

**LEARNING AND INFORMATION RESOURCE CENTRE**

**CATALOGUE OF B.E. PROJECT REPORTS**

**BATCH 2021-2022**

<b><u>BRANCH</u></b>
<b><u>CMPN</u></b>
<b><u>EXTC</u></b>
<b><u>INFT</u></b>
<b><u>MECH</u></b>
<b><u>ELEC</u></b>

**CMPN**

**ABSTRACTS**

Title: SIGN LANGUAGE TRANSLATOR

Author: Soham Halarnkar, Mihir Hatankar, Harsh Jain, Rithin Menezes

Project Guide: Shamsuddin Khan

Abstracts: According to the World Health Organization (WHO), 466 million people across the world have hearing loss (over 5% of the world's population), of whom 34 million are children. There are only about 250 certified sign language interpreters in India for a deaf population of around 7 million. With these significant statistics, the need for developing a tool for smooth flow of communication between abled and people with speech/hearing impairment is very high. Our application will promise to secure a conversation, as it deploys machine learning and deep learning models to convert sign language to speech/text. This system eliminates the need of an interpreter, and the traditional methods of pen and paper can also be discarded. This application ensures the automation of communication and thereby provides a solution to the hurdles faced by hearing/speech impaired people. Sign language is a method of

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communication which uses various hand gestures and movements.

Understanding these gestures can be postulated as a pattern recognition problem. Humans use different kinds of gestures and motions to convey different messages to other humans. This project represents a framework for a human computer interface capable of recognizing said gestures from sign language and providing a text output representing the meaning of the gesture. The proposed system will use convolutional neural networks and algorithms to identify and learn the gestures which will help to minimize the communication barrier between signers and non-signers.

Acc.No.PR 2099(A1)

Title: SFIT Chatbot

Author: Adil Ansari, Jovin Jose, Shrutik Kupekar, Aadon Melath

Project Guide: Rupesh Mishra

Abstracts: Nowadays, many people are using smartphones with many new applications i.e Technology is growing day by day. A chatbot has information stored in its database to identify the sentences and make a decision itself as A response to answer a given question. The college inquiry chatbot will be built using an algorithm that analyses queries and understands users' messages. This chatbot is implemented using RASA. Rasa is an open-source framework for building AI bots that consists of two components: Rasa NLU and Rasa core. Rasa Core is the component that handles the dialog engine for the framework and helps in creating more complex chatbots with customization. Rasa's NLU helps the developers with the technology and the tools necessary for capturing and understanding user input, determining the intent and entities. To design a College Enquiry Chatbot for Students to solve their queries within a few minutes. Hardware requirements are an i3 processor-based computer and 4GB-RAM. Software requirements include Rasa and Python 3.6 or higher. The aim is to implement a chatbot that can resolve students' queries, search the result for query and give the solution. The chatbot will handle the queries, ultimately reducing the human effort.

Acc.No.PR 2100 (A2)

Title: IMAGE MANIPULATION DETECTION

Author: Neil Albuquerque, Shubh Joshi, Prasad Kamath, Elton Lobo

Project Guide: Safa Hamdare

Abstracts: With the influence of modern-day media, and social media platforms, the spread of fake news is something that has become common. Fake news can be for various reasons. It can be used to defame a company, an individual, an organization, etc. The damage caused by such news can at times be devastating. Images can be one of the most prominent ways of spreading fake news. More or less everyone is aware of the infamous incident where the renowned lion of Metro-Goldwyn-Mayer film studio was shown strapped in an image for the brand's logo. The film company faced major backlash from wildlife protectors. Later, it was revealed that the image was edited by far, with the original image showing that it was just another lion from an Israeli zoo undergoing a CAT(Computer Aided Tomography) scan due to illness. Humans tend to trust an image they see over any other piece of a written article. It is extremely easy to manipulate an image with even a cheap smartphone due to user-friendly editing tools. Sometimes the manipulations made are evident, but if the image has been edited in an intricate manner, even with close inspection, humans have a hard time identifying the altered areas. As a result, distinguishing between genuine and manipulated photos has become extremely difficult. Splicing, copy-move, and removal are the most commonly used tampering strategies. Therefore, an intelligent system made by tweaking an object detection method such as Faster R-CNN can help us to identify not only whether the image is manipulated but also the areas where manipulations were made.

Acc.No.PR 2101 (A3)

Title: Progressive Face Aging

Author: Madhura Angchekar, Christina Pereira, Mark Coutinho, Sujoy Dchunha

Project Guide: Ankita Karia

Abstracts: Human trafficking is one of the most adverse social issues currently faced by countries worldwide. According to the United Nations Children's Fund (UNICEF) and the Inter-Agency Coordination Group against Trafficking (ICAT), 28% of the identified victims of human trafficking globally are children<sup>1</sup>. The Wall Street Journal reported in 2012 that it is estimated that

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around 8 million children go missing around the world every year. Children separated from their parents, such as refugees and migrants, are most vulnerable to trafficking. The actual number of missing children is much more than these official statistics as only a limited number of cases are reported because of the fear of traffickers, lack of information, and mistrust of authorities. Given a gallery of face images of missing children, state-of-the-art face recognition systems fall short in identifying a child (probe) recovered at a later age. We propose an age-progression module that can age-progress deep face features with the help of which we can identify the missing child even 5 to 10 years later. Our model is based on facial aging using Cycle GAN and SAM. We propose an age-progression module that can age-progress deep face features. Face age synthesis is the process of rendering an image with the same identity and changing its age to predict the appearance of any period, which can be also called age progression and regression. With the help of this model, we accurately predict the face structure of the missing child 5 or 10 years from now i.e. how the person will look in the later years of his life.

Acc.No.PR 2102 (A4)

Title: Automated E-Learning system providing adaptive content solutions for Claraeon Learning

Author: Rebecca Dias, Chelsea Dsouza, Delicia Fernandes, Bhoomika Mewada

Project Guide: Anuradha Srinivasaraghavan

Abstracts: The modern classroom has changed in recent years. Teaching methods, technology, subject choices, and assessment metrics have all transformed education for students. But one thing remains constant: Learning has always been enhanced by personal, one-to-one support, and students who receive personal tutoring perform better than those who don't. The current education system falters at providing an efficient, personalized, and high-performance learning system according to every student's grasping ability, and hence there is a lack of personal attention for every student as our present-day system pays attention to the whole class

Acc.No.PR 2103 (A5)

Title: IIoT & ML Powered Predictive Maintenance Using Digital Twins for IXORIO

Author: Aaron D'Silva, Alan D'silva, Ansel Dsouza, Sherwin Lobo

Project Guide: Anuradha Srinivasaraghavan

Abstracts: The ultimate objective of every industrial plant or vital utility plant is to increase output quantity and quality while keeping production costs as low as feasible. To do this, plants must be kept in peak operating conditions in order for the system's throughput to be maximized. The system must be properly maintained in order to remain completely functional. The plant's efficiency is maintained by a variety of maintenance measures. Maintenance has an impact on the cost of items produced in any sector. To avoid breakdowns, maintenance plans should be developed so that maintenance chores are completed at the appropriate times. Unnecessary maintenance chores raise maintenance expenses while also lengthening the time it takes to do them. Through this paper, the aim is to build an MES system that leverages the advantages of technologies such as Digital Twins, Machine Learning, Industrial internet of things, and Predictive Maintenance (PdM) together with Industry 4.0 principles. The goal is to optimize plant operation, i.e. reducing system downtime, which would result in lower production costs.

Acc.No.PR 2104 (A6)

Title: INTERVIEW ASSESSMENT SYSTEM

Author: Sharon Dsouza, Nimisha George, Calisto Gomes, Suyash Jamage

Project Guide: Varsha Shrivastava

Abstracts: Every company conducts interview rounds to judge a candidate's technical skills, strengths and weaknesses, as well as their overall capability to handle the role, in order to understand if the candidate is a right fit for the job. The interview processes consume a lot of time, money and resources of an organization as they are conducted physically and over a period of time. Also, different panels of interviewers conduct interviews for the same position which may lead to interview bias. Ever since the COVID-19 pandemic situation, online job interviews are becoming very popular for the screening of potential employees and have proved efficient to both interviewers and interviewees. Thus, a system is proposed in order to make this process even more effortless

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and simple wherein a job seeker can hone their interview skills by answering technical interview questions. The system-bot judges the candidate based on the verbal cues like speech, the appropriateness and exactness of the answer, etc. The final output of the system is a score report that is generated after the completion of the interview. This report would help evaluate whether the candidate's technical skills are suitable for the job or not. This system would help reduce the wastage of resources and eliminate the scope for bias.

Acc.No.PR 2105 (A7)

Title: Handwritten to printed text convertor

Author: Nisarg Desai, Rahul Mirashi, Bhargav Mishal, Yash Mistry

Project Guide: Pradnya Nilesh Sawant

Abstracts: Character recognition is a challenging task because everyone has unique handwriting. Keeping the hard copies of all those handwritten documents also consumes a lot of storage. Retrieving all this data from the documents is another tedious task and even if stored on a disk, it is mainly done in the form of images which makes it difficult to reuse somewhere else. This also makes it very difficult to even read something from these images. So in order to resolve this problem, we have come up with a system that when fed with the handwritten image will convert it into a printed text format and return the text present in that image. Firstly the image which has been fed will be converted to grayscale and then this grayscale image will be converted into binary format. This is the pre-processing that will be performed on the image. After this, the binary image is given to the model which will perform image segmentation (which includes line segmentation and word segmentation) with the help of horizontal and vertical histograms. Finally, we will give the obtained words to the model for classification. It will identify cursive and non-cursive and convert them into text files. This model can further be coded to translate the obtained text into any language desired by the user. It could also be updated further to recognize languages other than English. Thus there is a lot of room for improvement in our current model.

Acc.No.PR 2106(A8)

Title: COVID COMPANION

Author: RISHIKA AHUJA, ANN ZACHARIAH, AISHWARYA JOHN,  
ANASHWARA KURIEN

Project Guide: JAYASHRI MITTAL

Abstracts: The COVID-19 outbreak, declared as a pandemic by the World Health Organization (WHO), rapidly spread across the globe spreading havoc in its wake. Having suddenly distorted each and every person's routine lifestyle, this pandemic has induced a considerable degree of fear, worry and concern in the population at large. COVID-19 is putting our mental health at risk since it has been proven stressful for plenty of people. Mental health includes our emotional, psychological, and social well-being. It affects how we think, feel, and act. It also helps determine how we handle stress, relate to others, and make healthy choices. Being social beings, humans were not meant to live in isolation. Community is critical for us to thrive, especially for someone with mental illness who is already experiencing the common symptoms of loneliness and isolation. Thus there has been an exponential increase in the number of people suffering from mental disorders with the pandemic taking over the globe. In this project we have tried to quantify the effect of COVID-19 on the mental health of the users of our system and then suggest to them some basic ways to help them cope with it.

Acc.No.PR 2107 (A9)

Title: Banking System using Blockchain

Author: Tanmay Hatkar, Joel Jose Abraham, Soham Maji, Samson Mendonca

Project Guide: Mr. Rajkumar Shende

Abstracts: Many vulnerabilities and frauds have been uncovered in the banking sector as a result of ever-evolving technologies. Banking systems can transition from their current methods to a digital, immutable, distributed ledger that can be accomplished using Blockchain. Transparency, robustness, auditability, and security are all features of blockchain. This research seeks to provide these features in a distributed banking system based on blockchain that is comparable to current techniques. It will also cover the constraints of blockchain implementation as well as its future potential. Current banking systems rely on a centralized database that is vulnerable to fraud, system failures, cyber-attacks,

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and data redundancy, among other threats. The majority of banks waste a lot of time and money on bank transactions, and they don't adequately secure their customers' data's privacy and confidentiality. Banks will be able to process payments more precisely and quickly if blockchain is correctly deployed, decreasing costs and eliminating the need for a middleman. Blockchain technology is a decentralised peer-to-peer system that has the ability to alleviate flaws in the current banking system. It's a decentralised database with features like traceability, non-falsification, security, and reliability, as well as digital encryption, consensus, and smart contracts. This platform will eliminate the need for a trusted third party, which is a third party through which various transactions and banking information must flow.

Acc.No.PR 2108 (A10)

Title: FACE MASK DETECTION USING LIVE VIDEO STREAMING

Author: YOGITA LIKHI, SHERWIN MATHIAS, UJALA MAURYA,  
NITHIN MENEZES

Project Guide: Ms. K PRIYA KARUNAKARAN

Abstracts: COVID-19 pandemic has rapidly affected our day-to-day life disrupting the world trade and movements. Wearing a protective face mask has become a new normal. With the advent of second wave of Coronavirus in India things have taken a nasty turn and wearing a mask have now become the necessity. All most all public service providers ask the customers to wear masks correctly to avail of their services. There are even rules on charging a fine from people who are disobeying the rules that are set. Therefore, an automated face mask detection system from live CCTV camera has become a crucial task to help the society.

In this report, we have proposed an automated system which helps authority people to identify the people who is not wearing a mask. The system will also notify to the end user by a sending him alert message. The proposed system in this report is developed with a deep learning algorithm MobileNetV2 for the first step which is face mask detection. For the next step i.e for identifying the face it uses face recognition library in python. We have used Kaggle dataset for face mask detection and for face recognition we have used our own dataset. The steps for building the model are collecting the data, pre-processing, split the data, testing the model, and implement the model. The face mask model can detect people who not wearing a mask and the through face recognition model we can identify the person.



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Acc.No.PR 2109 (A11)

Title: Ayurvedic Leaf Detection with Species Information & Text Translation

Author: Kinen Cardoza, Velina Cutinha, Arnold Dsouza, Misaal D'souza

Project Guide: Nidhi Gaur

Abstracts: The proper identification of plant species has major benefits for a wide range of stakeholders ranging from forestry services, botanists, taxonomists, physicians, pharmaceutical laboratories, organizations fighting for endangered species, government and the public at large. However, as the identification is completely based on human perception, there can be scope for error or misjudgement. Incorrect identification of the plants makes the medicine ineffective. It can even result in incorrect use of the leaf present. This makes it necessary for an efficient system to be developed that can properly identify the Ayurvedic plant based on the leaf samples. Consequently, this has fuelled an interest in developing automated systems for the recognition of different plant species. A fully automated method for the recognition of medicinal plants by their leaves using machine learning techniques is presented. This project focuses on creating an application that can identify the plant species based on the input leaf sample. The classification model makes predictions of the input leaf image and classifies it based on the species it belongs to. The application also focuses on building a text translation model based on the natural language processing (NLP) to convert the text results from one language to another. The model also achieves a higher accuracy for the same.

Acc.No.PR 2110 (A12)

Title: EMPLOYEE REWARDING SYSTEM

Author: JOHN EMMANUEL, SHRUTI KAMATH, UMMEHANNI  
LAKDAWALA, Roslin George

Project Guide: BIDISHA ROY

Abstracts: Employee rewarding is one of the activities of human resource management concerning the management of money, goods and services that employees receive from their employer in exchange for their work. Given that a properly designed reward system is one of the conditions for a stable business, successful performance of work activities and the achievement of set objectives in each organization, the basic theme of this paper is the employee reward

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system, with a special focus on different elements of it. The purpose of this paper is to describe the role and significance of the observed system and to draw attention to its role in employee's motivation. Based on the given analysis many conclusions have been drawn. It has been proved that a properly designed employee reward system has many advantages for the organization, which emphasizes its importance. Reward system refers to all the monetary, non-monetary and psychological payments that an organization provides for its employees in exchange for the work they perform

Acc.No.PR 2111 (A13)

Title: STUDENT ATTENTION DETECTION SYSTEM

Author: HETIK CHANDARIA, ATHARVA CHIPLUNKAR, TANMAY DESAI, Vatsal Mehta

Project Guide: VARSHA NAGPURKAR

Abstracts: The COVID-19 pandemic, also known as the Coronavirus pandemic, is an ongoing global crisis that caused significant alterations to academia, demanding new regulations and creating unprecedented challenges for both learners and tutors. In order to minimize the transmission of the contagious virus, students have to study from home. COVID-19 pandemic caused an increasing demand for online academic classes, which led to the demand for effective online exams with regards to limitations on time and resources. Consequently, holding online exams with sufficient reliability and effectiveness became one of the most critical and challenging subjects in higher education. Online lectures have had their fair share of problems. With online lectures comes the problem where students tend to lose concentration and on many occasions it is noted that students end up feeling drowsy. Also as exams are being conducted online, students are taking advantage of this situation by not giving exams in a fair manner. Students tend to cheat in online exams as the fear of getting caught does not exist. Hence we propose a system where the drowsiness of a student during lectures is tracked and during exams the eye movement of students is tracked to make sure students are giving exams fairly. The system uses facial recognition and then applies various algorithms and image processing techniques to track the above mentioned parameters. For facial recognition, HOG based feature extraction technique is used. The student is then alerted and at the same time the teacher is also given a summary of the behavior of the student during the lecture or exam. Also we have provided the question paper and the provision for uploading the answer sheet on the same

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system so that the student does not have to change tabs during exams. The system also detects if the student has changed tabs.

Acc.No.PR 2112 (A14)

Title: BLOCKCHAIN BASED E-VOTING SYSTEM

Author: CAROLINE SEBASTIAN, SONAL MAHAWAR, NEIL MASCARENHAS, Anshul Shetty

Project Guide: Prof Nazneen Ansari

Abstracts: Voting is the method by which a group of people or the citizens of a whole country express their individual choice and make a collective decision to elect a representative. In a democratic environment such means of election becomes vital to preserve the integrity of the governing legislation.

Traditionally there have been many modes by which the process of voting has been carried out. But such modes have shown serious drawbacks in the domain of security. With the rise in technological advancements it is possible to overcome them and build a secure system.

By this project we propose to build a system using the blockchain technology to securely cast votes online. Manipulation of a single vote demands the manipulation of the whole chain which is practically impossible due to very high computational power. The processing power can be harvested from the voters themselves. Blockchain networks lack centralized points of vulnerability that computer crackers can exploit; so, no centralized point of failure. Vote privacy and integrity can also be maintained. Implementation of such a model will decrease the cost of a nationwide election too. This will also ensure better voter turnout.

Acc.No.PR 2113 (A15)

Title: AUTOMATIC REPLENISHMENT SYSTEM

Author: MRUDULA ACHARYA, ALMASH ALAM, MICHAEL JETSON, Darren Noronha

Project Guide: VINCY JOSEPH

Abstracts: The average customer in the retail market has many choices in the matter of where the latter can buy their supplies, and in this regard, prefers efficiency in the nature and purpose of a buying visit to a retail store. This

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translate to a customer requirement that entails lesser time spent browsing the shelves, and the ready availability of all goods that the individual might need, since the absence of any item on the buyer's list might necessitate a visit to a competing retail store. Any competent retailer wishes to avoid this possibility, to ensure that customer satisfaction and loyalty is always high. However, it may not always be able to accurately and quickly track, detect and resolve the absence of inventory on stocked shelves, without engaging considerable resources and manpower. A fully automatic replenishment management system assisting the retailer in making their restocking decisions is presented. The project focuses on creating an application that can identify the absence of a certain item or multiple items on the shelf in question, and that can further alert the shop owner of the need to replenish the stock or shelf of the item in question. The application uses depth learning algorithms to build a model that can predict with high accuracy the absence of stocked items, and leverages the power of predictive sales forecasting to inform the purchase suggestions

Acc.No. PR 2114 (A16)

Title: Eye Blinking System for Password Authentication

Author: ADITYA SUTAR, SUBHASH KUMAR MISHRA, MITHUN MATHAI VARGHESE

Project Guide: SNEHAL KULKARNI

Abstracts: Personal identification numbers are widely used for user authentication and security. Password authentication using PINs requires users to physically input the PIN, which could be vulnerable to password cracking via shoulder surfing or thermal tracking. PIN authentication with hands- off eye blinking PIN entry techniques, on the other hand, leaves no physical footprints behind and therefore offers a more secure password entry option. Eye blinks based authentication refers to finding the eye blinks across sequential image frames, and generating the PIN. This project presents a real-time application that combines eye blink based PIN entry, face detection and OTP (One Time Password) to avoid shoulder surfing and thermal tracking attacks.

Acc.No. PR 2115 (A17)

Title: En-Crypton

Author: Michelle Rathod, Shardul Shroff, Rohit Thirumump, Sakshi Tokekar

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Project Guide: Dakshata Panchal

Abstracts: Confidential information being read by unauthorized users has been a constant problem for a long time. Various software has been developed to prevent such attacks. However, attackers find a way to break into the encryption process and read messages or access messages through communication channels. Hence, the need arises for a secure encryption process to be developed so that attackers cannot enter the process or it is difficult for them to decrypt the messages and also the need to protect sensitive data from intruders because of the security of electronic data is a crucial issue. Numerous data security and encryption algorithms have been developed for hiding sensitive data for secure communication. However, these algorithms are prone to attacks during its encryption process while others only encrypt images without text. Also, there are security issues in communication channels while exchanging private keys. The aim of this project is to prepare a triple layer hybrid algorithm approach that uses cryptography and steganography and will securely transfer text-embedded-encrypted-image from one system to another and which doesn't fall prey to attacks or gets modified easily.

Acc.No.PR 2116 (B1)

Title: CLOUD BASED VIDEO HOSTING PLATFORM

Author: SHRAVANI DHURI, CLARE REBELLO, KATE REBELLO,  
JANHVI SHAH

Project Guide: NIDHI GAUR

Abstracts: Video hosting is the concept of uploading your video content to be able to distribute it online. There are countless third-party video hosting services, like YouTube, Vimeo, Wistia, and more. In the 2010s, with the increasing prevalence of technology and the Internet in everyday life, video hosting services serve as a portal to different forms of entertainment (comedy, shows, games, or music), news, documentaries and educational videos. Content may be either both user-generated, amateur clips or commercial products. The entertainment industry uses this medium to release music and videos, movies and television shows directly to the public. Since many users do not have unlimited web space, either as a paid service, or through an ISP offering, video hosting services are becoming increasingly popular especially with the explosion in popularity of blogs, internet forums and other interactive pages.

Acc.No. PR 2117 (B2)

Title: Image Processing based Liver Cancer Detection and Classification

Author: Vedikattil Jini Philip, Trisha Biju, Salvi Vaishnavi Vijay, Rosario Flaviya Victor

Project Guide: Kavita Sonawane

Abstracts: It is rightly said 'Precaution is better than cure'. There are many diseases which do not show any signs or symptoms. As a result the doctor finds it difficult to identify these diseases thus increasing complexity in cure and operations. To this, we have implemented deep learning Convolutional Neural Network (CNNs) ResNet model which is helpful for the diagnosis of tumours instead of conventional methods. In this project we are specifically working on liver tumours. We collected the data in the form of CT scan images and then the image will be processed using software to get a new result. Newly obtained images will help in identification of any other sign. This sign can be used to identify diseases apart from the known. Thus identification and treatment for unrecognised disease will become possible.

Acc.No.PR 2118 (B3)

Title: Ez-Transportation of goods

Author: Suryakant Sharma, Shardul Wavhal, Kartik Parekh, Shubh Shah

Project Guide: Rajkumar Shende

Abstracts: The transportation space is untapped and is lacking the use of automation. The need of automation is critical as it will help businesses move their products with less expense and more efficiency. Automation also rectifies the challenges and issues transportation services face daily. The solution is to create an application which will connect users with the complete list and location of drivers displaying the load and capacity of their trucks. They will be able to book directly the driver/truck closest to them and will be charged accordingly. This reduces the need of manpower and the middlemen thereby decreasing the charges. If we talk about the current systems in automation space, the automation system currently runs on call-the-transporter-to- book-the-service. This thus slows down the system and business models face delays. Creating an application for the same is a feasible solution according to industrial standards in modern times. A modern application which is simple and easy to use and can be installed on most of the android devices is the current goal. This

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application can take advantage of IoT as well as many other applications to make it easy for the users on a daily basis. Connectivity with sensors such as Petrol detector; for driver safety alcohol sensor, estimation time for the delivery to reach.

Acc.No.PR 2119 (B4)

Title: D-MONITOR A DISASTER MONITORING AND RESPONSE SYSTEM

Author: FARHAN SHAIKH, GAURAV SUVARNA, MOHAMMED YOUNUS SYED, Harikrishnan Unnithan

Project Guide: NAZNEEN ANSARI

Abstracts: Every year millions of people are affected by different natural disasters, leading to property loss as well as loss of life. Actions by Disaster Management authorities during the crucial time of crisis is time critical and thus it is important that they have the right amount of knowledge and overall picture of the disaster. The project aims to provide a system where details regarding the disasters are plotted, visualized along with the trends or patterns discovered. Data regarding the latest disaster alerts are gathered using scraping frameworks like scrapy along with related news and social media posts are stored. This data is then processed and mined using machine learning models to find the different trends, patterns giving a wider picture of the disaster at hand. The different visualizations are accessible to disaster authorities and citizens via a website. This consolidation, processing and visual representation of disaster related data aids in critical decision making where time and money has to be frugally exploited for saving the valuable lives of people.

Acc.No. PR 2120 (B5)

Title: MENTAL STATE DETECTION AND POST TREATMENT USING NATURAL LANGUAGE PROCESSING

Author: LANCE MICHAEL LOPES, COLIN LARRY GIGOOOL, LIVIA SANJEEV GONSALVES, CAIRN NELSON CORREIA

Project Guide: JAYASHRI MITTAL

Abstracts: Mental disability and mental health care have been neglected in the discourse around health, human rights, and equality. This is perplexing as

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mental disabilities are pervasive, affecting approximately 8% of the world's population. Furthermore, the experience of persons with mental disability is one characterized by multiple interlinked levels of inequality and discrimination within society. Efforts directed toward achieving formal equality should not stand alone without similar efforts to achieve substantive equality for persons with mental disabilities. Structural factors such as poverty, inequality, homelessness, and discrimination contribute to risk for mental disability and impact negatively on the course and outcome of such disabilities. A human rights approach to mental disability means affirming the full personhood of those with mental disabilities by respecting their inherent dignity, their individual autonomy and independence, and their freedom to make their own choices. Assessment and outcome monitoring are critical for the effective detection and treatment of mental illness. Traditional methods of capturing social, functional, and behavioral data are limited to the information that patients report back to their health care provider at selected points in time. As a result, these data are not accurate accounts of day-to-day functioning, as they are often influenced by biases in self-report. Mobile technology (mobile applications on smartphones, activity bracelets) has the potential to overcome such problems with traditional assessment and provide information about patient symptoms, behavior, and functioning in real time. Although the use of sensors and apps are widespread, several questions remain in the field regarding the reliability of off-the-shelf apps and sensors, use of these tools by consumers, and provider use of these data in clinical decision-making.

Acc.No. PR 2121 (B6)

Title: Vision-based Fall Detection System

Author: Riya Avdhesh Pandey, Mervin Marcus Rodrigues, Mark Nepolian D'silva, Pratiksha Madhukar Chaudhari

Project Guide: Safa Hamdare

Abstracts: The healthcare industry is in a state of great despair. Healthcare services are costlier than ever, the global population is ageing and the number of chronic diseases is on a rise. What we are approaching is a world where basic healthcare would become out of reach to most people, a large section of society would go unproductive owing to old age and people would be more prone to chronic disease. IoT app development is at your rescue. While technology can't stop the population from ageing or eradicate chronic diseases at once, it can at least make healthcare easier by equipping the users with pocket friendly



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medical facilities. Medical diagnosis consumes a large part of hospital bills.

Technology can move the routines of medical checks from a hospital (hospital-centric) to the patient's home (home-centric). One of the biggest challenges in modern societies is the improvement of healthy aging and the support to older persons in their daily activities. In particular, given its social and economic impact, the automatic detection of falls has attracted considerable attention in the computer vision and pattern recognition communities.

Acc.No.PR 2122 (B7)

Title: LOAN SIMPLIFIED

Author: PRANAV SONTAKE, MANAV SRIVASTAVA, AVANI VARTAK,  
NEEL VIRANI

Project Guide: VARSHA NAGPURKAR

Abstracts: We all know that the process of applying for a loan is a tedious task and requires us to travel to various banks to get the details of their particular loan and then compare and choose the best possible loan. Through our project we have made an effort to provide a platform where the user can easily get the details of the loan which he/she is enquiring about. With the help of this platform the user doesn't have to go through the traditional hassling process, rather the user can use our platform and with comfort and ease traverse the financial loan he's looking for. Furthermore, the user has to enter his financial details and fill the questionnaire and if the information is valid then it will be processed using the machine learning algorithm. The chatbot is implemented using the NLP algorithm(Natural Language Processing). Moreover, the project requires the datasets of the bank and the records of the loan so that we can appropriately create a machine learning model and train on those datasets so when a user enters his financial details, our platform provides accurate results and provides best recommendations. The training of the datasets is done using a Regression analysis model. For recommendation of the loan we have used Knn Algorithm to provide the highest accuracy. With the help of this recommendation system we will pick the top 5 banks that the user is eligible to apply for and display it. Moreover, we have also provided the user to search and sort the results by providing various parameters, for instance interest rate, moratorium period, EMI etc. The eligibility of the user is calculated using various factors such as loan amount, income, credit score, education etc. After all these details are processed our system will recommend the best results for

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the user. Now, users can select the best possible options which they feel might be convenient to them.

Acc.No.PR 2123 (B8)

Title: SOCIAL CONNECTION WITH FRIENDS AND MUSIC  
RECOMMENDATION

Author: VISHAKHA MISTRY, SIDDHANT MISHRA, HITANSHU  
PANCHAL, CRYSTAL FARGOSE

Project Guide: PRIYA KARUNAKARAN

Abstracts: Music is the art of composing sounds in time to produce composition through elements of melody, harmony, rhythm, and timbre. And it's probably not difficult to understand how certain music may mirror people's own thoughts and feelings. Lyrics or melodies can potentially communicate the message that anyone wants to convey. Songs can capture an emotional state or personal situation in the best way possible. Music is a mechanism for humans to connect with one another. Making a connection with people in new places or just looking for a change in scenery, meeting new people can be as hard as it is fun. We have found that people with the same music taste make up the best connection. So why not bring together people who like the same music, to share experiences which are currently missing out on. So, this application connects with people nearby who have the most in common with. The matchmaking algorithm of the application system filters out people based on the music playlist created and based on the genre and the artist of the music. All people have to do is share the playlist of songs and start making connections with new people and hang out on the social network provided by the application.

Acc.No. PR 2124 (B9)

Title: SPEECH TO SQL

Author: Sarthak Raut, Preeti Suvarna, Jash Tailor, Abraham Thothiyil

Project Guide: Shamsuddin Khan

Abstracts: Speech recognition has become an important part of today's world with fast-evolving technology. Applications and small level machines are recognising, and process human communicated language. Natural language processing is a field of study that primarily focuses on the interaction between

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human language and computers. Recent developments in speech recognition systems and NLP have led to the rise of a new generation of powerful voice-based interfaces. A major advantage of voice-based interfaces is that they will be hands-free and will increase the type of users engaging in this interaction. It not only facilitates multitasking but also provides easy access to databases without having to learn the technical aspect of it. Our project aims to convert Speech to SQL queries for retrieving data from the Relational Database System. A user will submit a query as a speech signal through the user interface in lay-man language and shall get the required results that he asked for in text format. To elaborate, a user can first ask for data that he would like to retrieve from a database. Following this, the system will convert his voice signals into text format. Using our database, the system will then convert this text into a syntactically correct SQL query which will be executed on the database. Finally, the system will display the results that were asked for. This project offers applications in a variety of domains such as healthcare and medicine, customer support, and search engines since it requires elaborating of structured data having information on the text. This is highly useful since it helps to bridge the gap between technical users and database systems and greatly reduces the chances of human errors and hence saves a lot of time and effort. In our project, we are teaching the computer/system to code and execute SQL queries.

Acc.No.PR 2125 (B10)

Title: DETECTING TCP LAYER ATTACKS USING NETWORK IDS AND DEEP LEARNING MODELS

Author: Frazer Pereira, Arnold Veigas, Ripson Pereira, Vikram Rao

Project Guide: Varsha Shrivastava

Abstracts: Due to mankind's inquisitive leap to explore the reach of technology, there has been a plethora of latest networking digital devices emerging day by day. Along with the technological advances, there is also a rise in the number of intruders and potential weakening of aforementioned networks of devices. Due to this, the various types of attacks on a network have also been increasing, in a steep manner. This leads to a gaping need to detect and possibly, prevent these kinds of attacks beforehand. However, in order to combat this issue, one faces multiple challenges due to the fact that these malicious attacks are changing continuously. This requires a scalable solution since the existence of these attacks are being documented in large volumes. In recent times, network security and protection has been propped up by a primary backbone known as

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Intrusion Detection Systems (IDS). There have been multiple IDS approaches implemented in order to achieve the maximum data and network security accuracy. IDS supplemented by machine learning, seems to be the most promising avenue in terms of detection of known and unknown attacks. Deep learning (DL) techniques, especially, seem to have a greater success record as compared to other machine learning models. This research paper strives to identify the best DL algorithmic models which can provide us with the highest accuracy in detecting and classifying the malicious network packets. In order to arrive at this conclusion, we will be focusing on the exploration of three different deep learning algorithms for our classification model. We hope that this research may prove useful in combating the oncoming wave of cyber threats.

Acc.No.PR 2126 (B11)

Title: TRAFFIC RULES VIOLATION DETECTION

Author: Selas Moro, Precious Rodrigues, Chris Tuscano, Dhruvin Vasani

Project Guide: Vincy Joseph

Abstracts: Many times violating traffic rules leads to accidents. Many countries have adopted systems involving surveillance cameras at accident zones. Monitoring each frame to detect the violators is unrealistic. Automation of this process is highly desirable for reliable and robust monitoring of traffic rules violations. With deep learning techniques on GPU, the violation detection can be automated and performed in real time on surveillance video. This project proposes a novel technique to summarize the traffic surveillance videos that uses Faster Regions with Convolutional Neural Networks(R-CNN) to automatically detect violators. As the proof of concept, an attempt is made to implement the proposed method to detect the vehicle that has violated a rule. Long duration videos can be summarized into very short video that includes details about only rules violators.

Acc.No.PR (B12)

Title: MALWARE DETECTION OF PORTABLE EXECUTABLE FILES

Author: SHAH SEMIL, ATHARVA JAYANTA PAMALE, ROHAN PIYUSH PATEL, JEET JITESH PATIL

Project Guide: RUPESH MISHRA

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Abstracts: Among the additional acquainted types of automatic observation technologies, malware detection includes mechanisms to spot and shield against danger caused from viruses, worms, Trojan horses, spyware, and different types of malicious code. Failure to detect malware at its terribly beginning leaves an area for it to post a vital threat and value to cyber security for not solely people, organizations but also the society and nation. It also appears the antivirus software may fail to detect viruses when it is not updated in the database and antivirus engine. The main struggle is to detect new viruses because when it encounters new malware behavior, it takes heuristic actions based on the rule set. If the rule set determines the new behavior is safe the virus remains undetected so to increase malware detection more efficiency and accuracy in large volume and various types or forms of malware, this project uses Machine Learning techniques and convolutional Neural Network which is known as most successful deep learning techniques. So to detect malware in portable executable files(PE) we use ML techniques to first classify whether a file is malicious or not and then if malicious we feed it to our CNN for local feature extraction. Our Binary classifier shows around 98% accuracy on any given PE file. It uses the data dumped from the PE file .Our CNN model shows an accuracy rate over 94% in identifying malicious and benign codes. It also shows us that CNN is very efficient with detecting of source code and binary code, it can further identify malware that is hidden into benign code, leaving malware no place to hide. This project not only gives a easy solution for network administration to efficiently identify malware but also provides a user friendly GUI so that a common man with zero technical knowledge can take protective actions in a timely manner

Acc.No. PR 2128 (B13)

Title: POTHOLE DETECTION AND CORRECTION USING YOLO V3

Author: JESS RUMAO, GLENN RODRIGUES, SHERWIN LOPES, SEAN PINTO

Project Guide: BIDISHA ROY

Abstracts: As one type of pavement distresses, potholes are important clues indicating structural defects of the asphalt road, and accurately detecting these potholes is one of important tasks for determining proper strategies of asphalt-surfaced pavement maintenance and rehabilitation. However, manually detecting and evaluating methods are expensive and time consuming. Thus,

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several efforts have been made for developing a technology which can automatically detect and recognize potholes, which may contribute to improvement of survey efficiency and pavement quality through prior investigation and immediate action. In this study, we investigate and analyze pothole detection methods which have developed and propose a potential direction of developing a pothole detection method to accurately and efficiently detect potholes. Dangerous road surface conditions are major distractions for safe and comfortable transportation. Both drivers and road maintainers are interested in fixing them as soon as possible. However, these conditions have to be identified first. Thus, accurately and quickly detecting potholes is one of the important tasks for determining proper strategies in ITS (Intelligent Transportation System) service and road management system. Several efforts have been made for developing a technology which can automatically detect and recognize potholes. In this study, a pothole detection method based on two-dimensional (2D) images is proposed for improving the existing method and designing a pothole detection system to be applied to ITS service and road management system.

Acc.No. PR 2129 (B14)

Title: Customer Segmentation Using Big Data Analytics

Author: Dhruvil Saliya, Deep Sanghani, Deepak Sawalka, Siddharth Zantye

Project Guide: Snehal Kulkarni

Abstracts: Customer segmentation is the process of grouping customers based on shared characteristics so that businesses can market to each group effectively and appropriately. Customers are divided into groups based on similarities in their behaviour and habits. In this project, our team will implement various unsupervised machine learning algorithms, including K-means and DBSCAN clustering algorithms, and compare their results to determine which one is best suited for our implementation. We will perform Predictive and Prescriptive analysis after segmenting customers into different clusters. Our goal is to segment customers based on behavioural characteristics, specifically Recency, Frequency, and Monetary Value, so that the company can market to each segment in a way that is more tailored to individual customers. The dataset we'll be using is from an online retail store. After clustering, we will visualize to provide insights using powerful BI tools such as Power BI

Acc.No.PR 2130 (B15)

Title: GLAUCOMA DETECTION AND CLASSIFICATION

Author: Royce Dcunha, Aaron Rodrigues, Manisha Sahu, Cassandra Rodrigues

Project Guide: Kavita Sonawane

Abstracts: Deep learning is an important technique for investigating medical images. Glaucoma is a chronic eye disease that results from visual nerve damage caused by intraocular pressure in the eye. It is one of the leading causes of blindness around the globe and if not detected early enough, it can lead to complete blindness. In the early stages of glaucoma, there are no symptoms of vision loss, but as it progresses, it may result in irreversible blindness. It is often associated with an accumulation of pressure within your eye. Glaucoma is common among families. It usually happens later in life. Diagnosis of glaucoma in the clinical environment includes intraocular pressure measurement, visual field testing, or examination of the optical disk of fundus images. Usually, people have no symptoms, and if symptoms occur, it is around the end of the illness. The primary sign is generally a loss of lateral vision or peripheral vision. Although glaucoma cannot be prevented, it can be reduced in severity if discovered early. In addition, the number of ophthalmologists required for evaluation by direct examination becomes a limiting factor due to aging, population growth, physical inactivity, and obesity which contributes to increasing the risk of vision loss. However, in large-scale screening scenarios, these manual assessments are not precise, mostly in developing countries due to the insufficiency of trained experts and scarce modern imaging equipment. In this paper, several models are being used to study glaucoma detection. The models chosen are: VGG19, VGG19+LSTM, InceptionV3, and InceptionV3+LSTM. Every model is being worked with K-fold cross-validation and data augmentation to overcome the limitation of a small dataset. The features extracted are used to classify the input image and are then projected to be either glaucomatous or normal. Finally, the values obtained for various performance evaluation parameters are compared. The ACRIMA dataset consists of 705 fundus images (396 glaucomatous and 309 normal images), out of which 632 images are for training, 73 are for testing, with a 90-10 split. The evaluation results of the VGG19 model are, accuracy: 91.78%, precision for normal class: 85%, precision for glaucomatous class: 100%, recall for normal class: 100%, recall for glaucomatous class: 100%, and F1 score for normal class: 92%, F1 score for glaucomatous class: 92%. The evaluation results of the VGG19+LSTM model are, accuracy: 94.52%, precision for normal class: 90%, precision for glaucomatous class: 100%, recall for normal class: 100%, recall

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for glaucomatous class: 89%, and F1 score for normal class: 95%, F1 score for glaucomatous class: 94%. The evaluation results of the Inception v3 model are, accuracy: 94.03%, precision for normal class: 91%, precision for glaucomatous class: 97%, recall for normal class: 97%, recall for glaucomatous class: 92%, and F1 score for normal class: 94%, F1 score for glaucomatous class: 94%. The evaluation results of the Inception v3+LSTM model are, accuracy: 90.41%, precision for normal class: 88%, precision for glaucomatous class: 93%, recall for normal class: 95%, recall for glaucomatous class: 85%, and F1 score for normal class: 92%, F1 score for glaucomatous class: 89%.

Acc.No.PR 2131 (B16)

Title: CREDIT CARD ANDBITCOIN FRAUD MANAGEMENT SYSTEM

Author: MANDAR ANGCHEKAR, ROHAN CHAVAN, TIRTHA RAUT,  
NIPUN MUNDADA

Project Guide: ANKITA KARIA

Abstracts: With the age of digitization, there is an increased amount of usage of online transactions via credit cards and net banking options. With e-commerce services offered by most of the websites, credit cards have become a popular mode of payment. With the increase in credit card transactions, there has been a hike in the number of fraudulent transactions as well. Such an increase hampers the trust of the people on online transactions as well leads to billions of losses for banks all over the world. As per the reports of 2018, credit card frauds increased by 18.4% and led to a loss of 24.26 billion dollars. To curb these tremendous losses, the researchers began using different techniques and methods to prevent and detect unusual transactions. Frauds are known to be dynamic and have no patterns, hence they are not easy

to identify. Fraudsters use recent technological advancements to their advantage. They somehow bypass security checks, leading to the loss of millions of dollars. Analysing and detecting unusual activities using data mining, machine learning and deep learning techniques is one way of tracing fraudulent transactions. Many artificial intelligence techniques have been proposed to deal with the anomaly detection problem; some results appear to be considerably assuring, but there is no explicit superior solution. This project aims to elucidate the modelling of credit card transactions with the statistical data of the transactions that turned out to be fraud. It also presents an overview of the block chain technology and its application in the financial sector in light of anomaly detection. A range of algorithms such as isolation forest, histogram



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based outlier detection (HBOS), cluster based local outlier factor (CBLOF),  
principal component analysis (PCA), K-means, deep auto encoder networks and  
ensemble method are evaluated and compared. This is exhibited by making data  
sets using machine learning with Credit Card Fraud Detection. The Credit Card  
Fraud Detection model is then used to determine whether a new transaction is  
fraudulent or not. Our objective here is to detect 100% of the fraudulent  
transactions while minimizing the incorrect fraud classifications. Credit Card  
Fraud Detection is a typical sample of classification. In this process, we have  
focused on analyzing and pre-processing data sets as well as the organization of  
multiple anomaly detection algorithms

Acc.No. PR 2132 (B17)

Title: Audit Management System

Author: Kshitij Sandeep Sawant, Jordan Anand D'Silva, Griffith Pradeep Pereira,  
Nitin Rayu

Project Guide: Dakshata Panchal

Abstracts: Audits are an important and essential part of managing risk and control effectiveness within an organization. Our project, Audit Management System simplifies the entire auditing process, from planning and scheduling to performing the audit. What Audit Management System offers you is an easy way to perform the most challenging and complex audits simply and more efficiently. The Audit Management System is vital in letting you do more with less. In addition to the existing internal audit requirements, Auditors are now being asked to be proactive with risk management and provide insights into government regulations. Audit Management system streamlines the audit process with tools to reduce risk, ensure regulatory compliance and optimize programs for continuous improvement. Consolidate audit data across locations and geographies into a single system of record for streamlined data collection, better data retrieval and simplified record keeping and reporting for internal and external stakeholders. Automatically generate comprehensive audit reports without having to manually assemble report data from paper records, spreadsheets. The ultimate objective of the product is to be a one stop solution to the end-to-end process of auditing, which in turn will involve many modules such as access-based user management, defining the principles, controls and respective audit questionnaire based on the type of audit(internal/external) and the function/sub function for which the audit is being carried out. Also, this document should help the stakeholders in understanding the requirements of

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audit workflow in terms of how the auditor will capture the response from  
auditees, upload necessary evidence, categorize and provide risk ratings to the  
senior management team, capture the response of the management

Acc.No.PR 2133 (B18)

### ELEC

Title: NON-CONVENTIONAL EV'S

Author: VIJAY KUMAR, KINNARI MEHTA, GRAHITA PATEL,  
SAMIKSHA SOOR

Project Guide: JOSNA JOSE

Abstracts: The design simulation and control of renewable energy-based hybrid electric vehicles (HEVs) is introduced. The HEV design uses solar, wind to generate electricity with proton exchange membranes (PEMs) and super-capacitors (SCs) to meet strong torque requirements. The vehicle includes a battery pack and SC. As the car moves forward, the alternator connected to the turbine blades uses wind energy to rotate to generate electricity and charge the battery. The simulation takes into account the aerodynamic forces of the wind turbine and all its drag. This design aims to ensure zero carbon emissions, energy efficiency and portability, and is combined with those that use in-wheel motors to eliminate mechanical transmissions. To meet the energy demands of the vehicle, the energy selection is controlled by a rule-based monitoring controller that follows a logical sequence. When the vehicle is stopped, the SC is preferentially used as an energy source. The battery is the main power source and wind power and solar energy charge the battery. The controller also controls the power flow of the generator to monitor regenerative braking and switch to solar charging when the vehicle is parked.

Acc.No. PR 2082 (1)

Title: SOLAR POWERED WATER PUMPING SYSTEM WITH INDUCTION  
MOTOR AND SUBMERSIBLE PUMP

Author: PRIYANSHU JAIN, PALAK MANIAR, SNEHA PATANGE,  
ANUSHKA, SOMAVANSHI

Project Guide: ADIL SHEIKH

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Abstracts: I/We should deposit a finalized hard copy of(duly signed) our project report/Dissertation and thesis in the Learning and Information Resource Centre (LIRC) for processing, and accessioning in the LIRC Records., I/We E-mail an Electronic Copy as One single PDF file with institute water mark at the time of depositing the hard copy of the project report/dissertation/thesis to LIRC. If the copy contains reproductions of copyrighted images without receiving permission from the copyright holder, the student may, with advice from his/her supervisor, remove all copyrighted reproductions from the electronic copy. A short description of these removed items must be appended to this form., The Contents of the submitted copy must be the same as in the printed copy, We agree that LIRC is not responsible for any material submitted resulting in plagiarism and infringement of copyright, The Learning and Information Resource Centre has the Non-exclusive right to publish the full electronic project report/dissertation/thesis in open access, and printed abstracts, table -of- contents and bibliographies for distribution within the Institute for educational purposes only .Full attribution will be given to the author.

Acc.No. PR 2083 (2)

Title: DESIGN AND IMPLEMENTATION OFDTMF BASED ROBOTIC VEHICLE

Author: GLEN KISAN DABRE, SHREYAS KISAN JADHAV, AYUSH MILIND KAMAT, CLENT JOSEPH PADU

Project Guide: KALYANI SONI

Abstracts: In this project, the Robot is controlled using Dual Tone Multi Frequency (DTMF) technology. DTMF technology is most useful technique at present days. It works on two methods Digital Signal Processing (DSP), Wireless control of robots. Wireless control of robots uses RF circuit that has the drawbacks of limited working range and limited control. This DTMF is gives advantage over the RF; it increases the range of working and also gives good results in case of motion and direction of robot using mobile phone through micro controller. This type of wireless communication gives the remote handling operation of Robot using DTMF. In this project, controlling of a robot using DTMF technique is presented. The robot is controlled by a mobile phone that makes call to the other mobile phone attached to the robot. In the course of the call, if any button is pressed, tone corresponding to the button pressed is heard at the other end of the call. This tone is called dual tone multi frequency tone (DTMF).Using DTMF code, direction of

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motion of the robot can be controlled by mobile phone. Ultrasonic sensor and fire sensor are also interfaced with the robot. In case of any fire or obstacle, the sensor senses the obstacle or fire and passes the signal to the alarm. The alarm sound is heard via a buzzer..

Acc.No. PR 2084 (3)

Title: OPTIMAL DESIGN OF A HESS IN A PHEV FOR BATTERY LIFETIME IMPROVEMENT

Author: KRISHNA REDDY, BRIAN RODRIGUES, DARSHIT SHETTY, SOHAIL ALI

Project Guide: RAGINI MESHRAM

Abstracts: Since plug-in hybrid electric vehicles (PHEVs) are becoming commercially available, several questions arise about their efficiency, range and emissions. PHEVs can be evaluated according to various classifications and recently, an additional approach, named Plug-In Hybrid Electric Factor (Pihef) has been introduced. A multi-dimensional size optimization framework and a hierarchical energy management strategy (HEMS) to optimize the component size and the power of a plug-in hybrid electric vehicle (PHEV) with the hybrid energy storage system (HESS). In order to evaluate the performance of size optimization and power optimization, a PHEV with a battery energy storage system (BESS) is used as a comparison reference, and the dynamic programming (DP) algorithm is set as a benchmark for comparison. The size optimization method explores the optimal configuration of the system, including the maximum power of the system, the maximum power and capacity of the battery, and the maximum power and capacity of the supercapacitor (SC). The HEMS can simultaneously optimize vehicle fuel consumption and suppress battery aging. Its upper layer uses the DP algorithm to optimize fuel economy, and the lower layer apply the linear programming (LP) method to improve battery life. Based on the size optimization results and HEMS, compared with the benchmark, the battery aging rate has been reduced by 48.9%, and the vehicle economy has increased by 21.2%.

Acc.No. PR 2085 (4)

Title: IMPLEMENTATION OF TRANSFORMER LESS INVERTER FOR SINGLE PHASE GRID CONNECTED PV SYSTEM

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Author: ASHISH BHARAMBE, TANISHQ DATE, BHUVNESH NEMADE,  
LALIT KULKARNI

Project Guide: PRATIK RAHATE

Abstracts: Grid connected photovoltaic (PV) inverters feed power directly to the grid with the aid of power electronics converters. Recent studies revealed that transformer less inverters are preferred in single phase grid connected Photovoltaic (PV) applications due to lower size and weight, lower cost, improved efficiency etc. But there are issues with transformer less grid connected systems such as leakage currents, direct current injection and safety. Many inverter topologies are studied in the literature to overcome these issues. This report presents comparison of three commonly used transformer less H Bridge topologies, design of CLC and LCL filter and control strategy for grid synchronization. Simulation was done in MATLAB, SIMULINK and results obtained are compared and analyzed.

Acc.No. PR 2086 (5)

Title: V/F SPEED CONTROL OF INDUCTION MOTOR WITH SPWM  
TECHNIQUE

Author: BHAVIK CHAUDHARI, VISHAL GUPTA, ASHWINI JADHAV,  
VIMLESH SHARMA

Project Guide: MEGHA FERNANDES

Abstracts: Speed control techniques are generally essential in adjustable speed drive system which requires variable voltage and frequency supply which is invariably obtained from a three-phase Voltage source inverter. A number of pulse width modulations scheme is used to obtain variable voltage and frequency supply from an inverter, but Sine pulse width modulation technique (SPWM) has certain advantages over other modulation technique such as, controlled inverter output voltage, reduction of harmonics, it is less costly, it is easy to implement in circuits, it gives the best control of switches in a circuit, less calculation required as compare to space vector pulse width modulation technique (SVPWM) and the main advantage of SPWM is that power loss in the switching device is low over the other methods of Pulse width modulations. In this paper v/f speed control of three phase induction motor using sine pulse width modulation is demonstrated by using MATLAB/SIMULINK model.

Acc.No. PR 2087 (6)

Title: DESIGN AND DEVELOPMENT OF AN IOT GATEWAY FOR  
SMART BUILDING APPLICATIONS

Author: KAJOL DANDAPAT, ALINA DSOUZA,

Project Guide:

Abstracts: Today, technologies allow people to access and monitor everything from everywhere. This paper describes an Internet of Things sensors project. Combining sensors and actuators smart buildings, which can be offices or apartments, allow owners to save energy, increase security, give information to users on their environment and act directly on the building using the Internet. It comprises of Node MCU (esp8266) which is a Wi-Fi module used to transmit data over internet, electromagnetic relays, and the Ultrasonic sensor. This developed system works when there is any motion within the defined sensor range and it can also be controlled through a website. This website has been configured with the system so that it works flawlessly on both iOS and android devices. The final prototype is configured with website so that the relays can be triggered. Recent advances in smartphones and affordable open-source hardware platforms have enabled the development of low-cost architectures for Internet-of-things (IoT)-enabled home automation and security systems. These systems usually consist of sensing and actuating layer that is made up of sensors such as ultrasonic sensors, also known as motion sensors; temperature sensors; smoke sensors, and web cameras for security surveillance. These sensors, smart electrical appliances, and other IoT devices connect to the Internet through a home gateway. This paper lays out an architecture for a cost-effective motion sensor that will inform a user through an website, sensing of motion in a house environment. The proposed architecture uses an Arduino-compatible UNO. Several programming languages are used in the implementation and further applications of the sensor are discussed.

Acc.No. PR 2088 (7)

Title: DESIGN AND SIMULATION OF AN INDUCTOR BASED ACTIVE  
CELL BALANCING CIRCUIT FOR LITHIUM-ION BATTERIES

Author: MANASVI SANJAY BHAND, KEDAR NIMESH BHATT, SAGAR  
PRABHAKAR GITAYE, ADITYA PRAKASH PANCHAL

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Project Guide: ADIL SHEIKH

Abstracts: In this modern era where energy demand is increasing at an exponential rate, energy storage devices play a crucial role in meeting the demands when needed. Rechargeable batteries are gaining momentum as the need for storing electrical energy is increasing day by day. Lithium-ion (Li-ion) technology is better than other rechargeable battery technologies due to its performance characteristics. However, under unfavourable charging and discharging conditions and/or differences in internal parameters, Li-ion batteries tend to heat and degrade their performance which results in a reduced life cycle. The process of cell Balancing finds an important role in battery packs which takes the issue of cell imbalance into account. An active cell balancing circuit with an inductor as a storage element has been proposed in this study. The balancing of cells is carried out between four lithium-ion cells connected in series. This paper consists of a detailed study of the design and operation of the cell balancing circuit. An algorithm has been developed in state flow and simulated on MATLAB.

Acc.No. PR 2089 (8)

Title: WIRELESS CHARGING SYSTEM FOR ELECTRIC VEHICLES

Author: HITEN KOLI, SHAILESH MHASKAR, CHAITANYA MORE,  
SATYEN SANE

Project Guide: VARSHA THANDASSARY

Abstracts: The use of electric vehicles(EV)is increasing day by day, but the key difficulty in implementation of EV is arrangement of charging infrastructure . The wireless charging system (WCS)is a favourite option in the growing EV market. In this paper, a WCS for charging EV is proposed using different types of charging methods . A simulation system is made in the MATLAB, and the performance of the system is verified by the simulation results, Simulation results show the effects of parameters such as an inductor, capacitor load and coupling coefficient on efficiency. EV charging to eliminate the variation of voltage because of varied spacing existing between both coils and thereby delivering a constant voltage and constant current to the load is carried out. In Inductive method WCS for charging EV is developed via inductively coupled power transfer technology. In Capacitive Power Transfer (CPT) method electric fields between metal plate is used to transfer power wirelessly. In magnetic resonance method, the feasibility of the system is verified theoretically and the

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system functions are evaluated by the joint simulation of Simplorer and Maxwell. The comparison of all the charging method is done.

Acc.No. PR 2090 (9)

Title: SHUNT ACTIVE POWER FILTER DESIGN

Author: DEEPAK CHAUHAN, KEYUR MANDAVGANE, NEITRIK  
GAIKWAD, PUROHIT, VIDHAN

Project Guide: MEGHA FERNANDES

Abstracts: This project work presents a three-phase shunt active power filter (SAPF) based on synchronous Reference (d-q) theory. The wide use of nonlinear loads and power electronic devices in low-medium voltage side has increased harmonic pollution in the power system to the larger extent. improving power quality has become the biggest challenge for electrical engineers. In our paper, an hysteresis band current controller is proposed for shunt active power filter to eliminate harmonics and to compensate the reactive power of three-phase rectifier. The results of simulation study of SAPF control technique presented in this paper is found quite satisfactory to eliminate harmonics and reactive power components from utility current and improve overall power quality. All of the studies have been carried out through detail digital dynamic simulation using the MATLAB Simulink Power System Toolbox. The results show that SAPF is effective to meet IEEE 519 standard recommendations on harmonics levels.

Acc.No. PR 2091 (10)

Title: ELECTROSTATIC PRECIPITATOR AND CAPACITOR CHARGING  
USING VAN DE GRAAFF GENERATOR

Author: CHIRAG CHITRODA, PARTH DODIA, KSHITIJ NAIK, DARSHIT  
OZA,

Project Guide: JOSNA JOSE

Abstracts: The particulate matter created in the manufacturing process by the industrial plants is released as dust in the hot exhaust gases. If such matter is released into the atmosphere, the particulates reduce visibility and it contributes to climate change as well as serious health problems in humans. Fine particles that are smaller than 2.5 microns in diameter can be especially dangerous



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because they are drawn deep into the lungs and can trigger inflammatory reactions. The aim of the report is to present an electrostatic precipitator which uses an electric charge that is provided by a Van de Graaff generator. The pumped charge from the generator will remove such impurities from air or other gases in smokestacks and other flues. The second aim of the report is to use the charge of Van de Graaff generator to charge a high voltage capacitor. Such capacitors are used in many power-management applications requiring many rapid charge/discharge cycles for short-term power needs. This capacitor has high capacitance values with respect to capacitors of low voltage limit. Some of these applications include: Voltage stabilization in start/stop systems, Electronic door locks in the event of power failures, Regenerative braking systems, Medical devices, Energy harvesting, Consumer electronics, Kitchen appliances, Real-time clock backup, utility meter and Backup power Contents

Acc.No. PR 2092 (11)

Title: NOVEL DC CHARGING ARCHITECTURE ENABLED POWER  
TRANSFER USING VEHICLE-TO GRID TECHNOLOGY

Author: MERVIN D COSTA, SIDDHESH PARAB, RAJ PATHAK, BHAKTI  
WAGHELA

Project Guide: ADIL SHEIKH

Abstracts: Recent growth in Electric vehicles (EV) has led to EV batteries being seen as potential energy storage devices and power sources with the advent of vehicle-to-grid (V2G) and grid-to-vehicle (G2V) technology. EV batteries can aid in improving overall efficiency of the system. The paper proposes a V2G/G2V model which consists of a bidirectional grid connected converter, off-board chargers, EV batteries, and filters utilizing standard DC charging for effective power sharing, control, and regulation. The control of the chargers decides the priority of the source based on the set threshold level and subsequently integrates with the circuit. The converter processes the signals without external interference like communication links. The V2G/G2V concept is designed, modelled, and visualized in MATLAB/Simulink, and the various results indicate the potential for better energy utilization and energy trade between individual players

Acc. No. PR 2093 (12)

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SVP ROAD, MT.POINSUR, BORIVALI (WEST), MUMBAI 400103  
Title: DESIGN AND IMPLEMENTATION OF SMART ENERGY METER  
USING INTERNET OF THINGS

Author: JIGNESH CHOTALIA, PARTH DESAI, SHUBHAM GUPTA,  
SHAWN MONTEIRO

Project Guide: SHYMA

Abstracts: In India, the demand for energy, especially electrical energy, is skyrocketing and posing several problems for policy-makers, administrators, industrial and house-hold consumers. The hardest hit is the common house-hold consumer who not only has to pay the rapidly increasing prices for electricity, but also has to put up with frequent power-cuts, load-shedding, fluctuating voltages, power theft, faulty meters and most of all suspiciously high bills. When consumers know in real-time the pattern of consumption of their households, they will be able to control their usage and guarantee savings. World's main focus is to make a smart home to take advantage in providing comfort for human life. Web technology is a thing which is growing all the time. Embedded systems with Internet on Things (IoT) is becoming important and necessary part in the current IT industry and exhibiting potential market. Power consumption and efficiency with a user's comfort level is most important issue during this stage while performing various operations. The foremost objective of this project is to create awareness about energy consumption and efficient use of home appliances for energy savings. The plan and improvement of a keen observing and controlling framework for energy meters continuously has been discussed in this Document. With the end goal to screen the energy consequently, diminish creation cost, the Remote Meter Reading System is produced. Remote energy meters were structured with Post appropriation framework. Structure of which utilizes virtual instrument programming design that should be possible on web server that will works with internet of things. The framework basically screens the vitality necessities and status of utilization of intensity. The framework can screen the status and send data to webserver. The concerned expert can control the high power expended gadgets on or off to make the framework better through web portal. The web page which we will utilize is secret phrase ensured by adding username and password along with secured API keys. This framework finds a wide application in regions where physical nearness isn't conceivable all an opportunity to control the devices. The framework will be work with ESP32 processor utilized in the usage of sensor module and other correspondence condition. The framework offers a total, minimal effort, ground-breaking and easy to use method for ongoing observing and remote control of Appliances.

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Acc.No. PR 2094 (13)

Title: CONTROL STRATEGY OF BLDC MOTOR FOR ELECTRIC GO-KART APPLICATION

Author: VINIT PRAJAPATI, VISHAL SINGH, PAVAN SINGU,  
MANOJKUMAR YADAV

Project Guide: ANJALI PARDESHI

Abstracts: In this paper we present an electric go-kart suitable for an instructional laboratory in electric drives. An overview of power system design, power conversion structure and control is presented. A Brushless DC Motor [BLDC] is used as the drive system. The motor is controlled at different operating conditions by means of a controller. A simple speed control using a low cost 1Kw BLDC traction controller board developed for light electric vehicles running on nominal 48V and 50A peak current. Hall sensors are placed in the motor which gives back end signals to the controller. The controller uses six step commutation to give motor input. The prototype had been designed specifically to meet the requirements of low cost and it contains all of the active functions required to implement the control of the electric go-kart.

Acc. No. PR 2095 (14)

Title: SOLAR POWERED IOT BASED IRRIGATION SYSTEM

Author: SAMIKSHA BHARANKAR, VRISHTI DHURUV, JAYESH PATIL,  
RAHUL SOLANKI

Project Guide: ADIL SHEIKH

Abstracts: Agriculture is the backbone of any economy. More than 70% of households depend on farming to provide a living, making advancements in farming technologies are necessary. Irrigation is the most crucial and defining parameter for producing a healthy yield. Lack thereof can cause drought and low produce. On the flip side, over-irrigation causes deterioration of soil properties hence affecting the yield growth. An IoT-based irrigation system that integrates automation with the traditional irrigation system helps overcome these drawbacks. The report primarily focuses on developing an intelligent system through Deep Learning Algorithms. Using Recurrent Neural Network (RNN), Gated Recurrent Unit (GRU), and Long Short Term Memory (LSTM) models of deep learning, the

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report proposes a strategy to establish a system that can operate automatically through the forecasted data.

Acc. No. PR 2096 (15)

Title: SMART FIELD ORIENTED CONTROL DRIVE FOR INDUCTION MOTOR

Author: HARDIK ANADA, RONAK JADHAV, TEJAS NAIK, RUSHIKESH PANDIT

Project Guide: VARSHA THANDASSARY

Abstracts: The members of Group 16 of B.E Electrical Engineering, St Francis Institute of Technology prepared this report in partial fulfilment of the requirements of the project for the academic year 2021-22. This report briefly describes the implementation of the most efficient form of a vector control scheme: the Field Orientated Control (FOC) method. It also provides a synopsis of the aim, objective, research methods and calculations utilized to implement FOC, as well as the design improvements implemented to achieve smart control. Induction motors have always been known for their simple rugged construction, but until lately were not suitable for variable speed or servo drives due to the inherent complexity of the controls. Using Field Oriented control (FOC), which is one of the most efficient method and widely used due to its high performance, easy control of Induction Motors is achieved. The basic principle of FOC is to regulate the angular difference between the stator flux vector and the rotor flux vector so that the optimal torque generation efficiency can be obtained. The designed Drive can control various machine parameters manually as well as remotely. It consists of an LCD display where all necessary parameters are displayed. It also includes IoT features through which user can monitor and control the drive via Android device. The drive also has a protection unit which avoids several faults like over-current, over-voltage, under-current, under-voltage and overloading. So, this Drive provides an efficient and easy way to control and monitor the Induction Motor which makes it suitable for Industrial applications

Acc. No. PR 2097 (16)

Title: SOLAR PV FED BLDC MOTOR FOR WATER PUMPING APPLICATION USING ZETA CONVERTER

Author: PRANAV RANE, DIGPAL SINGH CHUNDAVAT, NAMAN SHAH,

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Project Guide: PRATIK RAHATE

Abstracts: Nowadays solar energy is the best renewable energy resources and is receiving huge attention because it is the best alternative to the conventional energy sources. The operation of the solar powered pumps is cheaper to run, lower maintenance cost and lower operation. This project deals with the operation of Zeta converter in solar PV array fed water pumping system as an intermediate DC-DC converter between the solar PV array and soft starting of BLDC motor. The proposed control algorithm eliminates phase current sensors and adapts a fundamental frequency switching of the voltage source inverter (VSI), thus avoiding the power losses due to high frequency switching. No additional control or circuitry is used for speed control of the BLDC motor. The speed is controlled through a variable DC link voltage of VSI. An appropriate control of zeta converter through the incremental conductance maximum power point tracking (INC- MPPT) algorithm offers soft starting of the BLDC motor. The proposed water pumping system is designed and modeled in MATLAB/simulink such that the performance is not affected under dynamic conditions.

Acc. No. PR 2098(17)

### EXTC

Title: TRANSMITTER AND RECEIVER FOR BIOMEDICAL  
APPLICATION: ENDOSCOPY

Author: AARTHI MURALI, JYOTSNA GAIKWAD, DIVYA GHORUI,  
PRAPTI KOTIAN

Project Guide: UDAY PANDIT KHOT

Abstracts: Wireless capsule endoscopy (WCE) has conquered some limitations of traditional diagnosing tools, such as the comfortlessness of the cables and the inability of examining the small intestine section. Diseases of the Gastrointestinal (GI) tract, such as intestinal bleeding and ulcer, are very common. In order to determine the location of the disease, as well as to diagnose the problem, an endoscopy test is performed. A Wireless Capsule Endoscope is a pill-sized device for the patient to swallow. It is equipped with a camera and a wireless transmitter so that as it travels through the patient's GI tract, it will take pictures or video of the tract and transmit the information out of the patient body wirelessly. However, this technique is still far from

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satisfactory and requires some possible improvements such as miniaturization and high data transmission rate in terms of bandwidth. So, the transmitter and receiver has to be designed to operate at such a high speed. Therefore, a prototype is built with commercially available components to demonstrate the concept of the device.

Acc. No. PR 2168 (1)

Title: VIRTUAL LABORATORY FOR OPTICAL FIBER  
COMMUNICATION USING IOT AND LAB VIEW SOFTWARE

Author: SANJAY SINGH, RUPESH JATAV, KURUP, ABHIJITH

Project Guide: SNEHAL LOPES

Abstracts: This project represents the implementation of Virtual laboratory for optical communication that is used to perform experiment remotely by using Internet of Things. An optical fibre communication is achieved in this project. The basic idea presented in this project is to acquire parameters that are transmitted by transmitter through optical cable and sending over to cloud platform. As the experiment time consuming and physical presence is required. But by making remotely accessible it become easy to supervise by sitting own office and during that time the person can do other tasks meanwhile experiment is running. Also, a cost saving fibre kit is prepared.

Acc. No. PR 2169 (2)

Title: CREDIT CARD FRAUD DETECTION

Author: ARSALAN HAIDERY, PRAFUL MORE, ABHISHEK MURALI,  
LIZAN D SOUZA

Project Guide: SANTHOSH CHAPNERI

Abstracts: Credit cards play a very important role in today's economy. It becomes an unavoidable part of household, business and our day to day activities. Although using credit cards provide enormous benefits when used carefully and responsibly, significant credit and financial loss may be caused by fraudulent activities. Various techniques have been proposed to confront the growth in credit card fraud. However, all of these techniques have the same goal of avoiding credit card fraud; each one has its own drawbacks, advantages and characteristics. In this project, after investigating the difficulties of credit card

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fraud detection, we build a cost-sensitive weighted random forest. A cost function has been defined in the training phase of each tree. After calculating the cost and error of every tree, they are assigned weights. The tree with least error are assigned more weights. One of the drawback of the standard algorithms like decision tree, random forest, logistic regression, etc. is that in presence of imbalance data the performance of these models are affected and satisfactory results are not obtained. To improve the performance of the model in presence of imbalance data a cost-sensitive weighted random forest has been proposed. Our proposed model will be compared to other standard models.

Acc. No. PR 2170 (3)

Title: IMPLEMENTATION OF A SMART BLIND STICK

Author: SHRIPAD PATHRE, AISHWARYA SAWANT, KAREN TOLLIN, VEDANT MOJE

Project Guide: SAVITA KULKARNI

Abstracts: The main aim of this project is to design a smart stick for visually impaired people so that they can guide around efficiently and be partially self-dependent. The drawback of present sticks is that they are not so evolved that a blind person can easily navigate using them. So, to help the visually impaired people to become more self-reliant, we equipped the stick with some more attributes like obstacle detection. This device will assist visually challenged people to live an independent life up to some extent (with security), which ultimately will increase their confidence in an unfamiliar environment.

Acc. No. PR 2171 (4)

Title: ATTENDANCE MONITORING SYSTEM USING MULTIVIEW FACE RECOGNITION

Author: MUSKAN SONI, JAY PATEL, AMEY SAWANT, SAKSHI SAWANT

Project Guide: DEEPAK JAYASWAL

Abstracts: With the advent of the era of big data in the world and the commercial value of face recognition technology, the prospects for face recognition technology are very bright and have great market demand. A facial recognition system is a technology capable of matching a human face from a

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digital image or a video frame against a database of faces, typically employed to authenticate users through ID verification services, works by pinpointing and measuring facial features from a given image. The use of face recognition for attendance marking is a smart way of an attendance management system. Face recognition is a more accurate and faster technique among other techniques and reduces the chance of proxy attendance. The main implementation steps used in this type of system are face detection and recognizing the detected face.

Acc. No. PR 2172 (5)

Title: RECURRENT FEATURE REASONING BASED IMAGE INPAINTING  
USING CONSISTENT ATTENTION

Author: AMOGH VARTAK, NISHAD VARTAK, SUNNY YADAV, VIRAJ  
THAKUR,

Project Guide: RAVINDRA CHAUDHARI

Abstracts: The objective of image inpainting is to recover the missing information of a damaged image with generated data that makes the repaired image visually realistic. Existing inpainting methods have achieved promising results when it comes to small defects but struggle when it comes to filling large holes. They often produce ambiguous or semantically incorrect content when the missing region is large. The Recurrent Feature Reasoning (RFR) Network is able to efficiently solve this problem and generates semantically plausible and elegant results. The RFR module consists of three parts: an area identification module which identifies the area to be recovered, a feature reasoning module which infers the content in the identified area and a feature merging module which merges the generated feature maps. Further, a Knowledge Consistent Attention (KCA) module looks for the texture in the background and uses it to replace textures in the holes, hence enhancing the inpainted results. We have further proposed the use of VGG-19 architecture for image generation training to enhance the performance of RFR. Empirically, we first compare the proposed model with existing RFR-Net, demonstrating that the proposed model is more efficient in terms of quantitative results and that it can also deal with large scale missing pixels and yet generate realistic results.

Acc. No. PR 2173 (6)

Title: DESIGN AND ANALYSIS OF A MINIATURIZED UWB ANTENNA  
FOR WIRELESS CAPSULE ENDOSCOPY

Author: DANEESH BARI, CHIRAG BHANDARY, HARSH  
CHANDORKAR, TEJAS MAKADIS,



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SVP ROAD, MT.POINSUR, BORIVALI (WEST), MUMBAI 400103

Project Guide: UDAY PANDIT KHOT

Abstracts: Wireless capsule endoscopy provides visualization of the GI tract by transmitting images wirelessly from a disposable capsule to a data recorder worn by the patient. The first capsule model for the small intestine was developed by Given Imaging and approved in Western countries and approved by the Food and Drug Administration (FDA) in 2001. Over subsequent years this technology has been refined to provide superior resolution, increased battery life, and capabilities to view different parts of the GI tract. Before the introduction of capsule endoscopy (CE) and double - balloon endoscopy (DBE), there was no effective modality for the evaluation and management of patients with obscure GI bleeding. Obscure GI bleeding is defined as bleeding of unknown origin that persists or recurs after a negative initial or primary endoscopy (colonoscopy or upper endoscopy) result. The first capsule endoscope model, which is now regarded as a first - line tool for the detection of abnormalities of the small bowel, was the PillCam SB. Our project aims to increase the speed of transmission and optimize the antenna to work within the permissible SAR limits as specified by the FCC

Acc. No. PR 2174 (7)

Title: AUTOMATIC COMPONENT SALVAGING FROM WASTE PCBS

Author: STEVE BARBOSA, MELVIN YOHANNAN, GOKULANDA  
ADHIKARI, DARSHAN DODIA

Project Guide: GAUTAM SHAH

Abstracts: The Consumer Electronics Market has been booming at an ever increasing rate so is the demand for newer, faster electronic devices. This increasing demand also creates massive electronic waste year by year. The problem with the majority of the E-waste is, not everything inside it is unusable or obsolete. With the help of our project, the E-waste can be recycled autonomously and at a greater pace. Our project aims at those specific components that are usually not damaged easily. This reduces the E-waste generated and also reduces the cost and material to make the same new component. The machine can desolder components from the PCB of size 12 cm \* 12 cm.

Acc. No. PR 2175 (8)

ST.FRANCIS INSTITUTE OF TECHNOLOGY (ENGINEERING COLLEGE)  
SVP ROAD, MT.POINSUR, BORIVALI (WEST), MUMBAI 400103

Title: JOB RECOMMENDATION SYSTEM BASED ON MACHINE  
LEARNING AND WEB SCRAPING TECHNIQUE

Author: VAIBHAV PANDIT, HARISH PAREEK, GAURAV PATEL,  
PANKIT PATEL

Project Guide: QUANITAH SHAIKH

Abstracts: Every industry has been greatly impacted by the rise of digital communication and the dissemination of the internet. The hiring process is one such domain, in which a job seeker applies for a job by creating a profile on a job portal and detailing all of his or her work preferences. Each user's work preferences can be collected, and job recommendations can be made based on their choices. There has been no previous contact between user data and job listing data in the data collected for our investigation. We were able to address the issue of cold start from both the User and Job perspectives using such a dataset. Also, utilising Content-based filtering which is designed to support natural language processing and cosine similarity, recommend the top-n job to the user by evaluating and measuring similarity between the user choice and explicit aspects of job listings. Collaborative filtering uses similarities between individuals and items simultaneously to generate recommendations, which addresses some of the limitations of content-based filtering. This enables serendipitous suggestions, in which collaborative filtering models suggest an item to user A based on the preferences of a comparable user B. Furthermore, the embeddings can be learned automatically rather than requiring feature engineering by hand. The final tier of the design, a web app installed on the AWS server, displays the user's top-n recommendations.

Acc. No. PR 2176 (9)

Title: ENVIRONMENTAL CLEANING ROBOT

Author: ANKIT NAYAK, HEMANG SHUKLA, JENIL SEJPAL,

Project Guide: JOVITA SERRAO

Abstracts: This paper presents the technical construction of a robot which is used in cleaning. The term "CLEANING" sounds simple, yet we humans face a lot of problems with the disease-ridden workplace, a few examples are factories, power plants, Bio-hazard chambers etc., where it is harmful for humans to work. The mechanical part is the base (wooden chassis) with servo

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motor and the wheels (plastic wheels) in our case. The material used in mechanical part can be changed according to our prerequisite. The electronic part consisting of the Raspberry Pi and surveillance Camera are mounted on the top of the robot. The camera acts as the "eye" which scans the area and detects garbage using yolo-v3. The cleaning mechanism includes a normal brush (material of the brush is selected as required) with a servo motor attached to it. This robot not only helps in cleaning rather can be used to monitor and detect things accordingly.

Acc. No. PR 2177 (10)

Title: RESIDUAL DEEP NETWORK FOR AUTOMATED DETECTION OF CHEST DISEASES

Author: HIRAL DHAKAN, JINAL SHAH, SURANA, JAY

Project Guide: SANTHOSH CHAPNERI

Abstracts: Covid-19 has been devastating for the world. It is critical to detect Covid-19 Cases as early as possible to prevent them from spreading. Also there is a lack of sophisticated centres and trained physicians for Covid-19 detection and cure in remote areas. The need for tools to detect Covid-19 cases efficiently has increased. Radiology images (X-rays, CT scans) have plenty of information about Covid-19 presence. Using advanced AI techniques combined with Radiology Imaging, assistive tools for detecting Covid-19 cases with high accuracy and speed can be developed to be deployed using the cloud and made available to everyone for screening. The Dark Covid Net model can be used to classify between Normal, Pneumonia, and Covid and also binary classification (Normal, Covid) with relatively high accuracy. Our model produced a classification accuracy of 92.66% for Three classes and 98.25% for two classes. Using our trained model and website we can detect Covid-19 remotely.

Acc. No. PR 2178 (11)

Title: REAL TIME BEHAVIORAL ANALYSIS OF STUDENTS USING RASPBERRY PI

Author: RAJ PATEL, KAIVAN SHAH, SHREY SHAH, YUVARAJ VARSHNEY

Project Guide: SHILPA CHAMAN

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Abstracts: People's safety and security are becoming increasingly important in the modern era. Traffic monitoring, security, search and rescue, car tracking, and classroom monitoring all require real-time object detection. In the smart campus, video surveillance cameras are commonly installed in computer-enabled laboratories. However, based on the available literature, it appears that using video surveillance data from a smart campus for any non-intrusive behavioral analysis is unusual. Though there are various works on recognizing students' behavior from devices like Kinect and handy cameras, there is none that harvests video surveillance data and forecasts students' behavioral patterns in real-time. Hence, in this study, we unobtrusively analyze the students' behavioral patterns inside a teaching laboratory (which is considered as an indoor scenario of a smart campus). Here, we propose a object detection architecture to classify and recognize an object in the indoor scenario, i.e., the teaching laboratory environment of the smart campus. We used two different class labels for predicting the behavioral patterns of the students.

Acc. No. PR 2179 (12)

Title: IMPLEMENTING OPTICAL COMPONENTS USING OPTISYSTEM

Author: KARAN MATRE, SANDEEP SANTOSH, RITIK MAURYA,  
AAYUSH MOHITE

Project Guide: MONIKA CHEEMA

Abstracts: Optical Amplifiers have provided a more efficient robust and better alternative to design and integrate optical devices feasibly with traditional optical networks and systems for optical signal processing and optical communication networks. There are mainly three most common ways in which an optical amplifier may be used in an optical link. There are many types of optical amplifiers available one of which is the Semiconductor optical amplifier (SOA). The working of an SOA is just like that of a LASER, the only difference between a LASER and an SOA is that the later doesn't have feedback mechanism as present in the case of former. Stimulated emission causes the amplification of entering light waves. An effect known as Cross phase modulation has been utilized in this work in order to exploit the non-linear properties of optical medium. Cross phase modulation takes place when two or more optical fields pass through the same optical medium simultaneously, the change in refractive index due to one optical field causes phase modulation of the other optical fields. This phenomenon is widely used to detect and study the nonlinear properties of the link or the optical

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medium under consideration. In this work we have proposed schematics for full-adder and full-subtractor circuits. We have provided two separate circuit designs which has the schematic of Sum/Difference in the first one and Carry/Borrow in the second. Considering an input sequence of 10 bits we have simulated our schematic designs in OptiSystem 16 research software. The observations have been incorporated in the results section.

Acc. No. PR 2180 (13)

Title: EMOTION ANALYSIS USING DEEP LEARNING

Author: JAYESH CHAVAN, MANAN DODIA, SARVESH KARGUTKAR, NUMAN KHAN

Project Guide: DEEPAK JAYASWAL

Abstracts: The use of machines to perform different tasks is constantly increasing in society. Providing machines with perception can lead them to perform a great variety of tasks; even very complex ones such as elderly care. Machine perception requires that machines understand about their environment and interlocutor intention. Recognizing facial emotions might help in this regard. During the development of this work, deep learning techniques have been used over images displaying the following facial emotions. In this research, a pure convolutional neural network approach outperformed other statistical methods results achieved by other authors that include feature engineering. Utilizing convolutional networks involves feature learning; which sounds very promising for this task where defining features is not trivial. Moreover the network was evaluated using some selected emotions and the accuracy of the network varied vastly, though the results achieved were not impressive but, the evidence gathered points out deep learning might be suitable to classify facial emotion expressions. Thus, deep learning has the potential to improve human-machine interaction because its ability to learn features will allow machines to develop perception, by having perception, machines will potentially provide smoother responses, drastically improving the user experience.

Acc. No. PR 2181(14)

ST.FRANCIS INSTITUTE OF TECHNOLOGY (ENGINEERING COLLEGE)  
SVP ROAD, MT.POINSUR, BORIVALI (WEST), MUMBAI 400103  
Title: EMBEDDED SYSTEM FOR IMAGE DOCUMENTATION IN  
BIOMEDICAL APPLICATIONS

Author: DISHA GULVE, ANUSHKA KULKARNI, MANJUSHRI BIJU,

Project Guide: ANJALI CHAUDHARI

Abstracts: Diseases of the gastrointestinal tract, such as intestinal bleeding and ulceration, are very common. To determine the location of the disease, as well as to diagnose the problem, endoscopy is performed. A wireless capsule endoscope is a pill-sized device that is easily swallowed by the patient. It is equipped with a camera and a wireless transmitter so that as it travels through the patients gastrointestinal tract, it takes pictures or video images of the tract and transmits the information out. Capsule endoscopy gradually replaces traditional endoscopy in some applications and becomes a state-of-the-art tool to detect the problems of intestines. When capsule endoscopy is used, a patient swallows a capsule-like micro-camera. An image sequence is then taken by the capsule endoscope and transmitted to a receiver carried by the patient. Eventually, these image data will be transmitted to a desktop computer and examined by a doctor.

Acc. No. PR 2182 (15)

Title: DESIGN OF INGESTIBLE ANTENNA AT INNER WALL OF  
CAPSULE FOR CAPSULE ENDOSCOPY

Author: MOUSUMI HALDER, MRINMAY KUMBHAR, ANKITA PHAD,  
SANDESH YADAV

Project Guide: ANJALI CHAUDHARI

Abstracts: Wireless capsule endoscopy is a procedure for medical diagnosis of gastrointestinal diseases that uses a pill camera to take images of the intestinal lumen. The first capsule endoscopy was performed in 1999, and the US Food and Drug Administration approved its use in the United States in 2001. The M2A capsule (mouth to anus) was the first available pill camera and was eventually renamed as PillCam SB (small bowel). Wireless Capsule Endoscopy overcomes various limitations of ordinary endoscopy system including irritating wire and inability to diagnose complicated parts of intestine. It is used most often for recurrent and obscure gastrointestinal bleeding after traditional endoscopic procedures have failed to identify a bleeding source. It can be a useful study for localizing a lesion prior to angiography, surgery, or further endoscopic procedures.

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SVP ROAD, MT.POINSUR, BORIVALI (WEST), MUMBAI 400103  
Acc. No. PR 2183 (16)

Title: BATTERY CONDITION PROGNOSTIC SYSTEM

Author: NILANJAN CHOUDHURY, MAHEK DESAI, SHUBHAM GUJAR, ,  
ROHAN NAIR

Project Guide: VAQAR ANSARI

Abstracts: Battery life improvement has been a priority for the manufacturers in today's time to improve the consumers experience of using battery-oriented products. So, to do so using Internet of things various parameters of battery can be shared to various manufactures, dealers etc. On placing sensors on the battery, which can send the battery parameter data over internet to cloud database. the battery in any system or device is the main component because it powers the entire system. Hence, we need to monitor the voltage level of the battery. We all know that an improper system of charging and discharging may lead to battery damage or system failure. Most of the electrical/electronics devices have a Battery Management System. Actually, Battery Management System monitors all the properties of the battery like the voltage, current, temperature. This database can be accessed by manufacturer, dealers and users to monitor the health condition of battery. On accessing such parameters and looking through the database battery health can be improved and also can track number of batteries in use in the battery profile. The hardware has developed and tested with a lithiumion battery.

Acc. No. PR 2184 (17)

Title: TEXT DATA PROCESSING AND CLASSIFICATION USING  
ATTENTION MECHANISM

Author: NIRAJ KHAPNE, SHREYA KINI, SASHANK MISHRA, PRADEEP  
PATWA

Project Guide: SANTHOSH CHAPNERI

Abstracts: According to reports nearly 80% of the information available today is in unstructured form. The messy nature of text's sorting and organizing process is pretty time consuming and difficult, there comes the text classification with ML reducing human efforts and with certain predefined algorithms and scripts all the job is done let that be in analysing survey reports, sales reports, etc. Typical RNN/LSTM neural networks consider all words in the

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text data as important; however, this may not always be true. Hence, we will use the Attention mechanism so that the algorithm focuses on specific words resulting in improved performance. Here we are using sequence transduction models based on complex recurrent or convolutional neural networks that include an encoder and a decoder. We are using Transformer network architecture which is solely based on an attention mechanism. The transformer allows significantly more parallelization in sequential data and requires significantly less time to train.

Acc. No. PR 2185 (18)

Title: MACHINE LEARNING BASED PREDICTING MODEL FOR NEW CASES OF COVID

Author: PRAVIN CHOUDHARY, RAGHAVENDRA IYER, ASHISH MATE, ANUSHKA PADWAL

Project Guide: VAQAR ANSARI

Abstracts: Today world is going through a critical phase. The whole world is infected from the coronavirus (COVID 19). In India also the number of new cases keeps on increasing. After nearly two years since the first identification of SARS-CoV-2 virus, the surge in cases because of virus mutations is a cause of grave public health concern across the globe. As a result of this health crisis, predicting the transmission pattern of the virus is one of the most vital tasks for preparing and controlling the pandemic. The machine learning model has been developed using time series analysis (ARIMA model) for predicting the new cases in India in the next coming days. In this work, results are also compared with the predictive values generated from the ARIMA and AR model and concluded that the ARIMA model is the best fit model as compared to AR model for predicting the new cases in India. Python programming language has been used for implementation. There were two datasets considered for analysis and forecasting. The first dataset contains the record of cases from January 1, 2020 to July 31, 2020. The second dataset contains the latest record of cases from January 1, 2020 to April 8, 2020 This is useful for researchers for further analysis of COVID-19 pandemic in India.

Acc. No. PR 2186 (19)



ST.FRANCIS INSTITUTE OF TECHNOLOGY (ENGINEERING COLLEGE)  
SVP ROAD, MT.POINSUR, BORIVALI (WEST), MUMBAI 400103  
Title: FACE MASK DETECTION AND TRACKING USING FASTER R-  
CNN FOR CROWDED LOCATIONS

Author: PRIYANKA BARDE, BHARGAVI GODGERI, MAHENDRA  
JADAV, CHAITALI KUSHE

Project Guide: VAQAR ANSARI

Abstracts: The aim of this project is to detect people wearing face masks so that the COVID-19 spread can be controlled with less human interaction possible. One of the effective solutions given by the medical generals to control the pandemic is to wear a mask. This system detects people with and without a mask through a model trained using Faster R-CNN. The reason to choose Faster R-CNN over other various object detection models is as it is popular and advanced algorithm used for object detection and it also provides the advantage of Region Proposal Network which improves the time requirement and hence faster computing. Also, to keep track of whether people in crowded locations are wearing a mask or not is practically a difficult task for the authorities. Hence, this project helps these authorities to detect people violating the rules so that they can take necessary actions on preventing the spread of any harmful disease or virus and also for picking out on jeopardising safety of public.

Acc. No. PR 2187 (20)

Title: ENERGY EFFICIENT HOME AUTOMATION USING IOT

Author: RAVIKANT ASH, MATISH BANGERA, SWARAJ CHAVAN,  
RAHUL KADAM

Project Guide: SAVITA KULKARNI

Abstracts: Main aim of our project is to make home simpler, better, accessible and energy efficient. Because of inadequate energy infrastructure and extensive energy usage, intelligent energy management systems need to be incorporated in order to use energy more efficiently and to make an effective safe environment not only in industries but also in other ways of our day to day lives. IoT based application has also provided the boom for old aged people and the person having some sort of disability. This allows the user to control the home automation device such as fan, bulb etc., without even making any physical connection because of which it makes our day to day life simpler and easier, comfortable and convenient.

Acc. No. PR 2188 (21)

ST.FRANCIS INSTITUTE OF TECHNOLOGY (ENGINEERING COLLEGE)  
SVP ROAD, MT.POINSUR, BORIVALI (WEST), MUMBAI 400103

Title: DEEP LEARNING APPROACH FOR BRAIN TUMOR  
CLASSIFICATION

Author: ROYSTON D MELLO, ANISA VICTORIA FURTADO, JENIS AC  
ARIVARASU,

Project Guide: PALLAVI PATIL

Abstracts: Deep learning plays a major role in medical automation, Convolutional Neural Networks (CNN) is an important machine learning technique for medical image segmentation and classification. Brain tumor localization and segmentation from magnetic resonance imaging (MRI) are hard and important tasks for several applications in the field of medical analysis. Manual segmentation is time consuming and labor intensive, and existing automatic segmentation methods suffer from issues such as numerous parameters and low precision. We would be developing a fully automatic brain tumor segmentation and classification model using a Deep Convolutional Neural Network that includes a multiscale approach. One of the differences of our proposal with respect to previous works is that input images are processed in three spatial scales along different processing pathways. The proposed neural model would be able to analyze MRI images containing three types of tumors: meningioma, glioma, and pituitary tumor, over sagittal, coronal, and axial views and does not need preprocessing of input images to remove skull or vertebral column parts in advance. The performance of our method on a publicly available MRI image dataset of 3064 slices from 233 patients is compared with previously classical machine learning and deep learning published methods.

Acc. No. PR 2189 (22)

Title: OPTICAL CHARACTER RECOGNITION FOR SANSKRIT USING  
CONVOLUTIONAL NEURALNETWORKS

Author: SHAMIKSHA PAI, MANSI RATHOD, SAHIL SAWANT,  
SUDARSHAN PARANJAPE

Project Guide: PALLAVI PATIL

Abstracts: Sanskrit is most ancient and sacred language for Hindus, Buddhists and the Jain Community. One of the oldest Indo-European languages for which substantial documentation exists, Sanskrit is believed to have been the general language of the greater Indian Subcontinent in ancient times. It is still used

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today in Hindu religious rituals, Buddhist hymns and chants, and Jain texts. Sanskrit holds great literature on topics which are of importance even today. Many research works done in various regional languages such as Hindi, Marathi, Gujarati, Kannada, etc. but not much in Sanskrit. Essential to digitize such ancient manuscripts which are not only important for research but are also an important part of the culture and heritage of India. Google Translate supports more than 100 languages but does not support Sanskrit language

Acc. No. PR 2190 (23)

Title: ANALYSIS OF OPTICAL AMPLIFIERS

Author: SHELDON KOTIAN, SAIKRISHNA PANCHIRI, SHUBH PANDYA, SHERWIN

D MELLO,

Project Guide: MONIKA CHEEMA

Abstracts: This project is focused on the comparison of Erbium Doped Fiber Amplifier (EDFA) and Semiconductor Optical Amplifier (SOA). SOA is like a traveling wave amplifier, where many reflections do not take place in the optical cavity. In this project the length of fiber, injection current, wavelength, input power and the position of the amplifier has been varied. Also, attenuation is added to fiber. EDFA has a fiber whose core is heavily doped with Erbium ions. Erbium ions have quantum levels which allow them to be simulated to emit a 1550nm band and have the lowest power loss with silica based fiber. OptiSystem software has been used as it allows the design and simulation of optical fiber amplifiers and fiber lasers. It is based on realistic optical fiber communication systems.

Acc. No. PR 2191 (24)

Title: MITIGATION OF DDOS ATTACK ON SDN NETWORKS USING ML ALGORITHM

Author: SHERYL PETER, HAFSA SHAIKH, SAHIL SHARMA, SUIWAL, NITIN

Project Guide: RAMJEE YADAV

Abstracts: Software-Defined Networking (SDN) is a dynamic, and manageable network architecture which is more cost-effective than existing network

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architectures. The idea behind this architecture is to centralize intelligence from the network hardware and funnel this intelligence to the management system (controller). Since the centralized SDN controller controls the entire network and manages policies and the flow of the traffic throughout the network, it can be considered as single point of control for implementing security algorithms. It is important to find some ways to identify different types of attacks in SDN Network. Distributed Denial of Service (DDoS) attack is one of the most dangerous attacks on SDN controller. In this work, we implemented DDoS attack on the RYU controller in a tree network topology. Also, we used a machine learning method, Support Vector Machines (SVM) to detect DDoS attack. Simulation results shows DDoS attacks and mitigation using SVM implemented at RYU controller.

Acc. No. PR 2192 (25)

Title: PATH TRACING ALGORITHM TO FIND SAFEST ROUTE BY AVOIDING CLUSTERS

Author: SHUBHAM MUKHERJEE, DEV SURTI, HARSH SHAH, YASH YADAV,

Project Guide: KEVIN NORONHA

Abstracts: Tracing a path to avoid clusters and to find the safest route is a special case of data mining classification. For instance, in the public safety domain, it may be interesting to plot the location of Covid-19, crime locations, construction places, broken roadways hot spots as well as to find the safest path avoiding these locations. This can be done by taking the input data file and visualizing it using a map api and based on that, plotting 2 paths : shortest and the safest path. For input, main coordinates of the threat location can be taken based on these coordinates, clusters can be plotted and can be of any size and shape. After plotting these clusters in a map api, a path which will be the shortest path independent of any cluster coming along the way will be plotted and a safe shortest path which will take clusters as an input and avoid those clusters. Clustering is done on places where threat occurred, factors involved in crime, COVID area, etc

Acc. No. PR 2193 (26)

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Title: LOAN PREDICTION USING MACHINE LEARNING

Author: SHUBHAM SHELAR, HRISHIKESH SONAR, MAYURESH SAWANT, SOHAM SHINDE

Project Guide: SNEHAL LOPES

Abstracts: The cost of means is adding day by day and the capital needed to buy an entire asset is veritably high. So copping it out of your savings isn't possible. The easiest way to get the needed finances is to apply for a loan. But taking a loan is a veritably time consuming process. The operation has to go through a lot of stages and it's still not necessary that it'll be approved. To drop the blessing time and to drop the threat associated with the loan numerous loan vaticination models were introduced. The end of this design was to compare the colorful Loan Vaticination Models and show which is the stylish one with the least quantum of error and could be used by banks in the real world to prognosticate if the loan should be approved or not taking the threat factor in mind. This can be useful in reducing the time and force needed to authorize loans and sludge out the perfect campaigners for furnishing loans. In our banking system, banks have numerous products to vend but the main source of income of any bank is on its credit line. So they can earn from the interest of those loans which they credits. Loan vaticination is a veritably common real-life problem that every finance company or bank faces in their lending operations. If the loan blessing process is automated, it can save a lot of man hours and ameliorate the speed of service to the guests. The increase in client satisfaction and savings in functional costs are significant. A bank's profit or a loss depends to a large extent on loans i.e. whether the guests are paying back the loan or defaulting. By prognosticating the loan defaulters, the bank can reduce it's Non-Performing Means. A veritably important approach in prophetic analytics is used to study the problem of prognosticating loan defaulters. We'll use the loan vaticination dataset to automate the loan eligibility process(real time) grounded on client details handed like Education, Loan Quantum, Credit history, Income etc. Since we've to classify whether the loan will get approved or not.

Acc. No. PR 2194 (27)

Title: DEPLOYING DEEP LEARNING ALGORITHM ON AWS CLOUD PLATFORM

Author: LENOX FERNANDES, SMEET GOHIL, LAVESH LALWANI, RAYAN, JERISH

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Project Guide: RAMJEE YADAV

Abstracts: Deploying deep learning algorithms on hardware platforms is difficult as it requires lots of computational power, it becomes tedious, expensive, and contains very few options for remote access. An organized cloud architecture can mitigate these factors and provide a cost-effective, automatically scalable (up or down), and elastic real-time on-demand AI solution. In this project, we propose an architecture which consists of cloud services that help us to host the deep learning algorithm and get the output predictions in real-time. These predictions are based on human activity and are displayed on the website. The website is used to feed input videos to the model; the website is also deployed on the cloud platform to increase the overall performance, security, cost-effective and provides easy maintenance.

Acc. No. PR 2195(28)

Title: HUMAN ACTIVITY RECOGNITION USING DEEP LEARNING

Author: SMITH BARBOSE, PRAGATI PATIL, AMISHA RATHOD, SAJOL REBELLO

Project Guide: RAVINDRA CHAUDHARI

Abstracts: Surveillance videos can capture a variety of realistic anomalies/unlawfully activities but there is no real-time analysis of those captured feed. In this project we propose, two different methods to detect anomaly activities in real-time, 1. Multiple classes by detecting single activity in real-time and 2. Normal activities and Unlawful activities. Our proposed algorithm for video time-scale squeezing was able to standardize the UCF-Crime dataset by rewriting each video with a fixed time length of 1 second in total creating a new standardized dataset. The proposed methods were trained on a 3D residual neural network (ResNet 3D 18) with our unique data preprocessing method along with our algorithm for data-set augmentation which achieves significant improvement in anomaly detection performance as compared to the state-of-the-art approaches. Our prediction method itself is 25-30 times faster than any other method/script/algorithm available on the Internet. It is capable of analysing long untrim videos and segmenting the unlawfully/anomaly activities in an efficient way.

Acc. No. PR 2196 (29)

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Title: HEART DISEASE IDENTIFICATION METHOD USING MACHINE LEARNING

Author: SAMUEL ROBERT, SNEHA SABLE, SHOBAN AKSHAY GIRIDHARAN, PAYAL THROAT

Project Guide: PALLAVI PATIL

Abstracts: Heart disease, alternatively known as cardiovascular disease, encases various conditions that impact the heart and is the primary basis of death worldwide over the span of the past few decades. Machine Learning is used across many ranges around the world. The healthcare industry is no exclusion. Machine Learning can play an essential role in predicting presence/absence of locomotors disorders, heart diseases and more. Such information, if predicted well in advance, can provide important intuitions to doctors who can then adapt their diagnosis and dealing per patient basis. We work on predicting possible heart diseases in people using Machine Learning algorithms. In this project we perform the comparative analysis of classifiers like Decision Tree, Naive Bayes, Logistic Regression, Support Vector Machine and Random Forest. It uses Heart Statlog Cleaveland Hungary Dataset of UCI repository. In this Dataset there are 1190 instances and 12 attributes. This research paper aims to envision the probability of developing heart disease in the patients. The results portray that the highest accuracy score is achieved with Random Forest.

Acc. No. PR 2197(30)

Title: LI-FI AN ALTERNATIVE TO WI-FI

Author: SUMIT RANA, SIDDHARTH SAVALIYA, MANAV PAREKH, RAO, GAGANA

Project Guide: JAYASUDHA KOTI

Abstracts: Li-Fi technology consists of an transmitter side and a photodetector on the receiver side. Li-Fi terms was first introduced by Professor Harald Haas at the TED Global Talk 2011. Li-Fi was a visual light spectrum for optical wireless communication. The range of visual spectrum ranges from 300 GHZ to 700 GHZ. We have transmitted text and audio using optical wireless communication. The keypad is used as input. The Arduino converts the information into binary which is fed to the LED. In the receiver section, the

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LDR sensor receives the binary pulses from the transmitter side which are fed to Arduino. Arduino receives this pulse and converts it into actual data and displays it on an LCD. For transmission of audio using Li-Fi the audio is used as input. The transmitter side consists of Led which detects the signal. On the receiver side, the photo transmitter detects the signal and passes them to an amplifier circuit. The amplifier amplifies the signal, and the signal is passed to the loudspeaker. The LED and photodiode are optocoupled. The advantages of using an optocoupler are there is no interference, stable operation, and high transmission efficiency. We able to make one application of Li-Fi i.e., Fire detector using optical wireless communication, in which the LCD prints the Alert message, and the LED will be 'ON' whenever the temperature crosses a threshold value

Acc. No. PR 2198 (31)

Title: VEHICLE SAFETY SYSTEM AND TELEMATICS

Author: VRAJ PARIKH, ABHISHEK RAJPUT, URVANSH SHAH,  
ABHISHEK SHINDE

Project Guide: SAVITA KULKARNI

Abstracts: Internet of Things is one of the most promising technologies that we are currently witnessing. With 98 % of Network Available throughout India, it is now convenient to implement IoT solutions to almost every domain and use cases. One of the domain that is yet to be IoT enabled in India is Roads and Highway Safety. The aim is to implement a IoT enabled Vehicular Telematics System that will help the end user in the times of emergencies by providing a quick response from the contact nodes. The end user can also the get the real time vehicle information and data on the phone in real time.

Acc. No. PR 2199 (32)

Title: HADAMARD CODED MODULATION: AN ALTERNATIVE TO  
MULTICARRIER MODULATION

Author: ASHUTOSH PANDEY, VAIBHAV RATHOD, NIPUN SAIGAL,  
SAGAR SAKHIYA

Project Guide: JAYASUDHA KOTI



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Abstracts: Orthogonal frequency division multiplexing (OFDM) is a modulation technique susceptible to source, channel and amplifier nonlinearities because of its high peak-to-average ratio (PAPR). The distortion gets worse by increasing the average power of the OFDM signals since larger portion of the signals are affected by nonlinearity. Hadamard coded modulation (HCM) that uses the fast Walsh-Hadamard transform (FWHT) to modulate data as an alternative technique to Multicarrier modulation. In our Project we have implemented the transmitter section using OFDM and HCM. Then we compared the PAPR values of OFDM and HCM. Based on the simulation results it has been observed that PAPR of HCM is less as compared to PAPR of transmitter section using OFDM. HCM technique is shown to have a better performance.

Acc. No. PR 2200 (33)

Title: REAL-TIME DROWSINESS AND YAWN DETECTION USING PYTHON IN RASPBERRY

Author: AAKASH SARDAL, DHANRAJ SHETTY, VISHESH SHETTY, CHRIS THOMAS, T M

Project Guide: SHILPA CHAMAN

Abstracts: Our Driver Assistance System is currently improving not only the driving experience but also the overall road safety. In recent years, driver drowsiness has been one of the major causes of road accidents which can lead to severe physical injuries, deaths and significant economic losses. Obviously, there is a need of a reliable, driver drowsiness detection system which could alert the driver before an accident happens. Therefore, the purpose of this project is to design a computer-vision-based real-time driver monitoring scheme which is aimed at monitoring the driver's drowsiness level and distraction in Driver Assistance System (DAS) perspective in order to reduce the fatalities of car accidents. Our prototype system of monitoring the driver's drowsiness level is developed using Raspberry Pi as a processing chip with camera module which is to monitor the driver and also a speaker buzzer to provide the sound alert to the driver. The framework is proposed to alert the drowsy driver by detecting the driver's face and eyes using facial landmark and calculating the rate of eyes closure in order to determine the drowsiness level of the driver.

Acc. No. PR 2201 (34)

ST.FRANCIS INSTITUTE OF TECHNOLOGY (ENGINEERING COLLEGE)  
SVP ROAD, MT.POINSUR, BORIVALI (WEST), MUMBAI 400103  
Title: MELODY GENERATION USING RNN-LSTM

Author: YASH BAGUL, PURVESH BANE, SWARANGI BANE, NISHANK DAVE

Project Guide: KEVIN NORONHA

Abstracts: Automated music generation has always been one of the principal targets of applying AI to music. With recent breakthroughs in artificial neural networks, deep generative models have become one of the leading techniques for automated music generation, and many systems have generated more convincing results than traditional rule-based methods. In recent years, neural networks have been used to generate symbolic melodies. However, the long-term structure in the melody has posed great difficulty to design a good model. Recurrent neural networks have been deployed as models for learning musical processes, by computational scientists who study processes such as dynamic systems. Over time, more intricate music has been learned as the state of the art recurrent networks improve. One particular recurrent network, the Long Short-Term Memory (LSTM) network, shows promise as a module that can learn long songs, and generate new songs.

Acc. No. PR 2202 (35)

### INFT

Title: NEAR HUMAN-LEVEL STYLE TRANSFER

Author: RAHUL RAYMOND PEREIRA, BERYL BONIFACE COUNTINHO, JENSLEE JAMES DSOUZA, CYRUS PHILIP FERREIRA,

Project Guide: VAISHALI JADHAV

Abstracts: The masterpiece of an artist implies great aesthetic value while few of them can survive through years. Thus, extracting and representing the style of an artwork becomes an essential task that inspires generations to inherit and revive them. Style transfer, derived from image synthesis, aiming to transfer the style from the source image to the target while keeping the original spatial structure, has been studied for years to represent and synthesize the style from art paintings to natural images. Style Transfer refers to the technique of combining two images: a content image and a style image. The style contents of the style image are superimposed onto the content image to create a visually appealing output image. VGG19 Convolutional Neural Network has been used

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for extracting the style and content features of both images as feature maps.

This model has been pre-trained on the ImageNet dataset. A Super Resolution Generative Adversarial Network (SRGAN) upscales the resulting output image obtained from the Style Transfer process to a higher resolution while keeping its original features intact. This entire model was specialized for artistic images and not having to train the model whenever another style image had to be used. There is still some room for reduction in the processing time, either by increasing the number of GPUs available to the model or by optimizing the code.

Acc. No. PR 2134 (1)

Title: AR BASED FURNITURE APP USING AR CORE

Author: ASHIK PRAKASH, Dion Chettiar, Clive D'souza, James D'souza

Project Guide: Alvina Alphonso

Abstracts: Augmented Reality is a blend of a genuine and a PC produced or virtual world. It is achieved by augmenting computer-generated images in the real world. It is of four types of namely marker based, marker less based, projection based, and superimposition based augmented reality. It offers a variety of applications in the real world. AR is used in various fields such as medical, education, manufacturing, robotics and entertainment. The following paper focuses on marker less based AR. The team has developed an android application that uses marker less based AR to project various furniture in an augmented environment that will better help the user visualize their home interior decor and be able to make educated decisions based on the visuals provided by the interior decor application. This study proposes another technique for applying Augmented Reality innovation to interior design work, where a client can see virtual furnishings and speak with 3D virtual furniture utilizing a dynamic and adaptable UI.

Acc. No. PR 2135 (2)

Title: Conversational Chatbot Imitating Human Personality

Author: Almasfiza Shaikh, Royce Lobo, Kashyap Talati, Yash Kudalkar

Project Guide: Prachi Raut

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Abstracts: In this thesis, work has been done to understand the existing scenario and trends in personality based chatbots. Literature survey has been conducted on the different studies conducted in the chatbot domain. As a part of the implementation, we implemented Microsoft DialoGPT and Ope-nAI's DaVinci model, trained on our own pre-processed data from WhatsApp conversations. Re-research has been performed into the evaluation paramteres prevelant for the chatbot industries and similarity check has been performed for the different bots created as a part of the implementation.

Acc. No. PR 2136 (3)

Title: Android Security App

Author: Shriya Wade, Anushka Yadav, Mihir Kanade, Giselle Coutinho

Project Guide: MINAL LOPES

Abstracts: Various anti-malware operating system suffers from serious flaws across the Android device. Due to the limitations of these devices, you will not be able to access or monitor the dynamic behavior of your Android device's file system or installed apps. This includes downloading harmful application after installation. In this proposed methodology, the Android Security App will consist of 3 different features: 1. Internal Scans, 2. Detect Malware, 3. Boosting the RAM.

1: Scan Now-In Scan Now the user will get to know if any pre-installed apps are malicious or not. The pre-installed app will get scanned automatically. This feature is used for direct blocking the malicious apps.

2: Detect Malware- Detect malware is based on signature detection. It will detect the app's signature and signatures stored in database. If the signatures match with each other then the app will be detected as malicious.

3. Boosting the RAM: -The Android Security App will have an option through which it can clear the cache data of all the applications existing on the Android device. This clearing of cache data will thus result in boosting the RAM of the device.

Acc. No. PR 2137 (4)

Title: Movies Recommendation System

Author: Simran Dadhich, Pritesh Patne, Shubham Pawar, Priya Ratanghayra

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Project Guide: SHREE JASWAL

Abstracts: A Recommendation System is a filtration program whose prime goal is to predict the “rating” or “preference” of a user towards a domain-specific item or item. In our case, this domain-specific item is a movie, therefore the main focus of our recommendation system is to filter and predict only those movies which a user would prefer given some data about the user. The purpose of a recommendation system basically is to search for content that would be interesting to an individual. Moreover, it involves a number of factors to create personalized lists of useful and interesting content specific to each user/individual. These results are based on their profile, search/browsing history, what other people with similar traits/demographics are watching, and how likely are you to watch those movies. This is achieved through predictive modelling and heuristics with the data available. This recommending system uses cosine similarity which is a type of content-based filtering method to recommend similar movies to the user. Additional information about the searched movie will also be provided. The additional information includes a Movie Poster, an Overview of the movie, a Rating of the movie, Genres, the Run time of the movie, and its status which can either be released or unreleased. This system will also provide the user with sentiment analysis on the reviews of the movie. These functions of this system will prove to be very useful to the user and consequently save a lot of time, which the user can invest in actually watching the movie he/she likes.

Acc. No. PR 2138 (5)

Title: SMART PARKING BOOKING SYSTEM

Author: SONAL HOLANKAR, PARTH MEHTA, SAURABH PATHARE,  
PATIL, RUTUJA

Project Guide: PRIYA CHAUDHARI

Abstracts: Many people consumes their own transport consistently. It is very challenging for the people to find parking space in their day-to-day life. The technological expansion has an influence for the shipping segment. One of them is about finding parking space for each vehicle. To search a vacant space for a parking the vehicle, the consumer must look up for a parking portion that has been provided for a parking. But it is quite difficult because the space offered for a parking is very limited and the number of vehicles that requires parking space is very high. It takes comparatively longer time for a user to get a vacant space which can result in a traffic bottleneck in the assigned a lot. As a solution

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an Android application is developed to solve this problem efficiently. This smart application authorizes a user to search the availability of parking space and a book it accordingly. It can decrease the fuel ingestion and pollution in metropolitan cities and in a turn will help in increasing the economy. The proposed a system is less human dependent by automating the entire parking slot-for the users. The system offers an android application based a reservation where users can view various parking areas and select the space to view whether space is available or not. If the parking slot is available, then the user can book it for a specific time period. An android application includes additional features which are cancelling

Acc. No. PR 2139 (6)

Title: WALL PAINT VISUALIZER

Author: MARTIN DEVASIA, SAKSHI SHETTY, SHELDON MOONJELIL,  
LEANDER PEREIRA

Project Guide: VAISHALI JADHAV

Abstracts: Most of the time when we wish to paint our houses or any other establishments, the traditional and the common way of selecting the wall paint colors is by personally visiting a wall paint retailer to refer to their paint catalog. The paint catalog that these vendors have usually had only a limited range of colors and very little range of color combinations and we cannot visualize how the paint color will look exactly on the wall before it is painted on the wall. Therefore, we present the development of a Wall Paint Visualizer which will help a user or customer select from a wide range of colors and help project these colors on the wall in a virtual manner helping in the realistic visualization of the painted wall even before it is painted on that wall. In this project, a captured image of a wall will be taken as the input and the wall plane is detected and the masking of the wall that needs to be painted is done. The paint visualization is done by selecting the paint colors from a color palette, if needed as per user requirements combining a set of colors and then virtually visualizing them on the walls in a realistic manner. For the detection of the wall, we have used the Detectron2 model. The algorithms that we have used in our project are Canny Edge Detection algorithm for detecting the edges of the different walls and Flood Fill algorithm for the virtual painting of the walls.

Acc. No. PR 2140 (7)

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Title: MULTI-PURPOSE DRONE

Author: VEDANT ZALKE, DAVID RODRIGUES, DEVESH SHARMA,  
VAZ, ALSTEN

Project Guide: PRACHI RAUT

Abstracts: With a tremendous increase in the sale of goods through E-commerce websites, which is ever increasing, has caused an increase in the load on manpower for delivery. Along with the manpower the time taken can also be reduced by using unmanned drones at the time of the final shipment. In addition to this the drone can be used for surveillance, in areas which are inaccessible. We are able to use UAVs in numerous sectors like disaster rescue, industry for shipping of cloth in much less time, Agriculture to check the condition of crops and the navy use has grown up as consistent with the capability of Drone to operate in crucial regions whilst keeping their operators at a secure distance.

Acc. No. PR 2141 (8)

Title: IN HOUSE IOT BASED SMART GARDEN MONITORING SYSTEM

Author: SAMUEL DMELLO, MERVIN KAJAR, ROCHELLE DLIMA,  
JOSEPH, JENIFER

Project Guide: JOANNE GOMES

Abstracts: The Cloud-based techniques emerging Internet of Things with Wireless Sensor Networks are enabling many new applications and new opportunities to people. Due to busy schedule, there is negligence towards gardening which affects the health of plants. In the existing systems, real-time sensor status are directly monitored and controlled by end-users through mobile applications. However, in-case of failure to check the application and in-corrective measures taken can lead to wastage of resources. The proposed system is automatically influenced by the processes that trigger actions with or without human intervention. It presents the design, implementation and process of a model which can gather data related to home gardening like humidity, temperature, moisture, push the gathered data for analysis, generate alerts and notify it to the user for appropriate actions.

Acc. No. PR 2142 (9)

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Title: SignEnd : An Indian Sign Language Assistant

Author: Leafia Dias, Ketaki Keluskar, Anviksha Dixit, Krunal Doshi

Project Guide: Joanne Gomes

Abstracts: Communication is an essential day-to-day activity that human society thrives on. Indian Sign Language (ISL) is one form of oral communication among the deaf-mute community in India. As the general public tends to be unaware of this form of interaction, daily conversations are strenuous for a deaf-mute person. Previously created systems focus on detecting alpha-numeric signs pertaining to users with five fingers solely. This paper describes an ISL system that can recognize the alpha-numeric hand signs of users with five and six fingers and translate them into their corresponding text equivalences. A custom dataset is created that explicitly tailors to these requirements. Additionally, this system can provide the sign equivalent for entered text or audio input (letter, number, word, sentence). Sign-to-Text conversion is achieved using Media pipe-Hands Machine Learning (ML) model to detect hand signs by deaf-mute people with five fingers. Similarly, an Object Detection Application Programming Interface (API) is implemented to detect hand signs by users with six fingers. Presently, the proposed system has an average accuracy of 90 percent.

Acc. No. PR 2143(10)

Title: ASTRONOMICAL ALMANAC ALGORITHM BASED DUAL AXIS SOLAR TRACKER

Author: KARISHMA BORKAR, ORPHEUS GONSALVES, SHEFALI PEREIRA, CLANE RUMAO

Project Guide: PRACHI RAUT

Abstracts: The main problem now is the fossil energy exhaustion, the non-renewable energy like fuel and coal are running out due to continuous use. Solar energy is the energy that is obtained from the sun and it is environment friendly, a renewable energy source that produces no pollution requires minimal maintenance and free energy from the sun. Our system presents the method for sun-tracking by using a dual-axis solar tracking system that uses the latest sun-tracking Astronomical Almanac (AA) algorithm. The hardware is divided into two modules - the weather station and the solar tracking panel area. A weather



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station is integrated with the system so as to provide users with real-time access to data, allowing them to adapt to the changing weather conditions by tilting the panel axis towards solar energy. The proposed system shall be connected to an IOT-based tool allowing the user to access and view the information.

Acc. No. PR 2144 (11)

Title: Automated Cricket Instructor

Author: Jovita D'lima, Abhishek Sunkale, Sneh Modi, Shruti Gupta

Project Guide: Aruna Pavate

Abstracts: The project topic is Automated Cricket Instructor which is a system used to predict and analyze the shot played by a batsman. The system checks whether the shot played by the batsman is played ideally or not by passing the input data in the ML model. The project considers three factors into considerations 1. Head Position, 2. Feet Position, 3. Angle of Bat The project comprises of a 3-phase system i.e. Input phase, Analysis Phase, Output phase respectively. The significance of the project is that quality assessment in cricket is a complex task that is performed by understanding the combination of individual activities a player is able to perform and by assessing how well these activities are performed. In this paper, we propose a framework to automate cricket shot identification and feedback generation using sensor data as a feature for machine learning models.

Acc. No. PR 2145 (12)

Title: COLLATING SQL WITH NOSQL DATABASES FOR BASEBALL  
PLAYER ANALYSIS

Author: DYLAN COELHO, LEON CORREIA, FERNANDO, CLIFF  
MACHADO

Project Guide: SHREE JASWAL

Abstracts: Big Data Tools and Machine learning algorithms have been applied to data analytics and prediction frequently. The project evaluates and illustrates the differences between SQL and NoSQL for storage of Big Data and processing and compares various algorithms used for analysis and predictions. The project shows our basic understanding of Hadoop and Spark cloud and compares the two platforms on various parameters such as the time taken for

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input data and the time taken for the output data and the total memory used by the databases. The system has implementing the Databases in Hadoop and Spark. In Hadoop, the Hive database will be used for implementing the SQL part and Cassandra for NOSQL. In Spark the SQL part will be implemented using PostGreSQL and NOSQL uses MongoDB. We get the end results by comparing various parameters like the input, output data and the total memory used will be represented graphically after which a user will be in a position to choose the appropriate database according to their requirements. Additionally, we will also be studying and comparing various Machine Learning algorithms by implementing them on the selected dataset. To compare the algorithms, we will be considering parameters of Accuracy, Root Mean Square Error and Mean Absolute Value. Choosing the right machine learning algorithm can be difficult but doing so is essential to answering the given question with great speed and accuracy. The final research results will be illustrated with the help of graph on a UI which will help to better understand the results obtained on our selected dataset for this particular project.

Acc. No. PR 2146 (13)

Title: CUSTOMIZED E-LEARNING USING IMAGE PROCESSING

Author: AYUSHI BALWANT, JOYLYNM DSOUZA, CALVIN MATHIAS, STANCY NADAR

Project Guide: PRIYA CHAUDHARI

Abstracts: We all are aware of the current situation of Covid-19 in the world, and in this situation, the Education system is one of the most badly affected systems of all. The traditional teaching of chalk and board has turned to presentations from laptops. But sometimes the new method of presentations is not convenient for teaching some subjects. So, this proposed system will be a bridge from the traditional method of chalk and board to the live lecture online. In this proposed system, the educationist can use the traditional method to teach which will be live-streamed and also be recorded and stored on the educator's laptop for future usage, these videos will be live and with the use of MATLAB R2014a codes the video will be auto cropped so that it will be clear and focused at the required position at the receiving end i.e. students. Simultaneously, the video is converted into frames and from these frames, the content written on the board will be extracted and converted in the form of notes or study material for the students using Python 3. All these processes are done using Image processing

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Acc. No. PR 2147 (14)

Title: EATSMART- CALORIE ESTIMATION APPLICATION

Author: Seedhita Chavan, Siddhesh Dhoke, Viren Parmar, Rohan Raval

Project Guide: Nitika Rai

Abstracts: In today's world, a healthy lifestyle is a must for every individual. Exercise is important to staying healthy but keeping an eye on your diet is more important. People have started to become more conscious of what they consume and how much they consume. Everyone wants to keep their diet under control and avoid obesity. In this paper, the system proposes an android-based application - EatS-mart, which helps to predict the calories and nutritional values of food by a single click of the image. The application also offers various diet-friendly recipes and helps end-users connect with various nutritionists or dietitians across the city. The system uses the CNN algorithm to predict various food items. The model is a 12-layer deep convolutional neural network trained for 21 classes and achieves an accuracy of 92.36

Acc. No. PR 2148 (15)

Title: Navigenix - Indoor Navigation

Author: Yashodeep Pawar, Medha Kumble, Shreyas Tulpule, Niharika Pattabhi

Project Guide: Amrita Mathur

Abstracts: The purpose of this project is to develop an app that will assist students in navigating the college campus. This software will be accessible to anyone on campus who has a smartphone. Not only would the programme assist the user in finding rooms and halls, but it will also display the status of any current staff members. In addition to the traditional map view available in apps like Google Maps, the programme will leverage augmented reality technology to depict the path to the inputted location in the form of three-dimensional arrows and visual cues. The user's experience will be enhanced as a result of this. Staff members will be able to set a status for their profile, such as "online" or "offline," which will indicate whether they are accessible to be reached or prefer not to be disturbed to people looking for them. By using the app, users will save time and have an easier time navigating the college campus.

Acc. No. PR 2149 (16)

Title: SMARTSETGO

Author: JILSON CORREIA, LISA FOSS, MAGNUS LOPES, TANYA RODRIGUES

Project Guide: SONALI SURYAVANSHI

Abstracts: E-learning is being used nowadays in many institutes and universities and is also gaining popularity, which provides a learning platform by using information with electronic medium and technologies for communication. We can use E-learning as another alternative, such as computer based training, online education or technology enhanced learning and others. The purpose of creating an E-Learning Web Application is to provide an interactive self-learning online platform for everyone. Considering COVID-19 situation there is no doubt how important the online education system is, being a part of the education systems, we realized that there is a need for a platform where the students after us and also our fellow peers can find most of the schooling content in the same place. We bring an idea for building a web-based application that includes features like face recognition for login, Real time text editor for coding assignment and different sections for posting lecture videos, notes, assignments and a question and answer section, with a simple easy to understand user interface so that students can use this service.

Acc. No. PR 2150 (17)

Title: LOCAL SHOP SEARCHER

Author: PURANJAY NAYAN POTNIS, KEVIN RODRIGUES, FELICIA SEQUEIRA, RELSON PINTO,

Project Guide: GRINAL TUSCANO

Abstracts: Due to the lack of technology in the decision-making process, intelligent systems (IS) were developed. IS are technologically advanced machines that perceive and respond to the world around them. The main ability of these systems is to be able to adapt to the data they receive. Recommendation systems (RS) represent an integral part of intelligent systems. The main goal of an RS is to help users to streamline their decision-making process. While most of the RS ace this task, most of the recommendation engines do not consider

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user's temporal as well as location parameters while generating recommendations, hence this project presents the design and implementation of a Time and Location Context Aware Recommendation System (TLCARS) which has been integrated into mobile application for better user experience. Considering the time and location data of users, helps the system in better understanding what to recommend, when to recommend and which places to recommend. Therefore, the system considers parameters such as time and location, each of which are filtered through to get meaningful recommendations for each user. TLCARS will benefit the user, by reducing the amount of input the user will provide in receiving their personalized recommendations.

Acc. No. PR 2151 (18)

Title: Chatbot using Speech Recognition for Educational Institute

Author: MEET POPAT, YASHRAJ RAI, DEEP VAKHARIA, AAYUSH DOSHI

Project Guide: GRINAL TUSCANO

Abstracts: The goal of this Chatbot that uses Speech Recognition in educational institutions is to automate and simplify the user experience by doing duties such as asking users what they're looking for and providing the information they require. The necessary software and hardware are readily available and simple to use. Using a chatbot on a college website can result in error-free and faster responses to user queries.

As it is both voice and text based, it assists the user as a human assisting with their questions. Using Python language and specifically using natural language toolkit (nltk) the chatbot has been developed. Without having to physically visit the campus, visitors to the college website can enjoy a user-like inquiry experience

Acc. No. PR 2152 (19)

Title: Recommender System for Home Remedy

Author: Sneha Mannekkad, Lohit Poojary, Shikha Shah, Sahil Shaikh

Project Guide: Joanne Gomes

Abstracts: In today's world, people are falling sick very frequently due to various types of reasons, such as drinking contaminated water, having allergies,

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being exposed to pollution, and seeing frequent weather changes. The elderly can recuperate from mild illnesses at home, as well as it may be difficult to visit the clinics during the pandemic situation. The solution to this problem is home remedy. Existing system like DIETOS, suggests nutritious diets on a daily basis based on the questionnaires filled by the users to improve the quality of life. This research paper presents a home remedy recommending system. The system suggests fruits and herbs as a home remedy to the user symptoms using different Data Mining algorithms. Based on the accuracy of these algorithms the user can then consume recommended fruits and herbs. The result of this research paper shows that among the four algorithms Decision Tree, Random Forest, Naive Bayes, and kNearest Neighbour used, Naïve Bayes gives the highest accuracy of recommendation.

Acc. No. PR 2153 (20)

Title: FASHION INTELLIGENCE:AN ARTIFICIAL INTELLIGENCE  
BASED CLOTHING FASHION STYLIST

Author: PAVAN RAVAL, LISSA RODRIGUES, RAJ SHAH, VRUTIK  
ADANI

Project Guide: VAISHALI JADHAV

Abstracts: Fashion Intelligence, a framework for transferring clothes across photos of persons with anybody posture, shape, and clothing. Garment transfer is a difficult process that needs (i) differentiating clothing characteristics from body position and shape and (ii) accurate synthesis of garment texture on the new body. Fashion Intelligence offers a neural network design that uses two task-specific sub-networks to address these sub-problems. Because it is difficult to obtain pairs of photographs depicting the same apparel on various bodies, It offers a unique weakly-supervised strategy that creates training pairs from a single image via data augmentation. We show some transfer outcomes and highlight our benefits over typical image to-image and analogy. We argue that the limitation stems from several challenges: as the resolution increases, the objects in the misaligned areas between the warped clothes and the desired clothing regions become visible in the final results; the architectures used in existing methods perform poorly in generating high quality body parts while maintaining the texture sharpness of the clothes. To overcome these issues, we present VITON-HD, Adaptive Content Generating and Preserving Network (ACGPN) and ALIAS

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normalization. We propose a revolutionary Fashion Intelligence approach that  
successfully synthesises pictures.

Acc. No. PR 2154 (21)

Title: Blockchain in Healthcare

Author: Reuben Coutinho, Anshika Gupta, Rhea Sera Rodrigues, Ankita  
Tripathi

Project Guide: Joanne Gomes

Abstracts: Electronic health records (EHR) are digital versions of the traditional paper-based medical records. Blockchain is a type of distributed database that can be updated and is shared across multiple computers. The existing EHRs suffer from data manipulation, delayed communication, and trustless cooperation in data collection, storage, and distribution, making it arduous to achieve the ACID principles- atomicity, consistency, integrity and durability. The project proposes a blockchain based mobile app with an integrated wallet for performing transactions to store and retrieve data on the blockchain network. The project demonstrates the use of a secondary off-chain system using IPFS and prescription tracking system to control drug overdose. Further, the project observes integration of role-based access control for the entities that interact with the contract having the hospital as the default admin. The project finds application at sectors requiring intense levels of data privacy and integrity like healthcare, finance, public records, etc.

Acc. No. PR 2155 (22)

Title: Social Distance Monitoring System

Author: PRITHVI SHETTY, SHITAANSHU SINGH, NISHIT THAKKAR,  
ELDHO, NELKIN

Project Guide: NITIKA RAI

Abstracts: Social distancing is a recommended solution by the World Health Organization (WHO) to minimize the spread of COVID-19 in public places. The majority of government and national health authorities have set the 2-m physical distancing as a mandatory safety measure in shopping centres, schools and other covered areas[2]. In this research, we develop Computer Vision and YOLOv3-based Deep Neural Network (DNN) model for automated people

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detection in the crowd in indoor and outdoor environments using common CCTV security cameras. The proposed YOLOv3 based DNN is extremely fast and accurate and 4x faster. The model has been trained against most comprehensive datasets by the time of the research—the Microsoft Common Objects in Context (MSCOCO) .The developed model is a generic and accurate people detection and tracking solution that can be applied in many other fields such as autonomous vehicles, human action recognition, anomaly detection, sports, crowd analysis, or any other research areas where the human detection is in the center of attention.

Acc. No. PR 2156 (23)

Title: ONLINE MARKETPLACE USING IMAGE-BASED SEARCH AND AUGMENTED REALITY

Author: PRINCITA FERNANDES, DIMPLE RAWAT, RONAK VAVWALA,

Project Guide: NITIKA RAI

Abstracts: The evolution of technology has stimulated the e-commerce market. Recently, augmented reality has been creating significant value in the retail sector. This project aims to analyse an application, which allows consumers to shop online using augmented reality technology without the need for a marker to identify the surface (Markerless Augmented Reality). The sustainability of this project is exploratory and involves identifying whether this application aims to create more confidence and convenience in the acquisition of a product through the support of this technology. Technology changes and it has been observed that it offers consumers more confidence and convenience of purchase. The online marketplace has shown significant results that were also obtained in terms of user experience, the preference of this kind of applications to make online purchases over existing channels, the future use of such technologies by users to purchase a product and the attraction of purchase regarding perceived ease of use of the application under analysis. For the past few years, e-commerce has changed the way people buy and sell products. People use this business model to do business over the Internet. In this domain, Human-Computer Interaction has been gaining momentum. Especially in the present situation, businesses are continuously wanting to take their products online. In order to make the process of buying more interactive, user friendly and give the customers a more wholesome experience, we have created an marketplace prototype which includes an image based search engine for better searching capabilities, a recommendation system so as to help the seller gain customer attention and an element of augmented reality to try out different



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products to give the consumer the authentic and memorable experience of buying a product. This report explains the proposed approach along with the implementation for the online marketplace.

Acc. No. PR 2157 (24)

Title: VIRTUAL COLLEGE TOUR

Author: JOSHUA DSOUZA, SELINA GER, LENI WILSON, NIKHIL LOBO,

Project Guide: NITIKA RAI

Abstracts: Virtual reality (VR) is a powerful and interactive technology that changes our life unlike any other. Virtual reality, which can also be termed as immersive multimedia, is the art of simulating a physical presence for the audience in places both real and imaginary. "Virtual Reality is a technology that can bring people to places they might not otherwise reach". As technology advances into the future Virtual Reality secures its place as an innovative and creative domain that has limitless possibilities, this includes simulating realism to such an extent that you can barely tell the difference between what is fake and what is real. This project aims to implement this sense of simulating Realism using VR and high textured 3d modelling into creating a Virtual Tour of St Francis Institute of Technology, an engineering college in Borivali. The project Virtual College Tour will give the new students as well as students interested in the college a virtual experience of our entire college, the campus and all the facilities that it has to offer. The project aims to spread awareness and help students to get a brief overview of the college without having to step into college physically. In the current scenario while the project was being built (2021-2022), the COVID-19 Pandemic has enforced a lockdown on all colleges. This project tackles the issue for new students specifically during this lockdown to explore the college from the inside as it is not possible for them because of the lockdown. The project will be built using Unity Engine which is a free software to build and develop games with support for VR, AR and much more. The college 3d model will be built accurately using real images and measurements from the college itself using Blender 3d which is a powerful 3d modelling and texturing software which is also capable of creating body rigs and animations. This project will be exported to Windows, Mac as well as for phones(Android) for people to use. It can be used without VR, but a VR Headset can be used along with the PC/Mobile application to enhance the experience of the virtual tour.

Acc. No. PR 2158 (25)

Title: Personality Predictors

Author: Hrutik Naik, Shruti Dedhia, Ashwini Dubbewar, Meet Joshi

Project Guide: Vandana Patil

Abstracts: Lately, there has been a massive spike up in the number of social network users. There is a massive evolution of social media platforms which have led to massive data generation. With this available data, there are large variations of methods to define personality of the users' based on their social behavior and patterns. With the aid of machine learning model and data-sets the main aim of this paper is to predict the Myers-Briggs Type Indicator (MBTI) personality type of the twitter user. The Myers-Briggs type Indicator is probably the maximum widely used personality check within the world. Understanding and appreciating variations amongst people is the purpose of learning about personality types. The need to evaluate the MBTI personality type is full filled using Machine Learning in this project. The predictor will help to predict 1 of 16 different personalities of the user based on the tweets of their Twitter account in order to analyse the psychological preferences of the users. The Tweets are pre-processed to get clean. After tokenizing of the data, deep learning model - LSTM (Long Short-Term Memory Networks) has been built. The predictor endeavours to get the unique type of the personality of the user. The predictor also enables users to investigate how their personality traits influence numerous elements of their lives. The system assesses the user's career suitability. The main aim to acquire the predictions of the MBTI personality types is full filled by this predictor.

Acc. No. PR 2159 (26)

Title: APPARELS: A SCALABLE E-COMMERCE CLOTHING STORE

Author: BRUNO COLAS, JOSTON FERNANDES, PRESTON FERNANDES,  
GUPTA, YASH

Project Guide: VANDANA PATIL

Abstracts: In today's modern world having an online website business is not only advantageous but also necessary for survival and growth of business. Now a days there is affiliation available for almost all business types, but the terms are sometimes not favourable for small businesses. In this project we are

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particularly targeting retail sectors as it is most affected during the current pandemic times. We aim to provide the sellers a subscription-based E-Commerce platform so they have the freedom to choose how much they wish to pay. Our project can also give boost to local businesses and startups as minimal investment would be required and definitely boost digital India campaign. Moreover it will encourage small businesses to widen their reach and be recognized on a global scale.

Acc. No. PR 2160 (27)

Title: SMART WHEELCHAIR SYSTEM

Author: MUKUNDA GUJJAR, KARAN SURVR, TELCY GOMES,  
VRUNDALI NAVADIYA

Project Guide: PRAJYOTI DSILVA

Abstracts: The internet of things (IOT), is a term that refers to the connection of objects to each other and to humans through the Internet. From having its wide application in numerous fields like healthcare, Agriculture, Smart cities etc, It has bridged the gap of connectivity by allowing remote monitoring form any place any time in the world. According to the United Nations World Travel Organization (UNWTO), people with disabilities has increased 2% per year in the decade since 2001 and is estimated at about 26.8 million which is is 2.1% of the India's population. Requiring constant monitoring, the elderly people as well as people with disabilities have the urge to travel. Most of the smart wheelchair systems focus on the mobility aspect of the wheelchair, the Smart Wheelchair System focuses on the heath monitoring as well as the accident detection aspect and provides a robust and quick alert in case of any health-related anomaly or if a fall is detected. This project aims to bring mobility in the health monitoring system so the user can be monitored remotely even on the wheelchair

Acc. No. PR 2161 (28)

Title: News Portal using NLP and Crime Data Visualization

Author: Rinston D'souza, Irvin Kunder, Parth Maniar, Jinu Panicker

Project Guide: Alvina Alphonso

Abstracts: Having access to current events and up-to-date information has value in the modern world, news about current events has become a necessity, and

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with an abundant amount of information on news portals, the amount of irrelevant data has also increased. To solve this problem a system was developed which summarizes the article and visualizes data to show it in a statistical manner. This system proposes a news portal for crime data that summarizes articles and visualizes the data. Text summarization will be done using Text rank algorithm and data visualization will be done with matplotlib.

Acc. No. PR 2162 (29)

Title: Identity Management System Using Blockchain.

Author: Jude Silviera, Neer Chanchad, Darshan Limbani, Singh Harsh

Project Guide: PRAJYOTI D'SILVA

Abstracts: ID management includes the user's identification and authentication process for accessing the services provided. From various divisions like banks, investments, healthcare, Government and online trading. Not identity management help only to determine if the client can access the system. However, customers also use access and authorization levels about the system In the modern digital world, more robust need is required digital Identity Management was not more important. Most online services require specific information review of his customer for review purposes. One of the main concerns is if you share this information with an online application, service providers may not save safely. There have witness some cases at the time when the data was last complimented without knowledge of the customer. Therefore, there is one you need a system that provides more controls by the user you can help avoid security infringement. We propose it in this job use of Ethereum-based block chain technology to have a hash block chain identity. Data hash the interplanetary file system (IPFS) and the corresponding hash are saved in the block chain. The third is requesting users from ID checks, in that case the user was informed about the type of document requested users can approve or deny access to the document. Result is enhances privacy, manages sensitive data, and speeds access service.

Acc. No. PR 2163 (30)

Title: SPORTS PREDICTOR USING MACHINE LEARNING ALGORITHMS

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Author: IGNATIUS ALMEIDA, GLADSTONE D SOUZA, AMIT YADAV,  
SIDDARTH SANDU

Project Guide: ARUNA PAVATE

Abstracts: Machine learning is a branch of artificial intelligence and is more often used to predict outcomes. A lucrative area like sports aid from ML as it forecast players' performance. Sports coaches, fanatics and enthusiasts get an insight in to improving a team's performance. In- game various factors, such as past fixtures, player statistics and opposition information-related data are used to form the sports prediction model. This work focuses on the use of SVM to predict a team and a player's performance, namely in hockey and football. This work has achieved R2 0.8780, MSE 0.0530 for football and R 2 0.8189 MSE 0.0021, RMSE 0.0464 for hockey using SVM algorithm.

Acc. No. PR 2164 (31)

Title: Click Fraud Detection System using ML

Author: REHAN FARGOSE, SAMARTH GAONKAR, PARAS JADHAV,  
HARSHIT JADIYA

Project Guide: MINAL LOPES

Abstracts: In present days due to the rise of the internet a business model known as online advertising has seen unprecedented success. However, it has also become a prime method through which criminals can scam people. By showing people extremely attractive but fake advertisements/offers scammers often extract a large sum of money from unaware people. Often times even legitimate websites contain advertisement links to scam websites since they are not verified by the website's owners. Scammers have become quite creative with their attacks, using various unorthodox and inconspicuous methods such as I-frames, Favicons, Proxy servers, Domains, etc. to rope unaware people into their scams and extort as much money from them as possible. Many modern Anti-viruses are paid services and hence not a feasible option for most users in 3rd world countries. Often people don't possess devices that have enough RAM to even run such software efficiently leaving them without any options. This project aims to create a Browser extension that will be able to distinguish between safe and unsafe websites by utilizing Machine Learning algorithms. This system is lightweight and free thus fulfilling the needs of most people looking for a cheap and reliable security solution and allowing people to surf the internet easily and safely.

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Acc. No. PR 2165 (32)

Title: SMART EXERCISE MONITORING APP

Author: Pritsam Dabre, Ruben Dabreo, Smily Tuscano, Rickie Sequiera

Project Guide: Prajyoti D'silva

Abstracts: Fitness is the state of human contentment and physical excellence of human body. In this tedious life, people tend to neglect their fitness and unconcern their health and wellbeing. They have no time to dedicate to their fitness and at times, also cannot afford to join a gym. People who try to exercise at home without the monitoring of a professional trainers are prone to serious injuries over the long run due to anomalies in their posture. To cater this problem, we put forth an idea of a system that monitors the posture of the person who is engaging in a particular exercise. We achieve this by plotting points on all the joints of a person to form a skeleton-like figure. This figure is then used for comparison with the reference frame and the different angles formed between its key points are compared with the angles formed between the reference frame and the confidence score is shown to the user. Any anomaly, if present, is reported to the user. The system will also keep track of the number of repetitions of a particular exercise performed by the user and inform the user about the amount of calories burned during the process. This structure facilitates individuals and bilateral exercise structure. This system is an innovative contribution to the Human Computer Interaction (HCI) domain.

Acc. No. PR 2166 (33)

Title: Talking Smart Glasses for the Blind

Author: Roxann Kadam, Dolwin Menezes, Hrithik Patil, Varian Rumao

Project Guide: Prajyoti D'silva

Abstracts: The Smart Glasses System is a device whose prime goal is to help the blind person move more freely and easily without any difficulties. The system will also include a Smart Cap which will detect the user temperature and alert if it exceeds. The purpose of this system basically is to help the virtually impaired. As there are multiple smart accessories such as smart glasses, smartwatches, etc. available in the market. But all of them are built for us. There is a significant lack of technology to aid the physically challenged. We wanted to build

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something that is useful for visually challenged people. So, we designed this  
low-cost system that can be used to help the visually impaired.

Acc. No. PR 2167 (34)

## MECH

Title: Nanofluids the Next Super Coolant for Radiator

Author: Craig J. Carvalho, Shridama P. Joshi, Swapnil S. Kashid, Prathmesh H. Kelkar

Project Guide: Magesh Nadar

Abstracts: A radiator is a mechanical device, which is extensively used in automobiles, buildings and electronics as a heat exchanger. Radiators are used to transfer thermal energy from one medium to another for the purpose of cooling and heating. A radiator is always a source of heat to its environment, although this may be for either the purpose of heating the environment, or for cooling the fluid or coolant supplied to it, as for automotive engine cooling and HVAC dry cooling towers. Despite the name, most radiators transfer the bulk of their heat via convection instead of thermal radiation. Radiators are classified according to the direction of the water flow through them. In some, the water flows from top to bottom-down flow type radiator. In other, the water flows horizontally from an input tank on one side to another tank on the other side-cross flow type radiator. Radiators are usually made of copper and brass because of their high heat conductivity. The various sections of the radiators are almost completely joined by soldering. There are two basic types of radiator, first is tubular type and second is cellular type. As the technology is developing day by day, there is a requirement for enhancement in performance of automobile radiator to have a better performance of the IC Engine and fuel effectiveness. A feasible solution to increase the effectiveness of the radiator will be the use of stabilized nanofluid. A mixture of small amount of solid particle, whose size is less than 100nm in the fluid phase, is termed as nanofluid.

Acc. No. PR 2065(1)

Title: IN-PIPE INSPECTION ROBOT

Author: Yash Doshi, Vedika Manelkar, Rudra Paradkar, Kaustubh Pawar

Project Guide: Sunil Pansare

Abstracts: An In-Pipe Inspection Robot having hybrid locomotion mechanism is designed for a pipe diameter of 500 mm to 600 mm. Pipes of these diameters are used in oil and gas, water supply lines, etc. The aim of this project is to utilise the advantages of hybrid locomotion techniques and design and manufacture a robot which can climb vertical pipes. The robot uses Non-Destructive Techniques for inspecting the pipe. We have used ultrasonic sensors for finding the location and intensity of the flaw. The robot uses a wall pressed mechanism for travelling in vertical walls and a track wheel for linear motion. The steering of the robot is done by applying the principle of differential. The robot was designed taking into consideration various design parameters and constraints. 3D CAD Modelling and subsequent simulation of critical components were undertaken on Dassault SolidWorks. Adequate literature survey and market survey was completed before getting into the designing phase for proper identification of problems and most viable solution towards the same. As a result, the robot successfully achieves its objectives as stated.

Acc. No. PR 2066(2)

Title: Basketball Rebounding Machine

Author: Dhruvin Panchal, Keith Pereira, Prajyoth Poonja, Nishad Raut

Project Guide: Saurabh Vichare

Abstracts: This paper deals with design and fabrication of Basketball Shooting Machine. Basketball is one of the most played and loved sport in the world. But playing basketball requires the following practices such as dribbling, receiving short passes, dunking the ball, shooting 3- pointers and so on. So here we design a machine that can shoot the basketball back to the player, during shooting practice with high precision and accuracy for increasing the efficiency of basketball practice. Our machine makes use of two high torque motors for throwing a ball. Both motors are rotated in opposite directions so as to drive the ball in same direction while compressing the ball between two wheels. These motors take DC supply (which is converted from AC by the use of SMPS) in order to deliver high power output. This power output can be controlled by the



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usage of a regulator, that will allow the ball to be shot at a range of distances.

This setup of rotating motors is mounted on an inclined plane to provide maximum range while throwing the ball and also taking into consideration the center of gravity of the entire setup. This system mounted on a trolley with castor wheels which allows for easy movement over the ground. Also, the castor wheel-based trolley allows for easy 360-degree movement for changing shooting direction at any instant. Thus, this Basketball ball shooter utilizes a mechanical system to shoot Basketball balls with variable settings on the Basketball field.

Acc. No. PR 2167 (3)

Title: ENERGY RECOVERY SYSTEM

Author: KARAN BHUTA, HRISHIKESH JADHAV, DEVARSH KACHALIA, KUSH SHAH

Project Guide: SAURABH VICHARE

Abstracts: The challenge of reducing vehicle energy consumption and greenhouse gas emissions has become a major orientation of automotive industry research throughout the world. Improving and optimising power consumption by combustion engine vehicles is of special concern. Through modelling and simulations using finite element analysis we aim to generate enough electricity to be able to power electrical appliances in our vehicles like headlights, taillights, windshield wiper, infotainment screen etc., as well as improving efficiency of the IC engine by aiding it with an electrical motor cum generator and an energy reserve.

Acc. No. PR 2068 (4)

Title: SOFT ROBOTIC SEWAGE MAINTENANCE DEVICE

Author: JOYNAL D SOUZA, STRUAN DIAS, CHIRAG GHEVARIYA, AARON PASHANA

Project Guide: SUNIL PANSARE

Abstracts: Sewers are an infectious place which are pretty harmful for humans who are deployed in it. Generally, the sewers are being cleaned and inspected by the workers manually without following any established safety protocols or any safety equipment. Hence, we have proposed a design which includes a soft,

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steerable, pneumatically operated continuum robot which will perform the tasks which the above worker would instead do. Soft robots offers an exciting avenue since they can form complex shapes and have high flexibility. The robot will reach intricate areas of the sewers and with the help of a camera will enable it to inspect the sewer conditions. As mentioned, it can be steered by pneumatically operated veins which will be adjacent to the main body of the robot. Due to this steering effect, it will be easier for the worker to access the areas for which they'll have to manually access it otherwise. This directional control is achieved by varying pressure in each vein individually, where the one with lower pressure will be able to steer in the direction it is facing to. Our work introduces a new way for sanitation by including this soft steerable robot which can also be applied into other possible scenarios.

Acc. No. PR 2069 (5)

Title: Bi-Pedal Service Robot

Author: Shaun Mathews, Preeti Singh, Glenn David Tharayil, Ameya Sardesai

Project Guide: Nilesh Gaddapawar

Abstracts: In today's fast competitive world, automation has become a necessity. Robots are used widely to perform repetitive tasks with greater efficiency. Automation helps to increase the productivity and profits of automation. Although ground robots have helped humans in many fields there is still a lot of development needed in the field of robotics. Ground robots have been used in the field of Logistics, in industries for material handling, hospitality, military services and medical help. Ground robots can be distinguished between two parts based on the function they fulfil. These are high-speed mobility robots and obstacle-clearing robots. In general, robots are designed to satisfy one of these functions. The robots which are used as high-speed mobility robots are generally wheeled based or conveyer-based robots. On the other hand, the robots which are capable of clearing the obstacles are leg-based. In our paper, we proposed to develop a ground robot that can perform both of these functions which are inspired by Ascento. A Bi-Pedal Service robot is an advanced ground robot that has multi-ability. The basic idea of the robot is to combine the abilities and the key features of two different types of ground robots i.e. Wheeled- robots and legged robots. Hence, it can perform two distinct functions that are obstacle clearance and high-speed mobility. The basic idea is to have a leg feature to provide the obstacle-clearing ability and also have wheels that can enhance its speed and agility. The robot will have an upgraded version of Scott- Russel mechanism as its leg element.

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The balancing of the robot requires an active and dynamic control system. Hence, by the implementation of a PID controller, the system is made stable using positioning and angular data and a micro-controller. The robot can be manually controlled with scope to automation in near future.

Acc. No. PR2070 (6)

Title: EXPERIMENTAL STUDY OF NANO PCM BASED SOLAR THERMAL ENERGY STORAGE SYSTEM

Author: ADARSH SINGH, AMAN SHETTY, KARIMULLAH WARSI, SHARMA, VEDANT

Project Guide: BYSANI MALAKONDAIAH

Abstracts: This research project aims to contribute in the field of thermal energy storage capacity of a solar water heater, by using materials that change their phase to store energy. These materials, known as Phase Change Materials (PCMs), are integrated with Nanomaterials to enhance their thermal properties. For our study we took Paraffin wax -OM46 grade as our PCM material & mixed it with CuO-SiC nanoparticles. For our experimental setup we have used 0.6 %wt each of CuO-SiC nanomaterials along with paraffin wax as a nano enhanced phase change material (NEPCM). Latent heat thermal energy storage works on the principle of phase transition of a material. Usually solid-liquid phase change is used, by melting and solidification of a material. Upon melting heat is transferred to the material, storing large amounts of heat at constant temperature; the heat is released when the material solidifies. Materials used for latent heat storage are called PCMs. The nanocomposite was prepared using a mechanical stirrer by gradually adding CuO-SiC nanoparticles into the heated paraffin wax and stirring continued for half an hour duration for thorough mixing. Further by using the ultrasonification method NEPCM was prepared with 0.6 %wt each of CuO-SiC nanomaterials. In this research we did analysis on thermal properties of PCM and NEPCM using both practical and simulation models.

Acc. No. PR 2071 (7)

Title: FLOATING TRASH COLLECTOR

Author: ARIST DIAS, CHRIS D MELLO, LEAVEN RUMAO, CHRIS TUSCANO,

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Project Guide: MAGESH K NADAR

Abstracts: The water bodies across the world are facing the existential crises. The plastic solid waste from a major inhabit or of natural flow of water. The human settlements are regularly dumping off the garbage and refuse to the water bodies. This is a major environmental hazard and causes a degradation of water bodies and affects the overall food chain. Out of the garbage plastic occupies a major chunk of solid waste dumped with by 2020. The plastic staying at ocean break down into smaller granule which circulate all over the water bodies goes into the gills of fishes which leads to genetic disorder and leading to death and also comes to water supply connection which comes directly to our kitchen affecting all of us. The granule of plastic causes cancer if it goes to fetus of pregnant women it can cause abnormality of child and much more. The bin situated at the water surface and pumped the water at the surface then to water again. The water get sucked into the bin and bringing all the floating debris into bin. Water pumped through the bottom of the bin living debris inside which get trapped in filter net.

Acc. No. PR 2072(8)

Title: ENGINEERING OF NATURAL FIBER REINFORCED COMPOSITE MATERIAL FOR DOMESTIC FURNITURE APPLICATION

Author: JOEL JAISON, HILTON DSOUZA, DAKSH DUDHAT, SHAYNE FERNANDES

Project Guide: RAVINDRA GARMODE

Abstracts: Composite materials have been gaining immense relevance in today's world because of their unique ability to combine different materials to create a new material having enhanced physical, chemical, and mechanical properties than its component materials. In a bid to become more sustainable and eco-friendly, the use of natural fiber-reinforced composite materials in different applications is explored. We aim to engineer one such composite material using Flax Fiber, Hemp Fiber and Epoxy resin as the matrix. This natural fiber-reinforced composite material is analyzed, fabricated, and tested to assess its initial mechanical properties. The application of this new material will be examined in the manufacturing sector of domestic/household furniture as an alternative to the conventional domestic furniture making material viz. wood.

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Acc. No. PR 2073(9)

Title: Solar Panel Cleaning Robot

Author: DHRUVI MISTRY, DHANASHREE MORE, ABHISHEK SINGH,  
SANSHEEL BHOSTEKAR

Project Guide: BYSANI MALAKONDAIAH

Abstracts: Dust and dirt particles accumulating on solar (PV) panels decrease the solar power reaching the cells and thereby reducing their overall power output. Hence, cleansing the PV panels could be a downside of nice sensible engineering interest in PV power generation. during this paper, the matter is reviewed and strategies for dirt removal measure is mentioned. During this paper, the primarily based microcontroller automation is proposed to scrub the solar panels. Initial testing of the automation has provided favourable results and shows that such a system is viable. it's found that robotic cleansing method will facilitate to scrub PV panel potency.

Acc. No. PR 2074(10)

Title: Vertical Axis Wind Turbine for Urban CENTERS

Author: LYNN CARVALHO, MORGAN COLACO, NEALON NESTER  
ANDRADES

Project Guide: RAVINDRA GARMODE

Abstracts: The project focuses on design, simulation, analysis and fabrication of VAWT with respect to regional parameters. Our intention is to design a vertical axis wind turbine compact enough to be installed on rooftops. The project is a research-based project focused on finding the best air foil with best efficiency and suited for the western region. After finalizing the best air foils we'll make the models using solid works and make the suitable design changes and run simulation to improve efficiency. The final stage of the project would be fabricating a prototype using suitable fabrication methods

Acc. No. PR 2075(11)

Title: ATMOSPHERIC WATER GENERATOR

Author: ROHIT YADAV, SUNIL SHINDAL, SHRIYANT PAWAR,  
AJAYAKUMAR TIWARI

Project Guide: ROHIT B PATIL

Abstracts: Water scarcity is one of the burning issues of today world. Though water covers more than two third (about 70 %) of the Earth surface but still fresh water which can be used for drinking and carrying out everyday chores remains scarce (only about 2.5 %)[1]. The acute problem of water shortage, is mainly faced by the countries with long coastlines and the island nations, which do not have adequate fresh water sources like rivers and ponds. As a result most of these countries meet their water demands by desalination of sea water which is a very costly affair. Also, it may so happen that these desalination plants may fail which will cause acute water shortage. This is what just happened in Maldives (4 December 2014). So, there is an urgent need for countries like Maldives and others, who depend solely on desalination plants to meet their water requirements, to find alternative methods to generate water in order to meet their water security needs. India also needs to work forward in this direction in order to address this issue. Even though it has a very large coastline but still people face water scarcity. Till now India has not devised any way by which water from sea can be used to provide drinking water to the people. This project aims to solve this problem. In the coastal areas the relative humidity is quite high. So, the air in coastal areas can be used to meet the water needs of people by using a dehumidifier unit. Further the solar insolation is quite high in these areas round the year. This can be used to provide necessary power to the dehumidifier unit. Thus drinking water can be obtained from the atmosphere by harnessing solar energy. Such a device is called Atmospheric Water Generator.

Acc. No. PR 2076(12)

Title: Skysaver

Author: Parth Doshi, Dylan Pereira, Shubham Kamble, Meet Patel

Project Guide: Sanjay Ghaskatta

Abstracts: In this paper the design and fabrication of sky saver is introduced. For escaping in high rise building is very important in case of fire, terrorist

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attack accident or any other cases. This machine is intended to provide an evacuee with an alternative evacuation route that is only to be used as a last resort during emergency situations. If the primary routes of exit are unavailable overwhelmed or obstructed in any way. There is a better way than waiting to be rescued. Experiment of this prototype machine shows that this equipment can release escape the person in time and bring evacuee more safety and escape efficiency. This machine is developed to provide the user and serve ability into the building evacuation system when the stairs and elevators are not possible or damaged. It gives the individual a chance to make their escape from a building in the critical minutes before rescue services arrived. The machine which we have designed here is suitable for any age group or any weight. This prototype is designed for 30-50 kg load, the machine is equipped with unique governor mechanism for downfall speed control and speed can be adjusted instantly. The machine is reusable again and again, any quantity of evacuee can escape through this machine. Experiments of its prototype in results, shows that this equipment can release evacuee on time with safety.

Acc. No. PR 2077(13)

Title: HOT AND COLD-WATER DISPENSER

Author: ANISH ADGAONKAR, PRAJWAL BADGUJAR, NILESH MISHRA, TAPASWI MORE

Project Guide: YUNUS DALAL

Abstracts: The project we have undertaken is creating a hot and cold-water dispenser using Peltier modules in place of conventional heat generation by heating effect of electric current. Peltier modules work on seeback effect which produces heat on one side and cools the other side when electricity is passed through it, thus this project aims at achieving cold and hot water based on this property. For the setup water blocks will be attached to both sides of the Peltier modules. Two to three of such arrangements will be connected in series to each other by means of pipe. This will allow water to flow through each water block arrangement in a sequential manner. The water blocks attached to the hot side of Peltier modules will naturally start to heat up on passage of current, this will further heat the water flowing through these water blocks and also allow the water blocks to cool down. Similarly, the cooler water blocks attached to the cold side will absorb heat from the water flowing through them in turn cooling the water down. Before we get on with the actual physical experimentation, we thought a simulation will be useful as it may give us insight on how the actual

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setup may look like, whether we will be able to achieve our goals, what kind of  
problems might be faced.

Acc. No. PR 2078(14)

Title: Self Charging Bicycle Using KERS System

Author: Chris Rishon Stany Dsilva, Maxson Xavier Fernandes, Youhana  
Desmond Tharakan, Dinesh Adili Rajan

Project Guide: Rohit Patil

Abstracts: The electrical vehicles are powered by electric motor and electrochemical battery. The main drawbacks of the E-Bikes are limited range and it consumes more time to recharge. For charging of E-Bikes, the charging station infrastructure is not fully developed in India. This project proposes the design of an E-Bike such that the E-Bike will recharge its battery while it is in running condition. When the rider is tired out after a distance range is completed, the recharged battery is switched to run the E-Bike. This will increase the distance range of E-Bike per charge. Kinetic Energy Recovery System (KERS) is a system for recovering the moving vehicle's kinetic energy under braking and also to convert the usual loss in kinetic energy into electrical energy. When riding a bicycle, a great amount of kinetic energy is lost while braking, making start up difficult. To utilize this energy a thin disk is connected via chain and sprocket to the rear wheel. The moving thin disk further helps to convert the mechanical energy into electrical energy by charging the battery with the help of Dynamo. Thus the Electrical kinetic energy recovery system converts the kinetic energy into chemical energy for storage and an electric motor generator system is used as the energy transfer and control media. The main use of the Dynamo is to absorb the power generated. Regenerative dynamo, in which the prime mover drives a DC motor as a generator to create load, make excess DC power. This stored energy is used to drive the bicycle with the help of a motor which reduces the human efforts increases the comfort level of humans.

Acc. No. PR 2079(15)

Title: Rough Terrain Vehicle Using Rocker Bogie Mechanism

Author: Safin Figueiro, Stevnal Baptista, Ayush Suvarna, Reiner Fernandes

Project Guide: Sanjay Ghaskatta



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Abstracts: The rocker-bogie suspension system has robust capabilities to deal with uneven terrain because of its distributing of the payload over its six wheels uniformly. The rocker-bogie design has no springs or stub axles for each wheel, allowing the rover to climb over obstacles, such as rocks, that are up to twice the wheel's diameter in size while keeping all six wheels on the ground. As with any suspension system, the tilt stability is limited by the height of the center of gravity. Systems using springs tend to tip more easily. The rover has been completely made from PVC to increase its capability to withstand shocks, vibrations and mechanical failures caused by the harsh environment where it is operated on. Using CAD software the design of the rover has been fine-tuned, improvements and feature were included into the Rough Terrain Vehicle. This vehicle has 1 motor mounted on each individual wheel which makes the vehicle powerful for rough terrains. There are two key advantages to this feature. The first advantage is that the wheels' pressure on the ground will be equilibrated. This is extremely important in soft terrain where excessive ground pressure can result in the vehicle sinking into the driving surface. The second advantage is that while climbing over hard, uneven terrain, all six wheels will nominally remain in contact with the surface and under load, helping to propel the vehicle over the terrain. Rovers take advantage of this configuration by integrating each wheel with a motor, maximizing the vehicle's motive force capability.

Acc. No. PR 2080(16)

Title: AN INVESTIGATION OF HEAT TRANSFER RATE IN A DOUBLE PIPE HEAT EXCHANGER WITH DIFFERENT INNER CROSS SECTIONAL AREA

Author: Aniketh Mohandas, Gilgal Paulose, Ralph Patil

Project Guide: Yunus Dalal

Abstracts: Heat Exchanger is a device used to exchange the heat energy between the two fluids by which increases the operating effectiveness. The effectiveness of heat exchanger plays a major role for cost effective Operations in the process industries. While the both Fluids flow through the heat exchanger, the temperature of both fluids will exchange. The lack of experimental data available about the behaviour of fluid flow in a double pipe and also in the case of heat transfer data, which is not the case with a shell and tube heat exchanger, has hampered the design of a double pipe in tube heat exchanger. So, to the best of our ability, we have determined the heat transfer rate in a double pipe heat exchanger by changing the inner cross sectional area.

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The goal of this study is to gain a better and more quantitative understanding of how heat is transferred while a fluid flows. The study also looked at the different types of fluid flow rate, volume, time. The study's materials were chosen, the fluid used was water, and the pipe's material was aluminium and copper because of its superior conductivity. Double pipe heat exchangers are designed in SOLIDWORKS. CFD analysis is done by using ANSYS. Final Results are obtained with materials.

Acc. No. PR 2080(17)

SEFT LIRC