targets a child's attention capability and hyper activity symptoms through image processing.

Acc. No.: CMPN 405/ PR 1406

Intelligent Tourist Guide Chatbot

Hetvi Pathak, Maryann Sebastian, Vaishali Vyas

Project Guide: Ms. Nidhi Gaur

We usually require a guide whenever we go to a tourist place. Our project replaces a guide with a chatbot, a companion who will accompany you throughout the tour providing all related information of the tourist place. Once the user captures the image of the monument the bot will identify it and will respond to the user giving him/her information about the monument. The user can chat with the bot whenever he/she wants. There is option for text-to-speech.

Acc. No.: CMPN 438/ PR 1439

SUPPLY CHAIN OPTIMIZATION USING GENETIC ALGORITHM

Andrew Fernandes, Bradley Fernandes, Adam Nathan

Project Guide: MS ANURADHA SRINIVASARAGHAVAN

Supply Chain Management is the management of a network of interconnected businesses involved in the provision of product and the service packages required by the end customer in the supply chain. Control of inventory and distribution related costs are one of the main concerns for the manufacturers today. The issues in today's inventory management for a Food industry includes the limited amount of space available for a warehouse and variables like 'Time to Market' and 'Freshness Index' which depends on the individual product. Optimization of this process throughout the chain will improve the overall service provided.

Inventory management is a very complex process that needs to be carefully planned as the variables to be considered while optimizing an inventory may vary according to the companies' requirements. The proposed work will be dealing with the inventory of a food company. The storage of goods at the distribution centre will be classifying products into two broad groups of 'Perishable' and 'Frozen' foods. Based on this classification, the warehouse space would be allotted to both the products.

Optimization of an inventory can be done by a variety of methods. The proposed solution will be

making use of Genetic algorithm, which is a semi-heuristic and multi-objective algorithm to perform inventory optimization taking 'Shelf-life' and 'Demand/Supply' as the two variables to manage the inventory.

Acc. No.: CMPN 406/ PR 1407

PROVIDING DIETARY RECOMMENDATIONS USING ARTIFICIAL INTELLIGENCE

Asha Jacob, Nikhil Ashodariya, Aakash Dhongade

Project Guide: Ms. Anuradha Srinivasaraghavan

The proposed system intends to overcome the discrepancies posed by existing systems. It is expected to provide the users with a dynamic diet suited to every person's individual requirements. Initially user parameters as the user's height, weight, gender, ethnicity, their existing eating habits, any diseases or allergies would be taken as input. Using these parameters, a near-optimized food plan is computed. This food plan is generated in such a way that food consumption is not drastically reduced, to ensure that users are able to gain or lose weight without affecting their bodies negatively. The proposed system would also take care to see to it that no foods containing harmful or allergy inducing substances are present in the recommended list that is provided to the users. The system will make use of Fuzzy Logic and Genetic Algorithm to perform major computations. Fuzzy Logic would be used to calculate a crisp value for the linguistic level of user activity. Genetic Algorithm would be used to compute and generate a well-balanced diet that conforms to the constraints on calorie intake as well as diseases and allergies the user suffers from. Ethnicity and user preference will also be taken into consideration while suggesting food combinations to users.

Acc. No.: CMPN 445/ PR 1446

Smart Usb Hub

Tushar Pandey, Jijo Abraham

Project Guide: Priya Chaudhary

Devices are getting much more dedicated, application specific and portable. We generally use a laptop or a computer to transfer a file from one storage device to another. But it's not possible to carry such heavy devices along with us where ever we go. In-order to overcome this limitations, we have come with a device which is much more compact and portable. This device would help you to transfer data from one USB data Storage device to another without using a 3rd party device such as a laptop or a computer. This device will also help to transfer only those file which you want to transfer to the other storage devices by selected the required file which will be displayed on the LCD screen. Whenever we insert two pen drives in to the USB port of Raspberry Pi, this can be done by giving the command to the processor. The processor indicates that the pen drive is inserted successfully till the user can not send any command to processor, the operation cannot start. After sending the particular command to processor, the processor will start fetching the data from source pen drive into buffer and the ARM processor wait for the signal from destination pen drive. When the processors get the signal from destination pen drive, so the data transfer operation begins. Only the ARM processor should get the external hard key input signal from the user.

Acc. No.: CMPN 427/ PR 1428

AUTOMATED FOREX TRADING

SURESH PAIKRAO, POOJA SHAH, PREETI TANK

Project Guide: Ms. TEJAL CARWALO

Forex stands for Foreign Exchange. The foreign exchange market is a platform where currencies are being traded. Forex market is used to determine the relative price between various currency pairs. In the Forex market, trillions of dollars are traded everyday all around the world. Forex rate is the difference of unit price between a currency pair. As the forex market is so huge there are diverse ways to trade currencies. Automating the trading process overcomes the troubles with traditional trading system. The report covers basics of currency trading and use of algorithms to automate the trading process. The report also focuses on use of cloud computing to aid automated trading.

Acc. No.: CMPN 436/ PR 1437

Application of Fingerprint Scanner in Medical Record Management

Niranjan Pimenta, Lenryl Sequeira, Priyank Keni

Project Guide: Mr. Rupesh Mishra

This project focuses on Customized Enterprise Resource Planning and Security. The objective of development strategy is to provide a valued software solution with technology, functionality, ease to implementation, and effective cost.

Here the ERP system is developed for Hospital, the idea behind this is admission of a patient requires lots of clarification work, which in turn is consumption of lot of time and resources like paper work and these time can be utilized in other important things and saving a patients life.

ERP is basically integration of the information of different departments, which can be managed from one system. Reliability, accuracy, efficiency and timely availability of information are the benefits of the ERP system. Redundancy within organization can be eliminated.

The following are striking features of our proposed system:-

- It will help in ease of access.
- It will promote the digital India movement.
- It will save paperwork time and effort.
- A Higher level of transparency for patients as well as doctors.
- One of the highest form of security.
- Medical claim inclusion makes saving lives easier

Acc. No.: CMPN 420/ PR 1421

Calorie Calculator and diet check application

Srushti Choubal, Sweta Parmar,

Project Guide: Jayashri Mittal

The project is an android application. This is a project for providing the calorie intake of a user based on the food item information provided by him/her to the system. Also, the system shall provide a detailed data of the nutrient constitution of the food item entered by the user.

There is a need for maintaining track of a person's daily food habits and accordingly formulate a desirable diet to maintain a healthy lifestyle. However, these functionalities are barely available under one roof. This application fulfills that requirement of a user.

The application also prompts user the ideal diet for him based on the information provided by him. Based on low consumption of some nutrients the app will accordingly suggest the food ingredients he/she should be eating to have an overall balanced intake .User can search the food recipe based on the food ingredients suggested by the application or the ingredients of his/her choice. This application also provides reminders for every meal including the the ideal food the user needs to intake for that meal.

Acc. No.: CMPN 439/ PR 1440

Speech Responsive Web Browser

Evita DAAlmeida, Anuj Panchmia, Siddhesh Sarang

Project Guide: Ms. Sneha Nikam

This project is to develop a prototype which supports web browsing using a speech-based interface, and to measure its effectiveness. The proposed system aims to overcome these problems and make a web browser with integrated Speech Recognition Engine. It takes voice commands through the microphone and executes the command on the web browser. This project aims at improving the interaction of the web browser with the user to make it more user friendly

Acc. No.: CMPN 423/ PR 1424

BRAIN TUMOR DETECTION AND CLASSIFICATION

NIMISHA RODRIGUES, MUGDHA PATIL, Chetan Saldanha

Project Guide: PRIYA CHAUDHARI

The main aim of our project is to detect and classify a brain tumor in MRI scans. The goal is to increase the diagnostic accuracy using neural networks, image processing and machine learning. We are going to classify tumors into malignant and benign. It can also be classified based on where the tumor is located and the type of tissue involved. Physical examination isn't enough to properly detect the cancerous cells and early detection is associated with high survival rates. Brain tumor is one of the most severe and frequent neuro disorder in the population and has dramatic health effects as well as socio-economic implications. The current system includes manual and semi-automatic classification of MRI images which can be subjective and prone to errors. For this reason, in recent years many efforts have focused on developing a fully automatic method for classification. The aim of this project is to provide early detection and diagnosis of brain tumor. We understood the existing systems for the detection of brain tumor and what are the drawbacks of these systems. This project aims to conquer these problems within its implementation. MRI images will be processed resulting in the detection of brain tumor using watershed algorithm in image processing. The system will also provide classification of brain tumor using support vector machine (SVM) method. The proposed system will relieve the dependence on visual examination for detection and diagnosis of brain tumor. It will be very useful in medical fields for doctors to detect the tumor in its early stages and for researchers to carry out further studies on this. It will be useful for patients also since, early detection increases chances of survival. The proposed methodology is more efficient than the existing methods.

Acc. No.: CMPN 448/ PR 1449

On Demand Hyperlocal Delivery

Yash agrawal, Bhaskar Jaiswal, Deepak Singh

Project Guide: Bidisha Roy

This project is a platform where farmers can buy their agricultural goods. Due to lack of knowledge, education, government facilities and transportation facilities farmer have to travel long distance for their materials which they require for their farming (seeds, pesticides, fertilizer) Due to which they have to spend lots of money and time in travelling.

As a solution to this problem, to eliminate the long-distance travelling, our system will create direct link between farmer and retailers. Where farmer can get their product at their home which will result profiting the farmer as well as retailers and this also saves lots of travelling time.

Acc. No.: CMPN 407/ PR 1408

BRANCH: EXTC YEAR: 2017

ABSTRACTS

Automatic music classification using machine learning

Giselle Rodrigues, Hemali samant, Srikala Shetty, Pradnyali Vartak

Project Guide: Dr. Deepak Jayaswal

Due to the increasing amount of musical content available online, several approaches have previously been undertaken to the problem of discriminating music and speech. Automatic discrimination of music and speech is an important tool in many multimedia applications as it can help to skip over advertisements in audio broadcasts and allow for efficient encoding of audio samples since music and speech parts of an audio can be compressed more efficiently using different techniques. We have used GTZAN dataset and also additional audio songs from which we extracted different features such as MFCC (Mel Frequency Cepstral Coefficients), spectral roll-off, spectral centroid, spectral flux and zero-crossing rate which have demonstrated to be useful in classifying and characterizing audio signals. These features were given as input to the different classifiers such as ELM (Extreme Learning Machine) and SVM (Support Vector Machine) as training and testing files. The accuracy of the classifiers varied with respect to the different features that were given to it as input. Our results demonstrate the varied accuracy of different classifiers when different features were given to it as input wherein some classifiers achieve optimal accuracy as compared to other classifier for certain features.

Acc. No.: ExTC 390 / PR 1494

Segmentation Directed Inpainting

Kaustubh Mathkar, Nikhil Mendon, Dipen Patil, Gaurav Prabhu

Project Guide: Dr. Deepak Jayaswal

from surrounding area. In digital inpainting, the missing region is often referred to as 'hole' or 'target' and rest of the image is called 'source'. Most commonly used inpainting techniques fill the target region or hole in concentric layers from outside inward by sampling values from the background block by block. To overcome degradation of the image due to unnecessary propagation of texture from one region into another, we segment the image and restrict the filling of pixels from non matching areas into the hole. This is achieved by interpolating the mutual boundaries of the regions into the hole using Bezier interpolations in a preliminary step. By using Bezier interpolations, we restrict the search space only to the adjacent regions of the hole.

Confidence Update Rule is used to measure the extent of matching of two blocks taken into consideration. This idea is tested and the results are obtained based on the same.

Acc. No.: ExTC 384 / PR 1026

Lossless Watermarking Using Visual Cryptography Authentication

BHAVESH LOHAR, MANOHAR PRAJAPATI, CELESTIE RODRIGUES, ATLIN
VADAKETHALA

Project Guide: DR. DEEPAK JAYASWAL

With proliferation of digital images in the rise of internet, the image ownership with increase in image duplication is a major concern for the owner. Watermarking is a technique used to mark the ownership without tampering the original data and hence avoiding duplication. In the proposed work visual cryptography authentication for a lossless watermark is implemented. The method deals with generating a watermark for the original image by means of share1 and share2 images. The share2 image with the encrypted image is send to the receiver where he can reproduce share1 image to overlap it with share2 and visually authenticate the watermark. This method allows lossless watermarking for the concerned image.

Acc. No.: ExTC 382 / PR 1486

Implicit Ticketing System Using PSoC 4200 BLE

Royston Periera, Trevor Pinto, Shruti Puthran, Kimberly Rego

Project Guide: Ms. Namrata Mankad

The current ticketing systems are based on physical interactions between the user and the system consuming the user's time and efforts. The main feature of an implicit ticketing system is that the user doesn't need to be aware of the system built around him and should obtain his virtual ticket once he enters the system, saving his time and efforts. PSoC (Programmable System on Chip) 4200 BLE (Bluetooth Low Energy) board helps in such system since data can be transmitted wirelessly and also connection can be established using a Bluetooth, eliminating the use of any other hardware machine to obtain tickets. The features of this system are that it cuts short the queuing time and more load on building machines that provide the user with tickets. No use of a mediator like a conductor is required to give a ticket to a person. Problems of losing a ticket and printing paper used for printing tickets are also removed. Also the entire system can be implemented on a battery and doesn't require heavy power while implementing it. Such implicit ticketing proves to be useful where the population is ever growing because an increase in number of consumers doesn't increase the load on resources but rather saves any unwanted expenditure.

Acc. No.: ExTC 374 / PR 1478

Cloud Based Streetlight Monitoring System

Aradhana Kaintura, Ashwini Arote, Noureen Bawania,

Project Guide: Mrs. Savita Kulkarni

In this project, we have developed an efficient cloud based street light monitoring system that offers a detailed, lamp-level management capabilities of every street light in the city and ensures that the right amount of light is provided where and when needed, based on a series of conditions. This saves energy and cuts down energy costs about 15-35 %.

Acc. No.: ExTC 357 / PR 1461

Blur Identification Metric based Image Restoration and Quality Assessment

Flavian Vaz, Nigel Vaz, Dipen Wadhvana, Stalin Xavier

Project Guide: Mr. Ravindra Chaudhari

In day to day life, while capturing or transmitting of an image, blur is introduced in the image which reduces the quality of the image. Also, in practical life we don't have the original image as the reference image when we perform image restoration process. Blind Image Restoration pertains to the estimation of degradation in an image, without any prior knowledge of the degradation system. This estimation of degradation function is used to help restore the degraded image. To solve this problem the use of a blind image restoration technique is implemented. We check the amount of blur in the image by calculating the Blur Identification Metric (BIM). Restoration of the image will be done when the blur identification index is below a specified threshold value. Second, a blind restoration algorithm is used to restore the image by using the normalized sparse regularization algorithm. This algorithm gives the lowest cost for the true sharp image. This allows a very simple cost formulation to be used for the blind deconvolution model.

Keywords: Blur Identification, Blind Image Restoration, Sparse Regularization.

Acc. No.: ExTC 385/ PR 1489

IoT Based Electricity Energy Meter Reading

Krutika Angane, Rose Fernandes, Swati Gaonkar, Leena Karle

Project Guide: Dr. Gautam A. Shah

The project develops an IoT (internet of things) based electricity energy meter to display the energy units consumed and the subsequent cost over the Internet in chart and gauge format. In recent years, the number of smart phone users has increased drastically. The users can view their current energy meter reading and pay their electric bill through a mobile application. The reading and bill amount is uploaded over the Internet via IoT and is accessible from anywhere in the world. The users will be able to view their consumption for every month and compare it to their previous consumption which will help them be aware of the electricity usage in his/her home.

Acc. No.: ExTC 359/ PR 1463

Advanced E-Bike

Sidhesh Bhambid, Ashutosh Gattelu, Ashwin Ghosalkar, Steon Gonsalves

Project Guide: Snehal Lopes

This is an electric bike. It can be used for on road and off road travelling. This is a small and compact means of traveling. It works on the batteries connected to the motors. The power supply is controlled by using an on off switch. It works when the battery powers the motor when the accelerator is raised. It works as the same principle as in the bike. The technology used in the bike is an electric system. The current supply used is the direct current (DC). As this is an electric bike which works on the batteries there is no emission of gases thus reducing the pollution which makes this bike eco-friendly. The material used in this bike are parts of an old bicycle. This is a low cost bike. The frame is designed in such a way that its appearance and working is very attractive and the rider can ride this bike very smoothly and with comfort.

Acc. No.: ExTC 356/ PR 1460

Women's Safety Armband

Justin Varghese Kungumath, Pranoti Jangam, Yohann Abhang

Project Guide: Snehal Lopes

Rise in crimes against women and children require an advanced system to help defend and alert the authorities. . The situation is of great concern and we need a system that would help the victims not only to send an SoS but also gather evidence of the crime. We propose a system initiated by the individual with an option of switch button and a fall detector to activate the system. The armband would have a GSM/GPS interfaced with an ARM7. A wireless camera for collecting images will also be incorporated. On the individual's initiation, a live video is streamed to the Control room. A SoS message along with the location is sent to a predefined Mobile Station until the system is reset. The change in Longitude and Latitude is sent

continuously; hence the person can be tracked. The system is designed as an aid in a medical emergency

Acc. No.: ExTC 360/ PR 1464

Multi-Utility Power Generation System

SWATHIN NAVINCHANDRAN, OMKAR MALKHARE, VISHAL TARDE, ASPRIL TAURO

Project Guide: DR. UDAY PANDIT KHOT

Today electricity is the major requirement of the world, but the resources of generating electricity are getting scarce and will extinguish one day. The researchers have always been trying to find some non-conventional and non-extinguishing resources to generate energy, which is the main aim behind this project. Trying to generate energy from cheap resources and sources which are easily available are of major concerns today. There are lots of places where the energy is just being wasted at a major scale, if this is utilised properly, the problem of energy crisis will be reduced at a greater extent.

Acc. No.: ExTC 378/ PR 1482

Infrared Reflection based Eye Tracking and Blink Detection System

Amey Dongre, Daniel D'souza, Leni Fernandes, Bhawar Jat

Project Guide: Dr. Kevin Noronha

Augmentative and Alternative Communication (AAC) has garnered major interest in the field of research and practical applications especially considering the rapid growth of the commercial industries specializing in AAC devices due to millions worldwide being affected by debilitating conditions resulting in complete paralysis and near-total loss of body function. This project aims to design an ultra-low cost, portable AAC device that shall also be able to synthesize speech, as well as control appliances and interface with a computer to control the onscreen cursor, thus offering users full control of their computer, and by extension the internet, using only their eyes. Rather than utilize existing Image Processing methods for eye tracking which require far more powerful computing hardware and consume a larger amount of power leading to significantly higher expenses, this project shall utilize several IR-LED/Phototransistor pairs to achieve the requisite eye-tracking information, and processing of the signal is handled by an Atmel ATmega328p based microcontroller. This data can now be used to control a multitude of objects, from steering wheelchairs, switching appliances, communicating through real time speech synthesis, to accessing a computer by controlling its cursor, all accomplished by the user via only their eyes.

Acc. No.: ExTC 352/ PR 1456

Library Stock Verification System

KINNARY JOSHI, KALIND KARIA, JAYKUMAR PATEL, SANJANA DESAI

Project Guide: Ms. PALLAVI PATIL

Our project proposes a simple and cost-effective Web Application for character detection and recognition of the unique code assigned to a library book using Scale Invariant Feature Transform (SIFT) algorithm with better accuracy and execution speed. This system can easily replace the current day machinery that utilizes expensive dedicated scanners and achieves the same objective with multiple dependencies and time constraints.

Acc. No.: ExTC 371/ PR 1475

Health Monitoring using IoT

Trevor Dmello, Rhea Dsouza, Movin Fernandes, Jerin Lal Joseph

Project Guide: Mrs. Shilpa Chaman

Today many people old as well as young are experiencing difficulty in getting proper medical attention. Old people sometimes have no one to look after them while young people hardly have time in their busy schedule. We can reduce the probability of occurrence of diseases by keeping a track of a patient's health using healthcare remote technology. Hence, in this project we are trying to build a healthcare monitoring system which will work in real time by using a Wi-Fi module, sensors and Internet of things technology as communication platform. In developed countries, it has become a feasible solution for reducing the expenditures related to chronic diseases and disabilities. Also, we are building a prototype of a basic healthcare remote monitoring system, which alerts doctors about the patient's health.

Acc. No.: ExTC 353/ PR 1457

Assistive Clothing Pattern Recognition For Visually Impaired

Saurabh Malkar, Conroy Martins, Mathew John, Shirley George

Project Guide: Dr Kevin Noronha

This project is about developing an assistive system that can help visually impaired people to be able to recognize clothing patterns and colors in their daily life. The main focus of our project is developing a system that can recognize patterns in clothing by combining both, global as well as local feature information to get top notch accuracy results. Global and local features together can provide complementary information which helps to increase the accuracy of recognition. Using

Radon Transform and a Statistical analysis of DWT we aim to get the global features and using SIFT, the local features will be extracted. The proposed system will also be able to recognize the dominant color in a clothing image.

Acc. No.: ExTC 376/ PR 1480

Wireless Sensor Network System using RaspberryPi and Zigbee for Environmental Monitoring Applications

Hardik Bhatt, Renita Fernandes, Omkar Kakde, Hardik Bhatt

Project Guide: Dr.Uday Pandit Khot

The development in embedded system has proved to a reliable solution in monitoring and controlling the environment monitoring system. The project aims at building a system which can be used on universally at any scale to monitor the parameters in a given environment. With the evolution of miniaturized sensor devices coupled with wireless technologies it is possible to remotely monitor the parameters such as temperature, humidity, amount of co2 in air and many more .We will be using raspberry-pi as our main board and sensors will collect all the real time data from environment and this real time data will be fetched by zigbee and display it. User can access this data from anywhere through Ethernet or command console. Due to unnatural and unpredictable weather farmers now a day face large financial losses due to wrong prediction of weather and incorrect irrigation methods and the amount of pesticides an insecticides used for crops. This system will prove to be an important part in development in agricultural field. Keywords: Wireless Sensor Network; Raspberry Pi; Zigbee; Base station; Sensor Node.

Acc. No.: ExTC 354/ PR 1458

Eye Controlled Wheelchair Using PSoC4

Pratish More, Jay Pithadia, Shipali Rana, Jaie Timkar

Project Guide: MRS. SAVITA KULKARNI

This project attempts to make lives of the people suffering from quadriplegia simple by helping them move around on their own and not being a burden on others. The idea is to create an Eye Controlled System which enables the movement of the patient's wheelchair depending on the movements of eyeball. In this paper, we have proposed the simpler and cost effective method of developing wheelchair. We have created a system wherein a person sitting on this automated Wheel Chair with a camera mounted on it, is able to move in a direction just by looking in that direction by making eye movements. The captured camera signals are then send to PC and controlled MATLAB, which will then be sent to the PSoC4 circuit over the Serial Interface which in turn will control motors and allow the wheelchair to move in a particular direction.

Acc. No.: ExTC 389/ PR 1493

Offline Signature Recognition System

Bryan Almeida, Joyal Babu, Niketa Chettiar

Project Guide: Ms. Pallavi Patil

Signature identification and verification is considered among the most popular biometric methods in the area of personal authentication. In this project we deal with recognition of offline signatures based on extracting pixel features. Before extracting different features from the signature, some pre-processing of the signature is done. In pre-processing, the signature is color normalized, angle normalized and scaled into a standard format. The algorithm is based on extracting features like pixel values, gradient magnitude and its angle etc. and these features are used while finding a match between test signature and signature stored in the database. The system uses a Pixel Matching Technique and Histogram oriented Gradients Using Neural Networks for signature verification and recognition. Using the PMT, a recognition rate of 94.375% was obtained and using HOG with Neural Networks, a recognition rate of 96.875% was obtained. The algorithms have shown promising results while dealing with random forgeries and simple forgeries.

Acc. No.: ExTC 366/ PR 1470

Voice Assisted and Gesture Controlled Companion Robot

Nitesh Deorukhkar, Rohit Halankar, Akshay Kadlay, Mayur Khandetod

Project Guide: Ms. Quanita Shaikh

As the world moves towards automation, it is beneficial to have a robotic assistant in order to facilitate human tasks. The project idea has been proposed considering the fulfillment of this necessity as the fundamental objective. The project features a robot which can be controlled by two primary inputs from the operator itself, i.e. voice and gesture. The robot is capable of moving from one place to another by means of wheels. This locomotion is triggered by the voice of any of the members of the project group. The robot talks back and thus a two-way communication is established. The precise direction of locomotion is indicated to the robot by means of object tracking. The robot consists of a gesture controlled gripper arm which is used to pick and hold objects as desired by the operator.

Acc. No.: ExTC 358/ PR 1462

Attendance Management with BLE Beacon and Android Devices

Trizia Fernandes, Valance Fernandes

Project Guide: Mr. Vaqar Ansari

An attendance management system is presented such that the students present in the class can register their attendance by Bluetooth over their own personal Android devices. This system solves the problem with the conventional system which is that it takes a long time for the teachers to physically take attendance and then upload it on the server. In order to avoid cheating students who try to register their attendance illegally from outside the classroom, we employ a BLE (Bluetooth Low Energy) beacon device to scan the respective ID number which is unique to every student. This eliminates the chance of manual error which is present in the Physical attendance pattern. In the past, there have been automatic attendance systems developed based on Bluetooth and RFID but they only focused on solving the time consumption drawback of physical attendance systems and neglect the fact that those developed systems are highly vulnerable to proxy. In the proposed attendance system, equal importance is given to time saving and also to make it immune to proxy. One of the most favored factors of physical attendance system is the authority of the teacher to choose the time to take the attendance is maintained this means the attendance system is switched on by the teacher and the process of recording attendance starts. The proposed system is equipped with levels of security to access or edit the recorded data. This makes it impossible to dupe the system or perform any sort of inappropriate manipulation on the system.

Keywords: Attendance, Android, Bluetooth, BLE

Acc. No.: ExTC 368/ PR1472

Digitizing music sheet

Vijay Gupta, Nihar Gharat, Anup Gandhi, Jay Bhatt

Project Guide: Ms Jovita Serrao

Score and audio files are the two most important ways to represent, convey, record, store, and experience music. Each of these representations reflects different facets of music yielding insights into aspects ranging from structural elements to specific performance aspects. Therefore, the simultaneous access to score and audio representations is of great importance. Many of music composition still exist on sheet form and lot of composers still prefer to use pen and paper to record music. Computer perception of music notation forms a constantly growing research field called optical music recognition (OMR). Digitizing the music sheet will make it easier to store music, creating a library.

Sheet music is used by millions of people to play music every day. It is a great tool for learning how to play an instrument or a song, but lacks many of the benefits of a digital

format. Hence to solve this problem digitization of music sheet can be carried out. In such a digital format, the characteristic information of musical sheet is stored which are notes, quarter note, pitches, etc. This type of system is referred to as OMR system. OMR refers to a discipline that investigates music score recognition systems. Our recognition system would be storing the music sheet's symbols and their characteristics like pitch, note, clef, accidentals, treble. This interpretation would be stored which can be later reconstructed into a music sheet if required.

The input is a music sheet, and the output is the locations of each symbol along with their characteristics. The system breaks down into 3 parts which are low-level image processing, symbol classification, and semantic understanding. Each part builds on the previous one, and allows for a modular approach and easy implementation. Some sheets contain lyrics; hence removal of text or lyrics from musical sheets is required. Then we can recognize the individual musical symbols and store them in the MATLAB database.

Acc. No.: PR1468/ ExTC 364

Tracing Humans using Motion Vector Analysis
Kushal Shah, Rahul Raval, Nisarg Vyas, Babul Zha

Project Guide: Mr.VAQAR ANSARI

Tracing objects through videos and images is already rapidly growing trend in the field of image and video processing. Image and video processing has enhanced so much that it is used in almost every nook and corner of today's technology, be it smartphones or surveillance and security systems. Due to such enhancements technology is not only advancing but is also 'Growing Smarter'. Tracing a particular object of interest has always been the focus of research and development. The result of this research has led to the development of various algorithms that enable tracing or tracking of an object. The objects of interest for this project are humans. Since tracing humans is a challenging task the proposed project uses various algorithms as resources combined with research to achieve the objective. From the various algorithms this project uses optical flow method along with Morphological based Object Tracking.

Acc. No.: PR1487/ ExTC 383

FIND ME ! TRACING LOST OBJECT USING IOT

PALLAVI SAPALE, SAVVY SEQUEIRA, LOUKIK SALVI, ABHISHEK SANIL

Project Guide: KEVIN D'SOUZA

The Internet of Things (IoT), is a network of physical objects which enables Machine to Machine (M2M) communication. Devices have the potential to say a lot, but only if there's someone, or something, on the other end to engage, react and listen. IoT helps to convert such devices into smart connected devices. Our aim is to find and trace lost objects with the help of internet. The

project helps to locate static or mobile objects which should be necessarily connected to a network: same or different networks. ESP8266 Wi-Fi Module is connected to the device. A certain indicator like LED or buzzer is connected to the lost device to trigger an action via a controller. The location of the object is found using GPS module with the help of arduino board. Interfacings of all these devices are done and are programmed by Arduino Software. It can be used in an office, society, institution, malls where the Wi-Fi networks are known. This project helps in finding the device as well as in its monitoring when it is mobile or static.

Acc. No.: PR1485/ ExTC 381

Smart Rover with Hybrid Robotic Vision

Sushant Shetty, Shravya Shetty, Rohan Sawant, Sandeep Sahu

Project Guide: Mr. Vaqar Ansari

The proposed project is based on the robot designed to drive over just about any terrain for use with surveillance in military based projects. It uses a totally different platform from the other bots which are used in indoor applications and the bot will be remotely controlled via an access point using wearable gesture controller. The project will also have advanced features in image processing domains. Under image processing, there are three important modules to be implemented panoramic view(whole view of environment obtained by image stitching), stereoscopic vision(get the 3-D view) and threshold (to identify the marked objects) which will be utilized by the mechanical gripper.

Acc. No.: PR1490/ ExTC 386

SATELLITE IMAGE RESOLUTION ENHANCEMENT TECHNIQUE

FRANCIS SAVIO CARNEIRO, ELROY D'SOUZA, SHERLINE D'SOUZA

Project Guide: MR. RAVINDRA CHAUDHARI

This project deals with resolution enhancement of satellite images. In recent times, it has been observed that satellite images play an important role in many applications. Some applications need a very precise position or location of objects. Satellite images are used by the military, but the images obtained are very unclear and extracting details becomes a difficult task. Conventional interpolation techniques such as bi-cubic interpolation makes use of mathematical curve fitting to determine missing pixel values, its results are generally smoother. But the increased smoothness of bi-cubic interpolation comes at a cost of losing high frequency detail. We introduced image enhancement technique like discrete wavelet transform (DWT). This technique enhances the quality of the image, and we can extract precise details from the images obtained. This technique is implemented using MATLAB where satellite images will be the input from the database. After this, we will apply

enhancement technique i.e. discrete wavelet transform to the input image. The output image will then be compared with the input image to determine the quality of enhancement and resolution. The enhanced image can then be used by the military to detect a particular object or for any other purposes. Also, it can be used for various other applications like oceanography, fishing, agriculture, meteorology, forestry and land cover classification.

Acc. No.: PR1471/ ExTC 367

Microstrip Ring Hybrid

ELVIO FERREIRA, SWAPNALI PHANSE, KAJAL PATIL, KARISHMA LUDBE

Project Guide: Mr. Inderkumar Kochar

Compact coupled-line ring and branch-line hybrids shall be designed and fabricated by using new symmetric equivalent circuits suggested for 90° and 270° transmission-line sections. For this purpose, firstly stepped-impedance transmission line sections, being equivalent to a uniform transmission line section with arbitrary electrical lengths, are synthesized using design formulae. Secondly, three types of equivalent circuits shall be introduced by combining the SITL sections with modified T and π type networks. Based on the suggested equivalent circuits, compact coupled-line ring and branch-line hybrid shall be designed at 1 GHz and fabricated, and the measured bandwidth of the ring shall be computed. The fabricated unit shall be tested on an appropriate vector network analyser.

Acc. No.: PR1477/ ExTC 373

All-Terrain Vehicle with Flying Mechanism

Leon Thomas, Eric Alphonso, Stolin Christopher David, Ruel Ronald Lewis

Project Guide: Ms. Namrata Mankad

The project mainly deals with developing an All Terrain Unmanned Ground Vehicle equipped with a flying mechanism. It can be considered to be the next form of hybrid vehicles having capability to move on land as well as in air. The necessity of such a vehicle is that it can play a predominant role in different areas.

Acc. No.: PR1469/ ExTC 365

Measuring calories from food image

Tanvi Lotlikar, Poorva Patil, Shweta Shinde, Shweta Sitaraman

Project Guide: Santosh Chapaneri

As people across the globe are becoming more concerned in watching their weight, eating more healthy and avoiding obesity, a system that can measure calories in everyday meals can be very useful. Obesity treatment requires constant monitoring and a rigorous control of diet, thus it is necessary to measure daily calorie intake. Obesity treatments have been the focus of a large number of recent studies. Therefore, measuring food intake each day is considered an important step in the success of a healthy diet. Food detection, classification and analysis have been the topic of in-depth studies for a variety of applications related to eating habits and dietary assessments. The food calorie measurement system can help patients and dietitians to measure and manage daily food calorie intake. This system is built on food image processing via a special calibration technique, the system records a photo of the food to measure the consumption of calorie components. The input is the food image. The system then processes and classifies the images to detect the type of food and portion size, then uses the information to estimate the number of calories in the food. The estimation and calculation of the amount of calories in the image is an essential step in our system. By using thumb calibration technique FRS (food recognition system) can estimate the existing calories with a high level of accuracy.

Acc. No.: PR1481/ ExTC 377

An End-to-End Detection of Wormhole Attack in Wireless Ad-hoc Networks

Kina, Bhut, Varsha, George, Vibhuti, Jadhav, Sayli, Kasle

Project Guide: Mr. Ramjee Yadav

Wormhole attack is a severe attack in wireless ad-hoc networks. Most of the previous work eliminates the effect of wormhole attack by examining the distance or communication time over each link during the route establishment. This requires special hardware or causes overhead on all links even though only one link on each route could be affected by a wormhole attack. In this article, we propose an end-to-end detection of wormhole attack (EDWA) in wireless ad-hoc networks. We first present the wormhole detection which is based on the smallest hop count estimation between source and destination. If the hop count of a received shortest route is much smaller than the estimated value an alert of wormhole attack is raised at the source node. Then the source node will start a wormhole TRACING procedure to identify the two end points of the wormhole. Finally, a legitimate route is selected for data communication.

Keywords: Wormhole, detection, Ad-hoc, tracing route, EDWA

Acc. No.: PR1466/ ExTC 362

Octapad using Image Processing

Ameya Shenoy, Siddartha Shetty, Akshay Sawant, Sangeet Sebastian

Project Guide: Dr. Gautam Shah

Music is an art form and cultural activity whose medium is sound and silence, which exist in time. The common elements of music are pitch (which governs melody and harmony), rhythm (and its associated concepts tempo, meter, and articulation), dynamics (loudness and softness), and the sonic qualities of timbre and texture (which are sometimes termed the "color" of a musical sound). This project implements an Octapad purely using the power of image processing. Initially, feed from a camera wirelessly connected to a PC is taken. The camera points towards a rough image of a 2×4 grid i.e. the basic design of an octapad as shown in picture. Then based on which section of the octapad is struck, the corresponding sound will be produced. The project utilizes python as the primary programming language, and the libraries used consist of numPy (for matrix related calculations), sciPy (for various complex mathematical operations), openCV (for image and video processing). All elements of this project are open sourced, and hence can be used by anyone.

Acc. No.: PR1483/ ExTC 379

Coding Technique in MIMO System

Priya Bhoir, Natasha Dsouza, Ashish George, Jainam Gandhi

Project Guide: Ms.Kavita Sakhardande

The explosive growth of Multiple Input Multiple Output(MIMO) systems has permitted for high data rate and a wide variety of applications. Next Generation wireless systems demand high data rate access at high quality of Service(QOS) with less transmission errors. Nowadays MIMO systems have been widely studied for wireless communication. As it is an attractive solution for providing high data rates with reduced errors and high QOS. Information transmitted through noisy channel gets deteriorated and becomes unreliable. To cater for such data altering effects, Forward Error Correction (FEC) techniques are used. Coding technique like Convolution codes and Turbo codes are used for error detection and correction. Recent advances in wireless communication systems have contributed to the design of multi-user scenarios with MIMO communication

Keywords: MIMO, Convolutional Channel.

Acc. No.: PR1483/ ExTC 379

Grayhole Attack Detection in MANET using AODV Routing Protocol

KARISHMA BHANDARI, ROMY DIAS, CLEOPHUS GONSALVES, VIVIAN ITUR

Project Guide: DR. KEVIN NORONHA

In Mobile ad-hoc Network nodes dynamically move from one place to another and if one node wants to communicate with other node then, for communication route establishment between two communicating nodes should takes place. Due to the mobility of nodes in the network the malicious nodes can be easily introduced in the network and the network can be compromised. Grayhole attack is an active attack type, which leads to dropping of messages. Attacking node first agrees to forward packets and then fails to do so. Initially the node behaves correctly and replays true RREP messages to nodes that initiate RREQ message. This way, it takes over the sending packets. Afterwards, the node just drops the packets to launch a (DoS) denial of service attack.

Acc. No.: PR1474/ ExTC 370

Image Encryption using Fractional Order Chaos and CML

Nutan Naik, Sarvesh Nayak, Nithin Johnbosco, Harsh Parab

Project Guide: Prof.Santosh Chapaneri0

Chaos based encryption techniques have been widely used for real time encryption and decryption. But the techniques with only chaos theory are prone to same attacks as other encryption techniques. So to enhance the security mechanism and the robustness as well as to keep up with the newly developing 'real time' technology a color image encryption algorithm by using 'Coupled Map Lattice' as well as 'Fractional order chaotic system' system will be implemented. To increase the complexity and to deviate the hacker attacks, the image will be divided into four sub-images and then the positions of the image needs to be shuffled. This procedure will significantly enhance the resistance of the proposed cryptosystem against known/chosen-plaintext attacks. A 280 bit key will employed to generate initial conditions and parameters. In addition, theoretical analyses and computer simulations verification is proposed to check the feasibility and superiority of the proposed image cryptosystem.

Acc. No.: PR1479/ ExTC 375

Narrowband coupled line absorptive bandstop filter

Sumeet Mishra, Rahul Patil, Vivek Patil, Dhaval Pawar

Project Guide: Mr. Inderkumar Kochar

Absf is designed in order to absorb the leakage power that is present between local oscillator and rf leakage. The power that is leaked is mainly absorbed at port 1. The absorption takes place because of introduction of lossy resonator.

Acc. No.: PR1484/ ExTC 380

Gestonurse

Anurag Singh, Prachi Toshniwal, Raj Valia, Mansi Yadav

Project Guide: Shilpa Chaman

A novel gesture driven robotic scrub nurse, Gestonurse (GN) is presented. The GN assists the main surgeon by passing surgical instruments which reduces the workload of a human scrub nurse. There are several advantages associated with GN such as freeing human nurses to perform concurrent task or absence of surgical staff and reducing errors in operating room due to miscommunication. Real time streaming hand gestures are recognized, converted to instructions and sent to robotic arm which passes the requested surgical instruments to the surgeon. The proposed gesture recognition algorithm is robust to variation in scale and rotation of the hand.

Keywords: Gestonurse, robotic scrub nurse, human robot interaction, operating room

Acc. No.: PR1491/ ExTC 387

BRANCH: INFT YEAR: 2017

ABSTRACTS

WEB SECURITY EVERYWHERE

Sanal Lisboa, Grillo Jiu, Femina D'mello

Project Guide: Amrita Mathur

The security middleware for mobile internet is composed of embedded hardware, where the hardware includes the CPU with Linux kernel, Flash memory, Ethernet interface, wireless network card with AP function. While the main program of the software system encrypts and decrypts the packets uploaded or downloaded. The security middleware is with AP function, supports the terminal of wireless interface to access the internet for communication. The users can define the data monitoring keyword which can come from network layer, transition layer or application layer. The equipment has low cost, small volume and light weight, convenient carrying and installation, especially suitable for public transportation subway and small office. The security middleware monitor and encryption does not affect the speed of internet access, and the energy consumption is low, more energy saving and environmental protection.

Acc. No.: PR1381/ INFT 539

Information Security for Police Department

Madhura Dalvi, Prachi Kate, Jill Mehta, Prachi Mishra

Project Guide: Ms. Minal Lopes

The proposed system involves building a communication interface for Police Department, a highly secured communication through messages and file transfer for an organization. The proposed system provides security from outside elements and also increases confidentiality within the department. It uses encryption and decryption method to secure not only the stored data but also the communication channels.

The highlighting factor of the algorithm used is that higher authorities need not remember the keys of all lower roles. The keys of lower roles are generated by the key of the higher authority itself. The system includes two kinds of roles: the users and admin. Admin is responsible for maintaining the keys of every user.

Hence, no particular role escapes being monitored by a person from within the system. The communication constraints incorporated in the system is that messages can be exchanged between consecutive security levels only to follow the strict order of hierarchy. And that the files can be sent from lower to higher authorities only, in order to follow the Bell La Padula rule.

Acc. No.: PR1393/ INFT 551

Secure My Phone

Sinecy Possa, Saurabha Vartak,, Pranati Raut Yogita Patne

Project Guide: Mrs. Amrita Mathur

Secure my phone is an android application designed for users who wishes to control their cellphone remotely with the help of sending SMS. This process includes sender and receiver. Sender can use cellphone having any operating system to send SMS. SMS can be sent in the form of keywords. This can be used in case if you forget your mobile phone at home or anywhere. You can switch off your phone remotely as well as we can change the different modes of the phone remotely like vibration mode to silent or vice versa. Also the surrounding audio can be recorded by just sending a single SMS.

The Alarm tone can also be played even if the mobile phone is on silent mode with help of it. Thus this can be useful if the phone is misplaced or stolen and the phone is present on same location, especially the public places. Also the images can be captured via enabled camera. The most important advantage that can be provided by this system is location tracking. If the mobile phone is misplaced or left somewhere in any situation, the location of the phone will be sent to the sender in form of latitude and longitude.

At the receiver's side, the user just need to login by entering password and id to view the default settings which is done by user itself. User can also change the default settings as and when needed. This default settings should be matched with the SMS send by the user. With increasing technology, people are getting used to comforts. This application considerably reduces the effort to find the cellphone which can controlled remotely.

Acc. No.: PR1393/ INFT 551

Image Stitching

Prachi Mehta, Hetvi Parekh, Riya Parekh, Naomi Machado

Project Guide: Purnima Kubde

Image stitching or photo stitching is the process of combining multiple photographic images with overlapping fields of view to produce a segmented panorama or high-resolution image. Commonly performed through the use of computer software, most approaches to image stitching require nearly exact overlaps between images and identical exposures to produce seamless

results, although some stitching algorithms actually benefit from differently exposed images by doing HDR (High Dynamic Range) imaging in regions of overlap. Image stitching is widely used in today's world in applications such as "Image Stabilization" feature in camcorders which use frame-rate image alignment, High resolution photo mosaics in digital maps and satellite photos, Medical Imaging, Multiple image super-resolution, Video Stitching, Object Insertion. In our project we have developed a software where the user will be able to create panoramic images by uploading pictures of a scene with overlapping regions. Image processing techniques involve treating the image as a two-dimensional signal and applying standard signal processing techniques to it. Specifically, image stitching presents different stages to render two or more overlapping images into a seamless stitched image, from the detection of features to blending in a final image. In this process, Random Sampling and Harris Feature Detection are applied to perform the detection and matching control points step, due to its properties of speed and accuracy. The process to create an automatic and effective whole stitching process leads to analyze different methods of the stitching stages. The goal of image stitching is to create natural-looking mosaics free of artifacts that may occur due to relative camera motion, illumination changes, and optical aberrations.

We proposed a novel stitching method, that uses a smooth stitching field over the entire target image, while accounting for all the local transformation variations. Computing the warp is fully automated and uses a combination of local homography and global similarity transformations, both of which are estimated with respect to the target. The proposed method is easily generalized to multiple images, and allows one to automatically obtain the best perspective in the panorama. It is also more robust to parameter selection, and hence more automated compared with state-of-the-art methods.

Acc. No.: PR1390/ INFT 548

Housing Society Management System
Pawan Chauhan, Sahil Kuchroo

Project Guide: Ms. Alvina Alphonso

Generally, in Society all the work is decided in meetings and maintenance bills, contact no of members are recorded on the papers. There is no automated system for doing all the things that generally happens in society, so that members can come to know what is happening in society. The Housing Society Management System allows members to login with their own account and get updated with society happenings. Housing Society Management System is the web portal to reduce conflicts among society members. The system has automated functionality for calculating monthly maintenance bill and member can view their bill status on their account. The system provides a unique interface to every user to interact with the system. System accepts queries from users and evaluates the need of the query and fires it over the database and results are displayed to the user.

This system of maintaining a society is made in such a manner, so that the most common problem faced in residential societies are solved. In many societies, bills and receipts are being generated manually or they outsource to do it. But this involves lots of cost, time, and also

maintain the registers.

In this system the bills, receipts and vouchers are generated in easy manner also the system is user friendly. The other details that can be stored in this system like, member details, etc...

Acc. No.: PR1377/ INFT 535

Emergency alert using Android app

Shruthi Puthran, Miten Sheth, Roshni Shetty

Project Guide: Mrinmoyee Mukherjee

The advanced capabilities for location-based services of smart phones are mostly used for travel applications, navigation or business fleet management. We motivate a social emergency alert service that makes use of the wide availability of smart phones and activates nearby social contacts in case of an emergency. An emergency can occur anywhere, anytime. The nature of the emergency is unpredictable and it can unveil itself in any form. Emergency has in past led to loss of lives and property. Whenever disasters occur, people in the location need to have adequate information to minimize the human and financial losses. Hence, there is a need to prepare for likely emergency cases in advance. The level of preparation will determine how well incurred loss will be minimized. Emergency response involves a set of highly coordinated activities from teams of experts. With the recent evolution of smart phones, such information can be made available to the people much sooner and more reachable. Thus, the objective of this project is to develop a mobile application that could be used to coordinate activities between the Emergency responders and the victim or rescuer at the point of incidence.

Acc. No.: PR1372/ INFT 530

CLASS AUTOMATION-Automated QR Attendance System

Ramya John, Sneha Edison, Soumya Samuel, Alisha Vaz

Project Guide: Ms.Nitika Rai

Today as the world is in a fast paced time, every field has bought advancements in their respective areas of work. But only the educational system has been following the same conventional method of performing various activities in classroom. One of the main and significant activities is the attendance recording. It's been a tedious and time consuming job. This project aims to design an android based application to view and mark attendance with

double verification. It is integrated with ERP system to find chronic non-attendees and to evaluate performance of each student.

Acc. No.: PR1398/ INFT 556

**GAME FOR DISABLED PEOPLE USING VOICE COMMAND
RACHEL DSOUZA, SALONI VARTAK**

Project Guide: Ms.PURNIMA KUBDE

The purpose of our project is to implement an efficient voice recognition algorithm and improve upon the idea's "Speech Recognition and Its Application in Voice based Gaming Systems".
Speech

Recognizing games is used to play games without the help of any physical devices such as Keyboards, Mouse, Game pad. Games can be controlled using human voice, which is easier, portable and efficient than any other physical device. Speaker identification allows the use of uttered speech to verify the speaker's identity and control access to secure services. Speech Recognition offers greater freedom to employ the physically handicapped in several applications like manufacturing processes, medicine and telephone network

Acc. No.: PR1401/ INFT 559

NFC Based Attendance System

Akkshay Bhakta, Nikita Dias, Vineeta Dmello, Whilmina Dsouza

Project Guide: Minal Lopes

Nfc based attendance system involves the inception of an android application which will be installed on the faculty's device. This app will begin the attendance session after the successful login of the faculty's NFC tag. The students mark their attendance using their individual ID

(NFC) card. This is a real time event updating the database simultaneously. A Web application is created for the students to view marks & attendance.

Acc. No.: PR1368/ INFT 526

SEAT ME!(Online Table Booking System)

Anjali Pai, Kunal Naickar, Indraneel Das, Mitesh Gupta

Project Guide: Bhavesh Pandya

The proposed system involves building a user interface for the end user who wants to book a table in a particular restaurant. The proposed system provides a list of restaurants in the vicinity of the location the user enters. Then it provides a layout of the seating arrangement of the selected restaurant and allows the user to book the table if it is unoccupied. The tables that are already booked will be marked with a red indicator on the layout. The tables that are not booked will be marked with green indicator. The system will very well cater to the requirements of the end user and will also help the user to save time. If the user is found booking falsely, the restaurant manager will be allowed to blacklist the customer with particular username. The manager or the admin can also have weekly promotions for the customer. The customer can also view the history of all the restaurants visited by him in the period of one month. If the customer has visited the restaurant and has been accepted by the restaurant manager he will be prompted to make a quick review of his experience.

Acc. No.: PR1396/ INFT 554

ADVANCED SECURE MONEY EXCHANGE MODEL

Anjali, Poojari, Sheetal, Sawant, Akshit, Shah, Nikita, Shetty

Project Guide: Minal Lopes

Counterfeit money is imitation currency produced without the legal sanction of the state or government. Producing or using this fake money is a form of fraud or forgery. Counterfeiting is as old as money itself and is sufficiently prevalent throughout history that it has been called "the world's second oldest profession. This has led to the increase of corruption in the country hindering country's growth. Fake currency system helps in detecting the fake currency and defeating it.

The project is based on a software approach for determining the authenticity of currency for notes of different denominations. The features of given notes are compared with the authentic note for detection. Features like edge, corners, and blobs are extracted and compared. Sample notes of different years are collected and their different features are extracted for

comparison are grouped together to create a template for tallying the inputted note.

The proposed method is simple and useful in many sectors. It can be used by a common man and the delivery man of e-commerce website as the system is based on android and it is easily portable it can also be useful for shopkeepers and banking field.

Acc. No.: PR1385/ INFT 543

Cryptography based on color substitution

Ruvel Pereira,Pratiksha Bhase, Sanchit Pereira, Rosmith Silveira

Project Guide: Bhavesh Pandya

The emerging threats to information security are increasing at a alarming rate. The most influential and universal approach to counter such threat is encryption. Traditional encryption technique use substitution and transposition. Substitution technique map plain text into ciphertext. In all the traditional substitution technique character, number and special symbols are substituted with other character, number and special symbol. In this paper an innovative cryptographic substitution method is proposed to generate a stronger cipher than the existing substitution algorithms. This method emphasizes on the substitution of character, number, and special characters by color blocks. This algorithm of substitution is based on play color cipher. The cryptanalysis done on this will prove that the cipher is strong.

Acc. No.: PR1400/ INFT 558

JASY- A Smart Dustbin: Waste Segregation System

Adrian Cardoza,Surabhi Shinde, Jayati Shrotriya, Yash Zaveri

Project Guide: Ms. Nitika Rai

JASY- A Smart Dustbin: Waste Segregation System is an automatic waste segregation machine where the user needs to put in the waste bin one at a time and the rest of the segregation is carried out by the machine itself. The segregation machine consists of three bins - for plastic, metal and other kinds of waste. The advantage of this system is that the segregation of waste is done at the initial level, instead of dumping the whole waste at disposal site and then segregating

it. Thus, it can aid in better recycling of scrap. The application areas of our system include specific organizations like schools and colleges, malls, railway stations.

Acc. No.: PR1386/ INFT 544

Escape Plan - 3D Educational Game

Clinton Dmello, Alston Fernandes, Gillian Gonsalves, Savio Masurkar

Project Guide: Vaishali Jadhav

Throughout time, games have been used as an instrument of interaction for all different aspects of life. Puzzle games to learn logic, mathematical games to enhance basic math skills and even reading games as a medium of entertainment and education at the same time have all helped to successfully teach children the basic skills that they would need in life. Children grasp concepts much more efficiently if they find the learning environment fun in which they can approach abstract topics in a visual manner. The proposed game is a 3D maze for autistic children with the main goal being developing word forming technique integrated within the maze and to improve skills like logical thinking and time management.

Acc. No.: PR1379/ INFT 537

Television show popularity analysis using Facebook

Shrutika Billava, Priyanka Kamath, Iram Khan, Aanal Mehta

Project Guide: Ms. Vaishali Jadhav

Social media websites are developing and more people are sharing their thoughts on social networking websites such as Facebook. Organizations want to use the social media data to understand the needs and behaviour of their customers or specific targeted groups of individuals with respect to the organizations' current or future products or services.

Many enterprises are creating fan pages on Facebook to interact with the customers in order to create a simple channel for interaction to consolidate customer loyalty. Currently, many television companies have created fan pages for shows that they are broadcasting, and use it to announce upcoming plots or actor information or to interact with the viewers and get responses from them, in order to try to increase ratings; higher rates help bring in more advertising revenues for the television company. Because these types of social media websites, such as Facebook, have already become a part of people's everyday life, this project will try to use the contents generated in the TV program fan pages by viewers and the editor (including Posts, Likes and Comments etc.).

Television companies can use television show popularity analysis as a basis to negotiate the

advertising period and fees with advertisers; it can also help the television channel observe the benefits of operating program fan pages, and then decide whether to reinforce fan page management or add additional interactions with the fans and further increase ratings and profits. Advertisers can use it to carefully select a promising TV show's commercial breaks to advertise their product to their target audience.

Our project aims to upgrade the existing systems which use Television Rating Point (TRP) to represent a show's popularity generated in terms of number of views by the audience as a measure of popularity, with a more comprehensive analysis where other features such as favourite characters correct idea about age group of the audience will also be taken into consideration and a detailed visual representation and summary of the selected TV show's popularity will be provided.

Acc. No.: PR1370/ INFT 528

EMAILING FILE USING GSM MODEM

Sherly Abraham, Anushree Bagwe, Ankita Devare, Pooja Sawant

Project Guide: Dr. Joanne Gomes

In the last few years, SMS (Short Message Service) has made a big impact on the way we communicate. Instead of communicating over the phone using voice, people rather prefer SMS not only for messaging but also for information exchange. This project proposes a method of building an extendable generic application which can be used to search a file on remote desktop and mail it to user. Mobile users send required information through a SMS to a mobile gateway that forwards it to the generic application. Given the user-provided information, the generic application automatically searches the file on remote machine and mail it to the user. This project is based on the concept of searching a file on remote machine by just sending a simple SMS.

Acc. No.: PR1366/ INFT 524

Decision Support System For A Psychologist

Meelita Rodrigues, Sayali Sankhe Akansha Singh, Swarupa Vaishampayan

Project Guide: Prachi Raut

Decision support system for psychologist is an android based application which best depicts the role of technology in improving the lives of people suffering chronic stress. Traditional psychological treatment for stress includes doctor patient visits and prescribed medications. But it takes a lot of visits and money on the doctor's as well as patient's part. The main objective of this project is to minimize the resources such as time and money required to cure the patient. Our project includes questionnaire which when answered by the patient will record his/her response in a database. We are consulting Dr. Devendra Save (Psychiatrist) and his team of psychologists

for developing the questionnaire. The questionnaire contains weighted options for each response. So the application will generate stress score at the end of the questionnaire and based on the range it will show if the patient is mildly stressed or moderately stressed or severely stressed. The application also includes activity diary in which patient records his day to day activities which will help the doctor narrow down on the events that triggered the patient's stress levels. Then application It will fetch all the data recorded previously of the patient and generate graphs of his/her development in his/her health till now. This graph along with the comprehensive report will be emailed to his/her psychologist. These visual aids will make it easier for doctor to find patterns in patient's health and where the treatment is headed. And decide if the medication is working for him or if the treatment needs to be changed. Hence the doctor will be updated on his patient's health in between their periodic visits. We used MySQL database for the backend.

Acc. No.: PR1392/ INFT 550

Credit Card Fraud Detection

Shariq Deshmukh, Ramesh Kyasaram, Tushar Rakholiya, Santosh Shetty

Project Guide: Amrita Mathur

Due to a rapid advancement in the electronic commerce technology, the use of credit cards has dramatically increased. The most accepted payment mode is credit card for both online and offline in today's world, it provides cashless shopping at every shop in all countries. It will be the most convenient way to do online shopping, paying bills etc. Hence, risks of fraud transaction using credit card has also been increasing.

In the existing credit card fraud detection business processing system, fraudulent transaction will be detected after transaction is done. It is difficult to find out fraudulent and regarding loses will be barred by issuing authorities. Thus, during the transaction we generate questions using verification engine. This process of generating questions is done every time for more security. If all the questions are not answered then the transaction fails and a message is generated of the same.

We repeat the same process of generating questions for every transaction just for higher security purpose and minimum frauds. We present detailed experimental results to show the effectiveness of our approach and compare it with other techniques available in the literature.

Acc. No.: PR1380/ INFT 538

Crime Detection and Prediction System (Crime Trend Analysis)

Yesha Thakrar, Jinal Vaghasiya, Shruthi Shetty, Snigdha Sankhe

Project Guide: Dr. Joanne Gomes

Crime investigation and prevention plays a very significant role in any country. The crime data has been stored and processed using Common Integrated Police Application [CIPA] and it becomes useful for getting the criminal information but it does not help for the purpose of designing an action to prevent the crime. It has become a major challenge for police system to detect and predict crimes. There is no any kind of information is available before happening of such criminal acts which results into increasing crime rate. The presented thesis highlights the use of Forecasting technique to predict the crime in a specific area which can be useful for crime prevention. Therefore we are using 'Short Term Forecasting' algorithm to predict the future crime rate and analyzing its efficiency by parameters like Mean Absolute Percent Error [MAPE] and Mean Absolute Deviation [MAD].

Acc. No.: PR1388/ INFT 546

Big Data Analytics for Football

Prathmesh Ghadge, Saurabh Naik, Benzen Joseph, Rohan Parkar

Project Guide: Ms. Sonali Vaidya

The system involves the analysis of sports data to facilitate effective decision making. It uses the content of social media to create a real time visual understanding of how the team has fared in football along with the Individual performances. Individual performances include the players as well as the coach. The task of prediction is done by taking the past results into consideration. Depending upon their past performances, the team's future performances will be predicted. The task of sentimental analysis is done by categorizing the data into two polarities that is positive, negative or neutral sentiments. The system provides organizations with an intimate platform (Hadoop) to track and understand team performances, sentiments of the fans and also the match prediction.

In today's fast growing world, data are produced in a large amount. They can be measured in terms of Pet bytes to Zeta bytes. Different sources like Google, Face book, twitter or Bank Transactions on a daily basis produces till Pet bytes of data. . Social media is playing a vital role in today's Internet world. It is mainly used for social networking and information sharing. Websites like Twitter is widely used by people world-wide. Twitter is a micro-blogging website which produces billions of tweets per day resulting in Zeta bytes of data per year. So it is very crucial to analyze such amount of useful data.

So here in the proposed system, we have used Hadoop, Apache open-source software. Hadoop helps in processing and analyzing large chunks of data. Two analytics are performed: Prediction

of football data by using Naïve Bayes Algorithm and Sentimental Analysis of the real-time Twitter football data using Map Reduce Algorithm. Two components belonging to the Hadoop ecosystem are used: Hive and Flume. Prediction Analysis to predict the future results of the football matches by using Naïve Bayes Algorithm and Sentimental Analysis to analyze the sentiments, popularity and the view of fan by using Map Reduce are the two main activities performed in the proposed system.

Acc. No.: PR1374/ INFT 532

Automatic Code Generator using Visual Drag and Drop Tools

Divya Iyer, Pranay Adarkar, Salil Dabholkar, Kevin Chauhan

Project Guide: Ms. Vandana Patil

The aim of this project is to abstract away the complexities involved in textual programming languages by creating a visual interface consisting of several graphical tools which provide a user-friendly programming experience for beginners. The graphical tools will enable the user to develop programs visually without the need to worry about different syntax and semantics of different programming languages. The software will then have an option of automatically generating code in the specified programming language. Thus, the user can use the existing compilers or interpreters to execute their programs (JVM, Visual C, etc). The users thus also maintain the ability to further optimize their code by hand, generating only prototypes of their codes by the Graphical tool.

Visual languages are often more beginner friendly, because the editor can do a lot of the work of teaching the programmer how to use the language and showing them what their options are, whereas with text, a beginner programmer often fails around in an open-ended way. VPL is targeted for beginner programmers with a basic understanding of concepts like variables and logic. However, VPL is not limited to novices. The programming language may appeal to more advanced programmers for rapid prototyping or code development. As a result, VPL may appeal to a wide audience of users including students, enthusiasts/hobbyists, as well as possibly web developers and professional programmers.

Acc. No.: PR1371/ INFT 529

Legends of the Golden Sparrow

Abhijeet Prabhu, Anuj Potdar, Vidhi Shah, Siddhesh Yadav

Project Guide: Ms. Nazneen Ansari

The project aim is to create an interactive Unity3D game that helps primary school students to get a visual understanding of the key historical figures and their achievements, which makes the subject interesting and easy to learn and recall. The game will have the capability of storing the progress of the player by creating a save file and later loading it to replay from a check point or last save along with a level select screen for the players to replay and improve

previous levels. The game will have various gameplay aspects which will differ as per the levels/objective in the game, such as Stealth, Run, Fight, etc. A brief module of the game will display the area of influence of the protagonist at the time and his contributions towards the people under his rule. Once the Student completes a specific level he will be directed to a cutscene which will narrate the events of the story. At the end of video, the student will have to answer a quiz, which will be based on current level. On solving the quiz successfully s/he will be unlocking and playing the next level.

Our project aims to improve the existing systems for historical education for the school students, who currently have little motivation to study dry dates and events. Rote learning in a greed for inflated marks leads to little understanding and appreciation of the historical Indian heroes and their contribution to the heritage of Independent India. This degrades their significance and defeats the purpose of inclusion of history in the current curriculum of education

Acc. No.: PR1384/ INFT 542

Smart DroidGuard: A New Approach Towards Making Android Safer

Selwyn Moses, Lloyd Arackal, Alister Goveas, Leo Markose

Project Guide: Dr. Joanne Gomes

The introduction of the Android operating system has brought a new revolution in the mobile phone market and almost everyone might have experienced misplacing or losing their mobile phones. Hence, it is necessary to develop an application for all Android smart phones to prevent mobile phone theft and data loss. Early iterations that provided anti-theft features for Android smartphones operated as pure applications and could be easily uninstalled or disabled, thus rendering them useless.

In this report, a new approach has been proposed towards improving Android's anti-theft and data security features by developing an application that operates with privileged access and cannot be disabled or uninstalled easily by smartphone thieves. The system would monitor and run in the background as a service, utilizing extremely low CPU cycles and not interrupting the user with unnecessary notifications. The system does not require root privilege, nor any modification to the underlying framework, and hence is a ready-to-deploy solution.

The proposed intelligent Android anti-theft application provides safe and alert mode options. It is embedded with many features such as phone tracking based on location, detecting change in SIM card, application activating at the time of message sending and remotely deleting important data from mobile phone. Thus it proves to be different and more capable compared to other existing anti-theft applications available today.

Acc. No.: PR1375/ INFT 533

Kabaddi Computer Game

Namrata Gharat, Manish Shukla, Akshay Singh, Omkar Tamhankar

Project Guide: Ms. Nazneen Ansari

Over the recent years, many sports based games have been developed for windows machines and other devices. Kabaddi is one of the sports which had not been developed for virtual gaming to a considerable extent. Till date, none of the major game developing companies has considered Kabaddi as in virtual gaming. The aim of this project is to develop game based on Kabaddi for windows machines. The game is developed with the help of Maya LT 2016, Unity Game Engine, and other image editing tools.

“KabaddiKabaddi” is a 3D Sport based Game with Third person genre play mode. The project would result in large scale promotion of Indian sports, also allowing physically disabled people to have a fun-filled experience of playing such physical game virtually. Actions involved in this game help the player visualize how the Kabaddi game is being played. Therefore, the game Kabaddi will have huge scope ahead considering the popularity and based on the fact that it has been invented in India.

Acc. No.: PR1395/ INFT 553

Cloud computing

akshita Mehta, rushabh Mehta, durvesh nachankar, aneri shah

Project Guide: purnima kubde

The world is producing the large number of digital data that is growing rapidly. According to a study, the information producing per year to the digital universe will increase more than six fold from 161 Exabyte to 988 Exabyte between 2006 and 2010, growing by 57% annually. So it is critical to back up the data regularly to a disaster recovery site for data availability and integrity. Enterprise Data consists of pictures, audio, video, email conversations, scanned documents and many more.

Every organization archives this data for business and legal issues. Rapidly developing data arises many challenges to the existing storage systems. A large number of data requires more storage medium to be used. As the data increases, more data is for backup. The cost of the storage media has decreased, but the main problem is to manage number of disks in the back-up systems. In fact, in storage archives a large quantity of data is redundant and slight changed to another chunk of data. There are many techniques exists for eliminating redundancy from the stored data.

At present data de duplication has gained popularity in the research community. Data de-duplication is a specialized data compression technique for eliminating redundant data, typically to improve storage utilization. In the de-duplication process

Acc. No.: PR1367/ INFT 525

Android based assistive app for dementia patients

Febin Xavier, Reshma George, Lizanne Rodrigues, Steven Quadros

Project Guide: Ms. Shree Jaswal

Assistive Application for Dementia Patients using Android” is an app that assists dementia patients using their mobile phones. The app basically provides reminders to the patient to do his/her basic tasks. The app has an incorporated notification system, which sends notification to the caretaker. The caretaker can then make a video call to the patient and instruct him to do his task such as taking medicines and food. This assures the caretaker that the patient takes his medicines and food on time. When the patient wanders out of his home the caretaker gets a notification with the exact location of the patient. If the patient is not able to go home, he/she can contact his/her caretaker for help. The SOS button on the screen will be used during an emergency by the patient. Busy boards quiz helps the patient to improve his/her cognitive functioning of the brain. All the data is updated in the database timely. The mobile interface is very simple to use. This is designed so that a dementia patient can use it easily.

Acc. No.: PR1369/ INFT 527

Gesture Recognition for Immersive Gaming

Pranav Deo, Shubham Gawas Ashish Naik, Yuvraj Patadia

Project Guide: Mrinmoyee Mukherjee

Over the recent years, Computer Vision has started to play a significant role in Human Computer Interaction. With the development of information technology in our society, we can expect that computer systems will be embedded into our environment. These environments will impose needs for new types of human-computer-interaction, with interfaces that are natural and easy to use. The ability to interact with computerized equipment without need for special external equipment is attractive. With efficient use of available resources, it is possible to track motion of human hand and fingers in real time using a simple web camera. The aim of this project is to enhance the level of immersion in computer games by creating an application that will allow users to interact with the game only using their hands. The proposed application will enable the user to play computer games without the need of either a keyboard or a mouse or any other expensive input devices. The users can play games through various gestures done using only their hands. This is the main background of the project. Therefore, the project aims in replacing the traditional mouse and touch pads with human hand (fingers) to interact with games which would allow more immersion of users and is also cheap to implement.

Acc. No.: PR1389/ INFT 547

Droid Assistant

Tejasvi Amonkar, Lisborn Lopes, Cymon Pereira,

Project Guide: Alvina Alphonso

In today's fast growing world, we humans have a lot of work so we tend to forget a few things. Sometimes we may forget to put our mobile phones on silent mode during an important meeting and which may lead to certain embarrassing situations. Also we may forget about our important appointment/meeting which can have a few consequences. Also the reminders we set in our mobile reminds us of a certain tasks based on the time and not according to our location. Considering the drawbacks of the existing application we provide some additional and enhanced functionalities in our application. The application would take location and schedule as input from the user and then accordingly change the profile. Also some default locations are stored in applications database where profile will change automatically. For mobiminder, user should set the time, location and add a message. When user crosses the location before time the user will get a pop up. Also when the reminder rings at the set time the user will get the best optimal path to reach the location along with the fare required. In meeting request the user should specify the mobile number of person he is going to meet, and then the other person will be notified accordingly prior to the meeting.

Acc. No.: PR1376/ INFT 534

Online Parking Booking System For MCGM

Priyanka Soni, Mounil Shah, Kajal Shah

Project Guide: Ms Vandana Patil

Mumbai being a metropolitan city suffers from an abundance of traffic and vehicles everywhere in the city. This problem is accentuated in the suburbs. Finding a parking space in commercial areas of the city is an extremely tedious task. There is also the fear of your vehicle being towed away if we park our vehicles anywhere at our own risk. Finding a dedicated paid parking area also consumes a lot of unnecessary time. This leads to parking in no parking areas which may cause heavy traffic, road blocking and towing of vehicle, etc. This inconvenience leads to an advantageous situation for the private but paid parking areas to increase their rates along with a high demand for a dedicated parking space around the city. For example: dedicated Parking places near airport, bus stand or railway station, metro, monorail, etc. are not easily spotted which leads to parking haphazardly. There are parking spaces provided by the MCGM in Mumbai but these places are not easily accessible and during peak hours they are full. And hence it becomes very difficult for the users to find a parking at the MCGM places.

So in order to help the government tackle this problem and make the citizens aware of the various options the idea of developing an online app came into picture. Using this app the vehicle owners could choose a nearby location where they would like to park their vehicle for the amount of time they wish. This would not only help the authorities to reduce the traffic

issues but also other citizens would benefit due the decongestion of the roads thus reducing the commute time and also reducing the fuel consumption.

Acc. No.: PR1397/ INFT 555

Handwriting Recognition for Devanagari Script

Brandon Rozario, Divina Thomas, Richard Saldanha, Olistar Rumao

Project Guide: Ms. Mrinmoyee Mukherjee

Ever since the computer replaced the typewriter, the creation, maintenance, and updating of documents have been tremendously easy. This, however, leaves a large amount of handwritten data out of this digital system. In this project, we aim at converting handwritten data into a digitized format with the help of two important methods known as object classification and recognition. The Haar Cascade is used to detect the object successfully whereas the Neural Networks classifies and recognizes them. Both the methods are trained by passing the training dataset. This training is further used to recognize the given input character and resulting a unicode.

Acc. No.: PR1402/ INFT 560

System application designed as a secondary input device for dektops

ADITYA JOSHI, SHUBHANKAR KAMAT, KAUSHIK KEVDIYA, NAQIYAH
LAKDAWALA

Project Guide: Sonali vaidya

The main philosophy of Smart Machine Control is to be a low-cost implantable solution, which is why all the technology involved in its gestation is free almost entirely, or very low cost. With regard to the hardware technology involved uses the wireless connection technology necessary for the cell phone connection. In the development, using the evolutionary prototyping method with constant monitoring and capture of new requirements in each iteration. All functions expected are carried out and performed perfectly. It can send messages from mobile devices to target server and simulate input correctly without any delay. Remote controller is an Android application which enables users to use their Android mobile device, which acts like a real mouse. It provides a solution to establish a wireless connection between Android mobile device and server computer. Whenever the server receives correct message, the server will simulate virtual keyboard input signal. The objective of this project is to develop a smart phone controller which enables people to use a smart phone application to perform the task of a keyboard and mouse. In conclusion, the development of this project is to highlight the importance of using new

technologies to develop software which provide faster adaptation for the developer and the end user

Acc. No.: PR1382/ INFT 540

Steganography using Hash-LSB Technique

Prince Chaurasiya, Shubham Kaundanyapure, Keyur Shah, Purav Sheth

Project Guide: Mrs Prachi Raut

The basic need of every growing area in today's world is communication. Everyone wants to keep the inside information of work to be secret and safe. We use many insecure pathways in our daily life for transferring and sharing information using internet or telephonically, but at a certain level it's not safe. Steganography and Cryptography are two methods which could be used to share information in a concealed manner.

In cryptography it's always clear to intermediate person that the message is in encrypted form, whereas in steganography the secret message is made to hide in cover image so that it couldn't be clearer to any intermediate person that whether there is any message hidden in the information being shared.

There are many steganography techniques which are capable of hiding data within an image. The most widely used technique to hide data is the usage of the LSB. The existing techniques are mainly based on LSB (Least Significant Bit) where LSBs of the cover file are directly changed with message bits.

The problem statement consists of embedding the secret message in the LSB of each RGB pixels value of the cover image. Before embedding the secret message has to be converted to cipher text using AES algorithm to enhance the secrecy of the message. In this approach we have implemented a technique called Hash-LSB. In Hash-LSB, we have used a hash function to evaluate the positions where to hide the data bits or to be embedded. It is a challenging process which will lead us to combine the two technologies, one of them is AES algorithm from cryptography and other is Hash-LSB from steganography. Our project focuses on providing a solution for transferring and sharing important data without any compromise in security.

Acc. No.: PR1373/ INFT 531

HEART BEAT RATE PROFILING ANDROID APPLICATION

Prathmesh Pathak, Bhavin Raut, Anish Sawant, Prasad Sawant

Project Guide: Mrs. Prachi Raut

The world that we dwell in, is very fast paced. In the daily turmoil to make ends meet, people have turned a blind eye towards physical fitness. Sedentary lifestyle is followed by a major chunk of world population amounting in decreased physical activities involving muscular

strength. Diseases and disorders often go either unnoticed or unattended. Taking into consideration this scenario, we have developed an android app that will calculate the heartbeat count rate of the users of the app. The count records of this app are promptly used to determine the level of spO₂ in the blood and the number of calories burnt per session of physical activity as per user's discretion. This facilitates the user of the android app to keep the functioning of their bodies under their scrutiny. In addition to that, we have notification facility for the user about his/her current and previous heartbeat counts and record those values in the user's profile. Having stored the heart beat counts of the user, the app will automatically alert the user to seek cardiac help in case of any unusual eclipse in the count value over a course of time.

The measurement technique is based on extracting beat-to-beat intervals by passing the colour intensity average through a processing pipeline comprised of six stages. Our tests indicate a nearly accurate measurement, when compared to commonly available home care devices. We present a possible application of our method in the area of stress diagnosis and treatment. The application can be used at home to monitor personal health and enable individuals to perform enhanced self-care.

Heart rate and heart rate variability are important indicators of the cardiac function, providing valuable information that can help in the early diagnosis of cardiovascular diseases. Studies show that an increased heart rate value indicates a high risk of cardiac failure. It has also been shown that heart rate variability can be an indicator of emotional strain and elevated anxiety. Our project describes an original, convenient, and practical method for measuring the heart rate that does not need any specialized equipment — only a android mobile phone and a cheap video camera. The user gently covers the camera lens with the soft part of the fingertip while the software detects the subtle changes in light absorbance correlated with heart pulsations. This original processing method is reliable, has a low-computational cost, and works very well with the low-end video cameras integrated in a wide range of consumer electronics. Our app is handy and provides general users, heart patients and health enthusiasts to keep a track of their heart beats and the number of calories burnt by them per day.

Acc. No.: PR1391/ INFT 549

AUTOMATED PAYROLL

DIVYA CHETTY, NICKY M DALAL, RYAN D'ALMEIDA

Project Guide: MS.VAISHALI JADHAV

Use of Smartphone is increasing day by day and is very effective tools for increasing computational power and security along with search and rescue. The aim of this project is to track the employee and monitor the employee activity in company by their office cell phone and improve the growth of the company by securing company data. In this project, we discuss about the design and implementing application for the HR manager of the company, admin application, employee application and centralized server for monitoring employees of the company using android by separating corporate and personal data. Here we are using GPS (Global Positioning System) location to track the employee. This location is defined as a key of time and attendance tracking in our paper. In this project we provide different security profile on same smartphone. In

this system we are using dynamic database utility which retrieves data or information from centralized database. We also provide separate mode to employee when he enters company premises. Through smart phones all information about the employee phone like their employee locations, employee behaviour details are tracked. All communication between the employee phone and the admin is done through 3G network technology. This application is user friendly. The necessary condition is that employee's should have the android phone whereas manager activities are also monitored. This system increases accuracy in managing employees, manager and company data, avoid the unnecessary use of company phones which are provided to the employee for their office use only and save the time of manager. Manager can monitor their employees through mobile phones and know the employee behaviour. Thus unnecessary wastage of time and money of company is avoided and it helps to protect trade secrets and avoid legal liability. The main aspect of our paper is managers to navigate their all company Employees through mobile phones and know the employee behaviour (Good/Average/Bad). This application also helps The admin and HR manager to easily check the salary of the employee. Since GPS location of the employee is tracked, so employee will not attempt to add proxy attendance. This application will provide extensive flexibility to company and the employee.

Acc. No.: PR1383/ INFT 541

Data Leakage Detection and Prevention

Priyal Patel, Pratyush Varma, Vijal Shah, Praneet Shah

Project Guide: Shree Jaswal

Data leakage is defined as the accidental or unintentional distribution of private or sensitive data to an unauthorized entity. Sensitive data in companies and organizations include intellectual property (IP), financial information, patient information, personal credit-card data, and other information depending on the business and the industry. Data leakage poses a serious issue for companies as the number of incidents and the cost to those experiencing them continue to increase. Data leakage is enhanced by the fact that transmitted data (both inbound and outbound), including emails, instant messaging, website forms, and file transfers among others, are largely unregulated and unmonitored on their way to their destinations.

Consider an example in which a hospital organization gives sensitive data about the patient details to a set of supposedly trusted agents (scientists). This data was found in an unauthorized domain. Finding the agent who leaked this data is a trivial task for the organization. Traditionally data leakage detection was done by watermarks but they were destroyed by malicious techniques. In the proposed system, we make use of data allocation strategies where an Admin is appointed. The system uses explicit data request for allocating data. The Admin then creates unique fake objects and adds them to the dataset before sending it to the agent. The record of all the fake objects is maintained by the Admin along with which agent it is sent. The Admin is responsible to detect the guilty agent who leaked the data when authorized data is found to be leaked.

In the proposed system, we make a framework for an agent detection mechanism, a distribution mechanism and Boyer Moore to prevent leakage. We create a secure data distribution mechanism which detects data leakage and implement document fingerprinting to prevent data leakage by checking plagiarism.

Acc. No.: PR1387/ INFT 545

Sentimental Analysis Of Twitter Data
Himanshu Joshi, Romell Segaran, Deven Shah, Disha Shah

Project Guide: Bhavesh Pandya

Social media has become important for social networking and content sharing. An example is that people often share their thoughts about movies, social causes and many more using Twitter, Facebook, etc. But then, the data that is created from these sites remains to a great extent undiscovered. We exhibit how online networking data can be utilized to predicting results. In particular, we use Twitter.com to predict box-office revenues for movies. Movies in India are increasingly taking to digital platforms to create buzz before the release of a movie. Sentiment Analysis can be used to gauge the reaction of people for numerous purposes by quantifying the contextual polarity of tweets in real time. We would be performing tweets cleansing to remove irrelevant and incomplete tweets. Sentiment Analysis is performed on literal tweets. We further investigate the classified tweets and mine the pattern to segregate sarcastic tweets from literals through hash tag analysis and lexical analysis. Then by using relevant matrix, performance of the movie is calculated. The endeavor is to ultimately predict whether a movie can succeed on the box office or not. Measuring and analyzing the mood of people can help companies gain invaluable insights about the dynamics of consumers' preferences instantaneously.

Acc. No.: PR1399/ INFT 557

Data Mining for Financial Market Prediction Based on
Hybridized Market Indicators and Online Sentiments

Eric Pozholiparambil, Rupam Sawant, Rashmi Shenoy, Achuth Pottekkat

Project Guide: Ms. Shree Jaswal

Financial Market also known as Stock Market is known to be influenced by the News and Public Opinion. The purpose of our project is to identify the Stock Market Movement based on News Analysis. We present the design, implementation, and evaluation of an approach for correlating Share Market (Market Indicators) with News Articles and Online Sentiment (Twitter) using Model Learning Approach. We do this by collecting Historical Stock Market Data for a Company, Market Indicator, Social Media Signals (Online Sentiment), etc.

Our system will use simple but stable and efficient word counting algorithm for calculating the score of word. This project serves as an application to financial traders, financial investors as

well as amateur investors who wish to study the behaviour of the Stock Market of a company, before making any investments.

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3D Model Generation for Education using Augmented Reality

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Project Guide: Mrs. Purnima Kubde

Augmented Reality is the presentation of objects superimposed on the real world view of the environment. It is an innovative technology that allows multidimensional viewing and understanding of concepts. This paper aims to use this concept of Augmented Reality in the field of Education to create an application that generates 3D models of the images embedded in textual materials using the software Unity and Vuforia. The application uses a smartphone's camera to scan the embedded image of a textbook, e-book or photocopy and generates a 3D working model with live animations as well as on-click functionalities to view various movements of the model by providing user interaction. This application aims to provide an active learning experience to students.

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