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

LEARNING AND INFORMATION RESOURCE CENTRE

CATALOGUE OF B.E. PROJECT REPORTS

BATCH 2022-2023

BRANCH
EXTC
ELEC
INFT
MECH
CMPN

ABSTRACTS

EXTC

Title: STOCK PRICE PREDICTION USING LSTM

Author: Tripti Jain, Kiran Gupta, Janmesh Gavte, Atharva Jadhav

Project Guide: Valentina Basker

Abstracts: Stock is a curve with a lot of unknowns. The stock market has a lot of intricacy and turbulence, which makes it difficult to predict what will happen. Data is a vital source of efficiency because stock is made up of shifting data. The efficiency of the stock price forecast has an impact on the same probability. Deep learning has been incorporated into the picture for the deployment and prediction of training sets and data models in the latest trend of Stock Market Prediction Technologies. Deep Learning uses a variety of predictive models and algorithms to forecast and automate tasks. The focus of our project is on the application of LSTM to forecast stock prices.

Acc.No.PR 2204(1A)

Title: Indian Currency Denomination Detection and Counterfeit Identification using Deep Learning

Author: Sunil Lad, Nischay Joglekar, Abhishek Pakhure, Shashank Sahu

Project Guide**:** Deepak Jayaswal

Abstracts: Counterfeit currency is currency produced without the legal sanction from a government and imitation of actual currency used to deceive its recipient. Soiled currency is partially or fully damaged legal currency in circulation. Denomination of currency is its legal monetary value. Counterfeit currency damages economy due to imbalance of monetary assets in circulation and taking up extra resources for its proper disposal. Soiled currency uses valuable resources for its proper disposal and replacement. In our paper, we propose to develop an algorithm capable of identifying currency's denomination, condition and authenticity from given image. Our algorithm will be ML model trained using deep learning for accurate identification of denomination, condition and authenticity. In our paper, we propose to build working web interface taking image of note as input and displaying it's denomination, condition and authenticity to user.

Acc.No.PR 2205(2A)

Title: Brain Hemorrhage Detection

Author: Shivam Upadhyay, Grishma Nachankar, Nimish Khot, Neha Sankhe

Project Guide**:** Vaqar Ansari

Abstracts: One of the top five health conditions that result in death is brain bleeding (intracranial haemorrhage). The bleeding causes internal bleeding in the skull (typically known as cranium). It causes about 10 percent of strokes in the world. Therefore, it is crucial to diagnose it swiftly and accurately for various effects are possible based on the type, size, and location of the brain bleed. The connection is not that easy to understand If a haemorrhage occurs in a crucial area, it may be just as fatal as one that occurs elsewhere. The first tests must be performed right once if a patient exhibits severe bleeding signs including loss of consciousness, but the process is highly difficult and frequently takes a long time. Patients, particularly those who require rapid attention, may suffer serious consequences if a diagnosis or course of therapy is delayed. The proposed

solution in this project intends to streamline this procedure by automating the initial step to pinpoint the location, nature, and extent of the bleeding. By doing this, the algorithm enables the clinicians to diagnose the patient more quickly and accurately. Additionally, the system scrutinises each scan in the same way, minimising human mistake and gaining knowledge as it goes. Building an algorithm to identify acute cerebral haemorrhage and its subgroups is thus a problem. This initiative will be a start in the direction of identifying each of these crucial characteristics for a more accurate diagnosis. To relieve overburdened radiologists and identify patients who require rapid attention, These initiative aims to automate the process of identifying these bleeds.

Acc.No.PR 2206(3A)

Title: BLOOD CELL IMAGE SEGMENTATION USING DEEP LEARNING

Author: Aastha Vadhiya, Priya Yadav, Mrunal Mashalkar, Ritik Hankare

Project Guide: Ms. Pallavi Patil

Abstracts: Clinically, understanding the amount of white blood cells (WBCs) and red blood cells (RBCs) aids in the accurate diagnosis of a variety of disorders. The procedure of manually counting cells requires a lot of time, and it depends on the expertise of specialists. In order to overcome this difficulty, a blood cell image segmentation method is proposed to segment WBCs. So, a fully automated technique supporting cell counting is a workable remedy for clinical laboratories. To detect and segment WBCs, the proposed method uses UNet, a deep learning semantic segmentation technique which gives a performance accuracy of 95.12%. Various different metric parameters like pixel accuracy and dice coefficient were used to evaluate the accuracy of the segmentation model.

Acc.No.PR 2207(4A)

Title: INDIAN SIGN LANGUAGE INTERPRETER

Author: Akshi Kamde, Mansi Khamkar, Vighnesh Kalekar, Arsalan Ahmed Qureshi

Project Guide: Pallavi Patil

Abstracts: Sign language is a complete visual language with its own grammar, vocabulary, syntax, and other unique linguistic traits. It is primarily used by the

Deaf and Hard of Hearing (DHH) community to communicate. However, since many people are unfamiliar with sign language, it can be extremely difficult for Deaf individuals to express their thoughts and emotions. Recognizing Indian Sign Language (ISL) requires specific techniques due to differences in vocabulary and grammar compared to other international sign languages. To address this, a system has been developed that takes in video inputs of gestures and uses a feature extraction method like Media Pipe and a deep learning model to recognize these actions. Media Pipe was used to extract key points of the hands and body determining their location, shape, and orientation. The LSTM model addressed the issue of frame dependency in sign movement. Due to the lack of video-based dataset for sign language, a dataset, which contains twelve vocabularies with 30 videos of each class was created and experiments conducted on this dataset revealed that the model achieved an accuracy of more than 91%.

Acc.No.PR 2208(5A)

Title: Complementary Products Recommendation using Siamese Neural Network

Author: Monika Patel, Danish Parvaiz, Poonam Varma, Roshan Rai

Project Guide: Santosh Chapaneri

Abstracts: On e-commerce websites, as much variety and richness as possible to find what they need in one market, online catalogs are sometimes too overwhelming. Recommender systems play an important role in e-commerce websites because they improve the customer journey by helping users find what they want at the right moment. These recommendations may be based on users' characteristics, demographics, purchase history or visit history. In this work, we focus on identifying the complementary relationship between products. Complementary products are products that go well together, products that can be a necessity for the chosen product or simply a nice addition to it. There is great potential for such systems as complementary products recommendation increases the average purchase value on e-commerce websites. We propose a content-based recommender system for the detection of complementary products using a supervised deep-learning approach that relies on Siamese Neural Network (SNN). The purpose of this work is threefold; first, the main goal is to create an SNN model that will be able to predict complementary products for a particular main product based on content; for this purpose, we implement a Siamese long-

short-term memory (LSTM) recurrent neural network. We feed these neural networks with pairs of products taken from the dataset that are either complementary or non-complementary. Second, a basic assumption of our approach is that the most important functions of the product are included in its name. Finally, we propose an extension SNN approach to handle more products and also will improve the time for recommending products.

Acc.No.PR 2209(6A)

Title: HEALTH MONITORING SYSTEM USING LI-FI

Author: MARRI RISHITHA, MAURYA RAHULKUMAR, DUBEY NILESHKUMAR, SONIABHISHEK

Project Guide: MONIKA CHEEMA

Abstracts: Light-Fidelity (Li-Fi) is a highly efficient, high-speed, secure, eco-friendly and non-hazardous wireless technology, that uses high speed light source to transmit and receive data. Patients who are in healthcare places need continuous healthcare monitoring system for long periods for human body vital signs. This system should be secure, reliable, and guarantee not to interfere with available radio frequencies or sensitive electronic devices such MRI machines since it deals with human life. In this project we aim to implement a prototype model for Li-Fi healthcare monitoring system which monitors the critical data such as Heart rate, blood-oxygen saturation levels (SPO2), temperature, motion using respective sensors and transmit effectively by Li-Fi technology. The collected data from the sensors is transmitted to the sink, and further these data are processed using microcontroller and displayed in the form of graphs. This would help the doctors to analyze the patient's health more effectively in order to take the necessary action

Acc.No.PR 2210(7A)

Title: ANIMAL SOUND CLASSIFICATION FOR WILDLIFE SURVEILLANCE USING DEEP LEARNING METHODS

Author: Siddhi Rane, Shreya Shindal, Dharm Nayak, Aman Yadav,

Project Guide: Monika Cheema

Abstracts: This study presents a deep learning-based animal sound classification system that uses Mel spectrograms and Mel-Frequency Cepstral Coefficients (MFCCs) as feature extraction methods. The proposed system employs six classifiers, including Artificial Neural Networks (ANN), Support Vector Machines (SVM), Random Forest, Adaboost, Decision Tree, and Naive Bayes, to compare their performance in classifying animal sounds. The system was trained and tested on a diverse dataset consisting of over 7000 recordings of ten different species obtained from multiple sources, including the Animal Sound Archive, xeno-canto, and Macaulay Library. Our results demonstrate that the proposed system achieves an accuracy of 97.73%, with MFCC used as a feature extraction method. The dataset and results show the potential of using deep learning for animal sound classification, which can be applied to wildlife

Monitoring and conservation efforts.

Acc.No.PR 2211(8A)

Title: EV Route Planner

Author: Amogh Nivaskar, Advaith Poojary, Ameya Patel, Jhanvi Munim

Project Guide: Ramjee Yadav

Abstracts: Electric vehicles (EVs) are becoming more and more widespread in today's world. Due to technology advancements, a greater emphasis on renewable energy, and the possibility to lessen the impact of transportation on climate change, air pollution, and other environmental issues, EVs have experienced a revival. As a result, there are now more demands for charging stations. The government's infrastructure requirements state that EV charging stations must be positioned every three kilometres in cities and every 25 kilometres on both sides of roadways. There should be a heavy-duty and long-range car charging station every 100 kilometres on both sides of the road (mostly Highways). However, we are currently far from achieving this goal due to the

dearth of EV charging Â infrastructure. As a result, customers are reluctant to go long distances because there aren't enough charging stations and lack of planning causes the users experience range anxiety. Range anxiety refers to an EV owner's fear that the vehicle's battery does not have sufficient charge for it to reach the destination. Thus, we have created a website that considers current traffic conditions, the speed at which electric vehicles discharge their batteries, the time needed to charge the EVs, the waiting time at charging stations, to determine the best route for an electric vehicle to travel to its final destination without exhausting its battery.

Acc.No.PR 2212(9A)

Title: Load Balancing in Software Defined Networks

Author: Jordan D'Souza, Sumedh Rananaware, Irfan Gadwadi

Project Guide**:** Ramjee Yadav

Abstracts: Load balancing is an essential aspect of software-defined networking (SDN), which allows for more dynamic and efficient control of network traffic. In this project, we explore the use of the round robin algorithm for load balancing in SDN networks. We implement the round robin algorithm using the OpenFlow protocol and evaluate its performance on a simulated SDN network. We used a topology where the requests were sent from host to Apache servers. The results show the amount of completed requests, completion rate and percentage of requests served within a certain time. The load balancer shows the addresses to which the requests are sent.

Acc.No.PR 2213(10A)

Title: Library Automation System

Author: Sanika Anil Gawas, Yash Sanjay Kathe, Kaushik Sharad Khadilkar, Chirag Jagannath Kunder

Project Guide**:** Gautam Shah

Abstracts: Libraries play an essential role in our society. It is a gateway to provide resources and services that shape new opportunities for learning and gaining knowledge. The Library Automation System is a project aimed at developing a computerized system to automate all the daily tasks of the library with minimal

human intervention. The central hardware involves a Raspberry Pi where the database is maintained, the web server is hosted and other necessary scripts are running. The system is based on admin-client interaction. On the admin side, all the information regarding books and library members is stored and updated; whereas on the client side, users can create a profile and keep track of the issue and return dates. The admin-client interaction is web-interface based. The project also provides security regarding unauthorized book borrowing using RFID technology.

Acc.No.PR 2214(11A)

Title: Coronory Heart Disease Prediction Using ML

Author: Jasleen Bindra, Yasti Jain, Bhargav Patel, Gauri Nachankar

Project Guide: Quanitah Shaikh

Abstracts: Machine Learning approaches can be used in the prediction of Chronic Diseases such as Kidney and Heart Diseases by developing a classification model. There are various types of heart diseases like Aortic disease, Coronary Artery Disease, Heart Arrhythmias, Heart Failure, and Heart Valve DiseaseWe selected Comary Disease as we want to create awareness about this disease as heart disease can occur to anyone at any time and any place. This work aims to predict the risk CHD using machine learning algorithms like Random Forest, Decision Trees, and K-Nearest Neighbours These algorithms were experimented with over the Framingham Heart Study dataset, which is having 463 records The approach replacing null values, resampling, standardization, normalization, classification, and prediction The resulting models were evaluated using Accuracy Recall Specificity and Precision. It is found that the Random Forest performs the best on this dataset and features, outperforming KNN and Decision tree in all the evaluation parameters used, and the Random Forest achieves the best accuracy of 96%, Which would be further used in prediction ENBRARY

Acc.No.PR 2215(12A)

Title: IOT Based Multipurpose 3D Printer Monitoring System

Author: Arya Ankolekar, Ramani Desai, Harsh Daitkar, Atharva Choudhari

Project Guide: Savita Kulkarni

Abstracts: A 3D printer uses CAD to create 3D objects from a variety of materials, like molten plastic or powders. Initially, they were used to build prototypes but are soon replacing the final products as well. A CNC machine is a machine that is responsible for wooden graving and PCB milling by providing a G-code in the form of an input. IOT-based Multipurpose 3D printer will be performing all these functions through a single machine and will be handled remotely. Users can send input data from anywhere in the world through a chatbot. This chatbot will be connected to the printer, thus communicating Raspberrypi and FPGA. FPGA and RPI are integrated using UART. The printer will execute the task unless any anomalies such as breakage of the drill bit for PCB milling and wood engraving and spaghetti formation for 3D printing takes place. In such conditions, it will notify the user and terminate or restart the task, respectively.

Title: FPGA based multi-purpose 3D printer Controller

Author: Ronish Nadar, Swapnil Nishad, Aaron Murzello, Craig Pereira

Project Guide: Ravindra Chaudhari

Abstracts: 3D printing technology is a rapidly evolving field, which has seen an explosion of interest in the last decade due to the influence and great degree of maker movement and rapid prototyping. A set of specialized print control systems is the basis for the fabrication of electronic technology. The use of closed-loop control to improve performance in robots is a well-established technology, by adding the necessary sensors and computational hardware, it is easy to establish a low-cost and efficient 3D printer system. The success of a motion control system depends not only on the controlling algorithm but also on the control hardware structure. By the use of Field Programmable Gate Arrays (FPGA) can build customized hardware and software to achieve greater performance and efficiency. Compared with common robot manipulators, the 3D printer system has a more open-ended structure, which needs the control system to be flexible

to the flexibility in the 3D printer system. 3D printing utilizes CNC technology to execute commands to achieve any desired shape. With the use of a centralized system, multiple functionalities can be achieved and the cost of production can be greatly minimized. With the addition of modern technologies such as Image Processing and IoT, the system can be vastly enhanced.

Acc.No. 2217(14A)

Title: Delivery Tracker

Author: Annukumari Yadav, Drashti Thakkar, Harsh Rai, Jatin Suvarna

Project Guide: Deepak Jayaswal

Abstracts: In the current situation,there has been significant increase in problems of Package delivery. Package delivery problems are diverse, ranging from logistical issues to packaging workflow. Like lack of visibility, delayed deliveries, lost or stolen packages, tampering of packages. In our paper, we have proposed a cover that will be fastened in a retrofit fashion on the package for tamper proof delivery and live location. The prime feature of the product is low cost and long battery life. The deep sleep mode of Node MCU was used for improving the efficiency. With the help of Wi-Fi module, we store the location and time where the package was tampered and alerts authorities accordingly. All the packages were managed through Web-App which was designed using MERN stack and communication protocols like HTTP and Web Socket. Framework and libraries used for frontend are React, Next JS and for backend are Node JS, Express, Mongo DB.

Acc.No. 2218(15A)

Title: Shilling Attack Detection in Recommender Systems.

Author: ANUSHKA KADAM, MADHURA KAMAT, SUPRIYA JOSHI, MARK LEITAO

Project Guide: DR. SANTOSH CHAPANERI

Abstracts: Massive amounts of useful data are constantly being generated on the internet, making it difficult for users to find information that is relevant to them. A recommendation system is a subclass of Information filtering Systems

that seeks to predict the rating or the preference a user might give to an item. In simple words, it is an algorithm that suggests relevant items to users. One of the most widely used recommendation systems is collaborative filtering. However, collaborative filtering-based recommender systems open architecture makes it susceptible to shilling attacks. Shilling attacks are a type of attack in which a malicious user profile is inserted into an existing collaborative filtering dataset to change the outcome of the recommender system. There are two types of shilling attacks i.e. Push Attack (the attacker will give target items the highest rating) and Nuke Attack (the attacker will give target items the lowest rating). Attackers utilise user-generated data, such as user ratings and reviews, to influence recommendation ranks. Due to the widespread use of recommender systems, more attackers are disrupting the system in an effort to profit from the altered recommendation results. So, it's becoming more and more important to learn how to recognise shilling attacks. To maintain their neutrality and long-term survival, recommender systems must be able to recognise shilling attacks. Issues with the current research include poor algorithm universality, difficulty choosing user profile attributes, and a dearth of an optimization approach. The majority of detection techniques in use today identify attackers by statistical methods. However, their detection techniques were less effective since they were unable to detect the delicate interactions between people and objects. In this project, we have used Co Detector, a collaborative shilling detection model that simultaneously decomposes the user-item interaction matrix and the user-user co-occurrence matrix with shared user latent variables. Then the network embedding information contained in the learned user latent factors is used as a feature to identify attackers. Co Detector outperforms state-of-the-art techniques, according to tests done on both simulated and real-world datasets. Co Detector also has a good performance and generalization capacity.

Acc.No. 2219(16A)

Title: To Detect and Mitigate Attacks In Software Defined Networking (SDN)

Author: Yash Naik, Dharshan Amin, Vaibhav Kesarkar, Shounak Warde

Project Guide: Jayasudha Koti

Abstracts: The Software-Defined Networking (SDN) paradigm provides centralized control and programmability to computer networks, enabling flexible and efficient network management. However, SDN networks are also vulnerable to security threats, such as Distributed Denial of Service (DDoS) attacks and malicious network activities. To address these issues, researchers propose an approach to detect and mitigate attacks in SDN using the J48 algorithm. J48 is a decision tree algorithm that can analyze the network traffic and identify suspicious patterns that may indicate an ongoing attack. By training the J48 algorithm with network traffic data, it can learn to detect and classify various types of attacks in real-time.The proposed approach includes two stages: detection and mitigation. In the detection stage, the J48 algorithm is applied to the network traffic to detect any suspicious activity. Once an attack is detected, the mitigation stage is initiated to prevent further damage. The mitigation techniques include rate-limiting, blackholing, and redirecting traffic to honeypots.

Acc.No.PR 2220(17A)

Title: Paddy Disease Detection

Author: Monish Ghosh, Sagar Bhalsing, Yash Kadam, Nasimuddin Shaikh

Project Guide**:** Ms. Quanitah Shaikh

Abstracts: Rice is the staple food for most of the countries of the world. The maintenance of large fields of rice crop is a tedious work for the farmers. These paddy spanning hectares are hard to take care of it. The caretakers can’t identify certain types of diseases and are not able to complete the tedious task of crop care in such a short span. The deep learning models were used to detect diseases at early stage, so that we can control disease spread over all the plants to increase the rice production. There are several diseases like Brown spot, Bacterial leaf blight, Blast etc are identified by using Convolution Neural Network (CNN) technique. The classification model is created by using CNN layers. CNN is greatly used in image classification due to its capability of handling huge data sets. Here CNN technology is used to create an automated crop care system by identifying diseased paddy crops from the healthy ones by just with an image. It reduces human efforts and most importantly human errors.

Acc.No.PR 2221(1B)

Title: Skin Lesion Prediction and Classification Using Deep Learning

Author: Mahek Shetty, Forum Patel, Nishant Powale, Atharva Utekar

Project Guide: Ravindra Chaudhari

Abstracts: The term 'skin lesion" describes any abnormal area of skin that differs from the surrounding skin. Lesions on the skin are common, but some types such as Basal Carcinoma, Squamous cell carcinoma , Acctinic Keratosis can be cancerous and detrimental. To prevent the development and spread of such skin diseases, it is extremely vital to take the necessary measures to treat skin diseases as soon as possible to prevent their growth and spread. Nevertheless, such diagnosis is still limited and expensive. In order to detect skin cancer and take. the necessary action as soon as possible, we aim to develop a reliable and accurate deep learning model which will also classify different types of skin lesions ~(Melanocytic nevus, Actinic keratoses, Melanoma, Vascular lesions, Basal cell carcinoma, Benign skin lesions, Dermatofibroma) using a convolutional neural network model designed by us that provides high accuracy, performance and efficiency as compared to other convolutional networks. Our hybrid architecture provides an accuracy of 90.23 percent. We used HAM10000 dataset. In the past, many models have been designed based on different convolutional nets like VGG16, Mobile Net, Densenet, Resnet etc but they had limitations like vanishing gradient problems and difficulty in training from start. Our hybrid architecture overcomes all these limitations. In addition to saving time and money for patients, this model can also alert them if something is amiss from the start. With this deep learning model. dermatologists will be able to detect skin cancer faster and take appropriate action without wasting much time.

Title: Handwritten Devanagari Character Recognition using CNN

Author: Disha Suvarna, Tejaswi Surepalli, Ketan Baria, Sparsha Shetty

Project Guide: Pallavi Patil

Abstracts: This paper discusses the use of deep learning for recognizing handwritten Devanagari characters. Handwritten character recognition has become increasingly important for automation systems. Devanagari script is a widely used language script in India, consisting of 12 vowels and 36 consonants. The proposed approach involves four steps: pre-processing, segmentation, feature

extraction and prediction. The model uses a convolutional neural network for training and applies image processing techniques to recognize characters and estimate the accuracy of recognition.

Acc.No.PR 2223(3B)

Title: Suspicious Activity Detection

Author: Aditya Ghadge, Sumon Ghosh, Prasham Shah, Vaibhav Sanghavi

Project Guide**:** Vaqar Ansari

Abstracts: In today's insecure world, video surveillance systems play a significant role in keeping both indoors and outdoors secure. Real-time applications can utilize video surveillance components, such as behavior recognition, understanding and classifying activities as normal or suspicious. People are at risk from suspicious activities when it comes to the potential danger they pose. Detecting criminal activities in urban and suburban areas is necessary to minimize such incidents as criminal activity increases. The early days of surveillance were carried out manually by humans and involved a lot of fatigue, since suspicious activities were rare compared to everyday activities. Various surveillance approaches were introduced with the advent of intelligent surveillance systems. This paper analyses two cases that could pose a threat to human lives if ignored, namely the detection of gun-related crimes, the detection of abandoned luggage, the detection of human violence, the detection of lock hammering, the theft of wallets, and the tempering of ATMs on surveillance video frames. In these papers they have used a neural network model that is Faster R-CNN and YOLOv3 technique to detect these activities.

Acc.No.PR 2224(4B)

Title: Helmet Detection and Number Plate Recognition of Motorcyclists Using Deep Learning

Author: Anant, Shukla, Tejas, Chavan, Tejas, Tawde, Eshaan, Rajesh

Project Guide**:** Shilpa Chaman

Abstracts: In this project, we have built a Non-Helmet Rider detection system which attempts to satisfy the automation of detecting the traffic violation of not wearing helmet and extracting the vehicles' license plate number. The main

principle involved is Object Detection using Deep Learning at three levels. The objects that will be detected are person, motorcycle/moped at first level, helmet at second level and License plate at the last level using YOLOv5. Then the license plate registration number is extracted using OCR (Optical Character Recognition). All these techniques are subjected to predefined conditions and constraints, especially the license plate number extraction part. Since, this work takes video as its input, the speed of execution is crucial. We have used the above said methodologies to build a holistic system for both helmet detection and license plate number extraction.

Acc.No.PR 2225(5B)

Title: Development and Deployment of Alpha Trade Application

Author: PRASHANT CHAUHAN, AAKASH ANNADATE, OM KIRAN KAR, HARDIK DAGLI

Project Guide**:** KEVIN NORONHA

Abstracts: The project is about Development and Deployment of AlphaTrade Application. This web application is aiming for user friendly dashboard at front end and is used to counter the effect of high variance by providing a perfect estimate time to buy or sell a particular stock/shares of an organization. It is succeeded by the aid of various indicators, in order to providing a perfect estimation rate upto 60%. The user display strategy of the indicators are shown in form of graph. Collection of databases of stock market analysis in past is required to make the indicators work. More the database, higher the predictability percentage. This application would be deployed on public cloud using AWS service, so that the users intending to buy or sell stocks with less risk of loss of money, could access this application all over the internet.

Acc.No.PR 2226(6B)

Title: Lifetime Enhancement in Wireless Sensor Networks

Author: Shreya Ghosh, Pratik Ghosh, Supriyo Ghosh, Khushal Solanki

Project Guide**:** Kevin Noronha

Abstracts: The main factors in the network lifetime in wireless sensor network systems have been route finding and the distribution of node energy. There are network nodes spread around the area using the search technique for the connection or route. Every node of a network is linked to each other with

the minimum amount of link formation use of energy.A technique for aided routing has been presented using the comparative research into fuzzy inference. The fuzzy assistance and the tabu search data transmission routing

has been developed to contrast and examine the methods for longer network lifetime.

Acc.No.PR 2227(7B)

Title: Network Device Monitoring And Automation System

Author: Aaditya Dharne, Manav Dhruve, Shrirang Joshi, Parth Khalonkar,

Project Guide**:** Dr.Jayasudha Koti

Abstracts: To reduce human workload and errors, network automation is taking the world by storm. But it could be a daunting task for new network admins who may not have a lot of knowledge for maintaining the operating system software in network devices. In case of emergency, the person may or may not have a direct solution to the problem and would have to waste a lot of time and energy in the process of finding a solution. In this report we proposed to develop a network monitoring web application software which will be used to connect to remote network devices like routers and switches through the Secure Shell Protocol. In this report, we seek to monitor network device settings and network traffic using python libraries and simulation software. The network device Monitoring and Automation System is designed using the Netmiko Python Library for remote SSH connection in the back end and Flask to connect to user through the web browser in the front end. This project aims to help network administrators by simplifying network device management and automation which will already help the administrator to set up and configure his/her network and help to learn along the process and to provide Simple solutions to regular network administrator problems.

Acc.No.PR 2228(8B)

Title: Stock Portfollio Health Monitoring System

Author: Aldrin Paul, Aditya Ware, Sachin Yadav, Soham Shinde

Project Guide**:** Ramjee Yadav

Abstracts: For many years, stock market portfolio management has been successful in attracting the interest of several academics from the domains of computer science, finance, and mathematics worldwide. The main focus of investors and fund managers in the financial markets is to successfully monitor as well as manage investment portfolios. This project is based on developing a Web Application which assist's small equity investors in checking and monitoring the health of an individual stock as well as the overall health of user's portfolio. With minimal knowledge of stock market, one can build a great customized portfolio. The application will also notify the risky stocks which will help the investors to minimize the risk. It is able to adapt the changes made in the portfolio and also have other features which are needed by equity investors. In this project, an algorithm has been proposed which will evaluate the health of the stock depending upon the parameters such as P/E Ratio, Dividend Yield, Debt to Equity, Industry P/E, ROE, ROCE, PEG Ratio, Profit Growth of past 5 years, Sales Growth of past 5 years and Sector. The entire web application is hosted on the AWS cloud by leveraging its services to make it more accessible and scalable.

Acc.No. PR 2229(9B)

Title: LPG Leakage Detector

Author: ANIRUDDHA BHATTACHARJEE, BHAVIKA SHETTY, RIYA SHAH, BORIS GOMES

Project Guide: Gautam Shah

Abstracts: In order to identify and keep track of dangerous gasses in both household and commercial settings, this project demonstrates the design and construction of an Arduino-based gas detection system. A gas sensor module and an Arduino Uno board serve as the proposed system's primary controllers and are used to detect various gasses. Moreover, the system has an alarm that warns the user in the event of the presence of hazardous gasses as well as an LCD display that shows the current gas concentration levels. Methane, carbon monoxide, and propane are just a few of the gases that the gas sensor module can detect using a sensor from the MQ series. The sensor output is read by the Arduino board, which then analyzes it according to a pre-programmed

algorithm to calculate the gas concentration level. The LCD screen then shows the gas concentration values in parts per million (ppm).

Acc.No. PR 2230(10B)

Title: Data Transmission Using LIFI

Author: Simran Dubey, Ritesh pandit, Avi Birla, Rajeshwar Yadav

Project Guide**:** Uday Pandit Khot

Abstracts: The ever-increasing usage of wireless devices has caused an overwhelming demand for data speed and volume. The radio wave spectrum used today for wide range communication is an increasingly rare resource. While there is no replacement to radio waves, the spectrum crunch can still be controlled using other technologies like LIFI. Light fidelity technology refers to visible light communication that uses light as a medium to deliver high speed data with better security assurance. Hence, the study of characteristics of LIFI system and a prototype of LIFI technology for data transmission between two devices is proposed in this paper. The prototype designed has a transmitter access point controlled by arduino which takes input data through an API and the LED is it's output medium. The receiver access point is also controlled by arduino and light is received by a photodiode. The Manchester encoding technique serves thè purpose of data modulation and ensures no loss in packet delivery. Although, the distance between the transmitter and receiver is upto 50 cm and the data rate delay is recorded or observed to be 14ms this project has been designed using a low-cost photo detector and LED instead of laser. Final output after decoding the data is displayed on Web server.

Acc.No. PR 2231(11B)

Title: Compact Dual Band Printed Antenna for Wireless Applications (WLAN)

Author: Shubh chande, Gandharv meher, Shubham borse, Omkar tondwalkar

Project Guide**:** Anjali Chaudhari

Abstracts: In this article, a dual-Band coplanar waveguide-fed antenna is proposed for wirless local network.The dimension of the antenna are 66*17*1.6mm3 fabricated on FR-4 substrate. It comprises narrow hook shaped slits on left-hand side and two separated ground planes. The measured results show that the proposed antenna has impedance bandwidth from 2.0 to 2.56 GHZ and 4.59 to 6,0 GHZ for 10 db return loss. It can cover several wireless communication band like UMTS 2100 MHz, Bluetooth 2400 MHz, WLAN 2400/5200/5800 MHz, and LTE 2300-2400 MHz bands. To validate the results of simulation, an inexpensive FR-4 Substrate is used for the fabrication of the

prototypes of the proposed antenna and tested. Experimental and simulated results obtained indicate that the proposed antenna has good radiation efficiencies and near omni direction radiation patterns..

Acc.No. PR 2232(12B)

Title: IoT Based Condition Monitoring of CNC Machine

Author: Vedaant Bhangle, Suyog Brid, Vaibhav Shetty, Devayani Vishwakarma

Project Guide**:** Jayasudha Koti

Abstracts: In the internet of things (I o t) smart sensors and actuators are used to enhance manufacturing and industrial processes. The biggest benefit of I o T is that it gives manufactures the ability to automate, to optimize their operating efficiency like a reduced Errors, downtime, cost and predictive maintenance. Real-time monitoring and collection of data from all necessary perspectives can be done remotely. Industries manufacturing at large scale often find it difficult to monitor the condition of the machines. Downtime due to machine faults and operator negligence contributes to machine inefficiency. Our work implements a multiple sensor-based condition monitoring system deployed on a CNC machine. The major steps for preventive maintenance are daily inspecting of hydraulic temperature and temperature of electrical panel of CNC machine. A cloud-based platform is created for displaying of real-time graphs, and Daunt chart for important parameters and overall equipment effectiveness. The data collected from the machine can be used to quickly diagnose the problem and condition monitoring that help to pinpoint the cause of downtime in the process. In addition to controlling the electric panel temperature, this system turns on the electric bulb when the temperature drops below the threshold value.

Acc.No. PR 2233(13B)

Title: IOT Based Health Monitoring System

Author: Akshata Shetty, Maanas Redkar, Shivam Vaishampayan, Aman Yadav,

Project Guide**:** Savita kulkarni

Abstracts: he term "Health Monitoring System" refers to the technology-enabled collecting and collaboration of patient data from hospital sensors. The sensor data will assist the physician in an emergency case to improve and health of the patient

is improved. The project's hardware platform is made up of a variety of sensors and a ESP 32 that can communicate with a doctor via the Internet and a smartphone. This suggestion will make it easier for doctors to keep track of patient health wherever they are in the world. In the suggested concept, sensors collect the patient's medical data, such as heart rate, ECG and body temperature. This data is then transferred to the Internet and saved in a medical server. Through the offered websites, the doctor and patient can access the patient data from anywhere in the world.

Acc.No. PR 2234(14B)

Title: Traffic Light Recognition for complex scene with High Dynamic Range Imaging and Deep Learning

Author: Rutvi Shah, Viren Parmar, Akash Sanghvi, Brijay Shetty

Project Guide**:** Shilpa Chaman

Abstracts: Large cities' expanding populations are causing traffic congestion. The maintenance of the city's road network necessitates ongoing monitoring, growth, and modernization. An intelligent Traffic light recognition solution is necessary to address road traffic. The identification and tracking vehicles on roads and highways are part of intelligent traffic monitoring while driving. Here, we have presented how You Only Look Once (YOLO) model may be used to identify cars, traffic lights, and pedestrians in various weather situations, allowing for real-time identification in a typical vehicular environment. In an ordinary or autonomous environment, object detection may be affected by bad weather conditions. Bad weather may make driving dangerous in various ways, whether due to freezing roadways or the illusion of low fog. Traffic light recognition is one of the important tasks in the studies of intelligent transport system. A robust traffic light recognition model based on vision information is introduced for on-vehicle camera applications. Our contribution mainly includes three aspects. First, in order to reduce computational redundancy, the aspect ratio, area, location, and context of traffic lights are utilized as prior information, which establishes a task model for traffic light recognition. Second, in order to improve the accuracy, we propose a series of improved methods based on an aggregate channel feature method, including modifying the channel feature for each types of traffic light and establishing a structure of fusion detectors.

Third, we introduce a method of inter-frame information analysis, utilizing detection information of previous frame to modify original proposal regions, which makes the accuracy further improved. In the comparison of other traffic light detection algorithms, our model achieves competitive results on the complex scene. Furthermore, an analysis of small target luminous object

detection tasks is given.

Acc.No. PR 2235(15B)

Title: Design of a Wearable Antenna for WBAN Application

Author: Parshva Shah, Aryan Shah, Parth raval,

Project Guide**:** Anjali Chaudhari

Abstracts: Wearable antennas are one of the newest developments in wireless technology. Since they are intended to be a part of clothing and the body, this sort of antenna needs to be flexible, light, and small. The kind of substrate material employed affects the textile antenna's characteristics, including efficiency, input impedance, bandwidth, and others. The substrate dielectric constant largely affects these qualities. In the 2.4GHz WLANBand, this study presents the design of two different types of rectangular microstrip patch antennas. Three distinct materials have been used as the dielectric substrate in each design type. The construction is straightforward, small, and simple to produce using textiles. The initial design has three layers: the patch, the substrate, and the ground.

Acc.No. PR 2236(16B)

Title: Performance Improvement of Microstrip patch Antenna in Endoscopy Application

Author: Shaun D'Souza, Raunaque Annareddy, Adarsh goyal, Swajeet raut

Project Guide**:** Uday p 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 an 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 optimise the antenna to work within the permissible SAR limits as specified by the FCC.

Acc.No. PR 2237(17B)

Title: IMAGE FORGERY DETECTION

Author: Shraddha Ghosh, Shweta Ghosh, Rishikesh Godambe, Siddharth Iyengar

Project Guide: Valentina Rani

Abstracts: In recent years, it has become quite simple to manipulate digital photos. This can be explained by technical development in the computing industry especially with sophisticated, cutting-edge image editing software. Most of this software is easy to use, which leads to its widespread usage. But this also raises a fresh issue that anyone can readily modify an image and utilise it for evil like disseminating false information, fake crowd generation in political rallies. Because of sophistication of equipment and programmes like Adobe Photoshop, Pixir, and Affinity, digital images content is often simply manipulated and thus images are produced that have been altered or faked. Fake or manipu9lated images propagated through the Web and social media have the capacity to deceive, emotionally distress, and influence public opinions and actions. Convolutional neural networks have lately been used in efforts to identify image counterfeiting in order to attain high-level image representation, thanks to advancements in neural network technologies. In this paper we concentrate on the copy-move image forgery topic as adeceptive forgery type.

Acc.No. PR 2238(18B)

ELEC

Title: Blockchain Application in Critical Energy Infrastructure

Author: Gaurang Avhad, Saurav Sharma, Omkar Thite, Aditya Yadav

Project Guide: Adil Sheikh

Abstracts: The impending advancement in the vehicle-to-grid technology (V2G) enables the transmission of information between them and the transfer of energy from battery-powered electric vehicles (EV) to the grid. Confidential information about the EV should, however, be transferred securely from one node to another during the information exchange. Additionally, it is important to maintain the privacy of the grid and EV. In view of this, this research highlights the usefulness of blockchain in securing the energy trading between EV and the grid. A practical byzantine fault tolerance (PBFT) is utilized for achieving the consensus in blockchain network and it states that for the attack to be successful 33% information is to be manipulated. The proposed PBFT based V2G system is tested in different scenarios and the results shows the effectiveness of the proposed PBFT-based blockchain.

Acc.No. PR 2239(1)

Title: State of Charge Estimation of Batteries of an Electric Vehicle

Author: Siddhesh Chavan, Aditya Gaikwad, Subodh Raut, Gilroy Saldanha

Project Guide: Adil Sheikh

Abstracts: This project proposes a method for estimating the state of charge (SoC) of an electric vehicle (EV) battery using a combination of the KF, UKF and the Coulomb counting method. The proposed method takes into account the social context in which the EV is being used and estimates the SoC based on the driving behavior of the user, the ambient temperature, and other environmental factors. The Kalman filter is used to estimate the SoC based on the battery voltage and current measurements, while the Coulomb counting method is used to correct any errors in the estimate. The proposed method is evaluated using real-world driving data collected from an EV and compared with other existing methods. The results show that the proposed method outperforms other methods in terms of accuracy and robustness.

Acc.No. PR 2240(2)

Title: Facts Using Static Var Compensator

Author: Suneet Mane, Rajesh Jaiswar, Lalit Nishad, Siddhant Prasad

Project Guide: Megha Fernandes

Abstracts: In general, transmission lines were operated at very unbalanced conditions in power systems. Some lines were operated at overloaded conditions at all times, pushing them closer to their stability limitations. This is a result of the rising energy demand and concurrent economic restrictions placed on the generation of electricity. Additionally for stability purposes, the transmission linesâ€™ power flow must be restricted. Voltage stability is one of the most difficult studies and even with tried-and-true methods and technology for enhancing power system security, this challenge still requires extra work to ensure the stability of the system. One approach being examined to address issues with power system stability is the use of flexible AC transmission system (FACTS) devices. In this paper,comparative study of a 66kV system consisting of 400 km long transmission line under various load conditions and their voltage profile improvement using shunt compensation type of FACTS known as Static VAr compensator (SVC) is demonstrated using MATLAB SIMULINK software. Additionally, implementation of hardware prototype of SVC at operating voltage of 110 V using ESP32 microcontroller is executed. The hardware circuit shows the SVC voltage regulation in the case of under-voltage and over-voltage condition.

Acc.No. PR 2241(3)

Title: ESP Based Grid connected Inverter

Author: Sanchita Jadhav, Shubham Kadam, Mahadeo Manjarekar, Jash Mehta

Project Guide: Pratik Rahate

Abstracts: A digital control technique is used to control single phase grid connected inverter with LCL filter. A digital PI current controller is applied as the control method. The control algorithm is implemented in the ESP32-WROOM-32 module. A proportional integral controller structure with a Phase Locked Loop (PLL) is designed and used as a synchronization algorithm to

achieve proper system functionality during perturbation. Also, the aim is to feed power into the grid and to decrease phase current distortion in inverter. Secondly, the design of the third order LCL output filter. The conventional inverter no longer fulfils the requirement of reducing harmonic distortions, plus it causes global warming and greenhouse effect. For increasing the efficiency and reliability of the system, the PV inverter becomes a vital part in the conversion of DC to AC output. This project thus presents a single-phase photovoltaic inverter controlled with sinusoidal pulse-width-modulation (SPWM) and low pass LCL filter connection between the inverter and the utility grid to reduce the harmonics. The results of simulations of the inverter system connected to the grid (230 V, 50 Hz) using MATLAB/Simulink are also shown. Simulation results confirm that the distortion of phase current in the proposed system is reduced, causing the total harmonic distortion for various power conditions to fall within 5%.

Acc.No. PR 2242(4)

Title: Single Phase Multilevel Inverter

Author: ANSHIKA MISHRA, AMRAPALI GAMARE, KUSH CHAUDHARI, VRUNDAR MORE

Project Guide: PRATIK RAHATE

Abstracts: A single-phase multilevel inverter is an electronic device that converts a DC voltage into a high-quality AC voltage waveform with reduced harmonic distortion. The inverter achieves this by synthesizing a stepped voltage waveform that approximates a pure sinusoidal waveform. The number of voltage levels can vary depending on the desired output waveform and the inverter's application. This project presents a comprehensive overview of single-phase multilevel inverter topologies, control techniques, electronic filter design and the industrial application. The project also analyses the different control techniques used in multilevel inverters to produce high-quality output waveforms with minimal harmonic distortion. The project concludes with a discussion on the potential applications of multilevel inverters in various fields such as renewable energy systems and motor drives. Two different circuit-topologies of multilevel inverter are simulated on MATLAB software and compared on the basis of number of levels obtained, number of voltage source used, number of switches required and total harmonic distortion (THD%). The first topology presented in this report is ‘Cascaded Hybrid Bridge Multilevel

Inverter (CHB-MLI)'. Gate pulses to all the switches are given by using 'Phase-Disposition Pulse Width Modulation (PD-PWM)' voltage control technique. The other topology described in this report is 'Seven-Level Inverter Using Single H-Bridge'. Gate pulses to three switches (level generating switches) are given by using a voltage control technique named as 'Triple Reference Pulse Width Modulation Technique'. This report also presents the Fast Fourier Transform (FFT) Analysis of both the circuit-topologies, which determines the THD percentage of both the circuits. This report focuses on the reduction of the number of switches and sources with acceptable total harmonic distortion (THD %) of the output voltage waveform to reduce losses and costs. This report mainly focuses on the application of single-phase induction motor fed by solar based multilevel inverter (proposed topology) with L-C-L filter.

Acc.No. PR 2243(5)

Title: IoT Based Smart Grid Control System

Author: Affan Shaikh, Prathmesh Chavan, Isha Sankhe, Rehan Nair

Project Guide: Adil Sheikh

Abstracts: Energy generation companies supply electricity to all the households via intermediate controlled power transmission hubs known as Electricity Grid. Sometimes problems arise due to failure of the electricity grid leading to black out of an entire area which was getting supply from that particular grid. This project aims to solve this problem using IOT as the means of communication and also tackling various other issues which a smart system can deal with to avoid unnecessary losses to the Energy producers.
IOT Smart Energy Grid is based on ATmega family controller which controls the various activities of the system. The system communicates over internet by using Wi-Fi technology. A bulb is used in this project to demonstrate as a valid consumer and a bulb to demonstrate an invalid consumer. The foremost thing that this project facilitates is re-connection of transmission line to active grid. If an Energy Grid becomes faulty and there is an another Energy Grid, the system switches the Transmission Lines towards this Grid thus facilitating uninterrupted electricity supply to that particular region whose Energy Grid went OFF. And this information of which Grid is active is updated over IOT webpage where the authorities can login and can view the updates. Apart from monitoring the Grid this project has advances capabilities of monitoring energy consumption and even

detect theft of electricity. The amount of electricity consumed and the estimated cost of the usage gets updated on the IOT webpage along with the Energy Grid information. Line fault conditions are simulated in the system using two switches. Switching one each time will simulate a theft condition and also will notify the authorities over the IOT interface. In this way the Smart Energy Grid project makes sure that the electricity supply is continuous and helps in maintaining a updated record of consumption and theft information which is quite a valuable information for the energy producing companies.

Acc.No. PR 2244(6)

Title: DESIGN AND IMPLEMENTATION OF DC-TO-DC BOOST CONVERTER FOR BATTERY

CHARGING USING SOLAR ENERGY

Author: Saif Ali Ansari, Mohd Aman Shaikh, Sonali Shirsath, Pawan Zambare

Project Guide**:** JOSNA JOSE

Abstracts: In Many technical application it is require to convert DC source voltage into another voltage level. Such as in our application lower DC voltage is amped up to another level. Application of converter is similar as a transformer. To step up the voltage we are boosting up the voltage to charge the battery of higher voltage rating. Efficiency, size, and cost are the primary advantages of switching power converters. when compared to linear converters. These are designed to provide an efficient method of taking a given DC voltage supply and boosting it to a desired value. To increase or decrease magnitude of DC voltage power electronic circuits known as converters are used. Because DC Voltage cannot be Stepped up or stepped down with transformer. The proposed converter is designed to draw power from a 30w solar array at a voltage level of 12v.As the open circuit voltage of solar panel is fluctuating due to change in solar radiation a charge controller (Series transistor voltage regulator) is designed then constant 12v is stepped up to 28v to charge a battery of 24v, 1.3Ah rating.

Acc.No. PR 2245(7)

Title: Single Phase to Three Phase Converter

Author: Janhavi Ajit Kashikar, Jaison Johnson, Vishal Maurya, SIDHESH RANGER

Project Guide: JOSNA JOSE

Abstracts: The converter is designed to convert single phase AC supply to three phase supply keeping frequency constant. The circuit consist of Rectifier, Closed loop boost converter, 6 leg IGBT inverter and LC filter. Inverter operation at different conduction modes (ie. 80°, 90°, 120°, 140°, 150°, 160°, 170°, 180°) were designed and simulated. On the basis of research and study of the obtained results, we conclude that 150° mode of conduction has the least THD levels. This makes the proposed model more efficient and reliable. The designed model can be implemented in areas where installation and affordability of three phase power is difficult. It can be used in wide range of sector such as Aviation, Construction, EV Chargers, Renewable generation, etc. Utilization of this circuit can reduce complexity and losses involved in installation of three phase supply. It will also reduce maintenance and cost.

Acc.No. PR 2246(8)

Title: MPPT Algorithm

Author: Titiksha Giri, Pratham Malap, Adnan Patel, Sakshi Jadhav

Project Guide: Adil Shaikh

Abstracts: This Project emphasizes to design a High Efficient Maximum Power Point Tracking (MPPT) Solar Inverter. The project aims to determine the Maximum power point tracking (MPPT) in photovoltaic (PV) inverters to continuously adjust the impedance seen by the solar array to keep the PV system operating at the peak power point of the PV panel under varying conditions, like changing solar radiation, temperature, and load. The algorithms account for factors such as variable radiation (sunlight) and temperature to ensure that the PV system always generates maximum power. A boost converter is designed in the system to boost the power from the photovoltaic panel. It is aimed to decrease the maintenance cost. An efficient and low-cost ESP32 is used as platform to code and implement the prominent perturb and observe MPPT technique. The duty cycle for the operation of the boost convertor is optimally adjusted by using

MPPT controller. To validate the experimental results simulation is carried out in MATLAB / Simulink environment. Thus, an effective solar system is achieved. As the solar energy for residential application is gaining considerable interest, there have been numerous PV inverter typologies proposed in the literature. PV grid connected and stand-alone systems are becoming more and more popular now a days. With proper tracking system an efficient MPPT inverter system has been developed for single phase. This project is basically based on the approach that by considering a conventional tracking system a single-phase inverter circuit is implemented whose switching is done by using ESP32. Keywords: MPPT Algorithm, ESP32, Inverter

Acc.No. PR 2247(9)

Title: DUAL AXIS SOLAR TRACKER AND IOT MONITORING

Author: Flavian Walter Dsilva, Ranjana Harishchandra Gupta, Vaastu Dhanraj Sansare, Dhruv Vinod Shetty

Project Guide: Megha Fernandes

Abstracts: This project emphasizes on proposing a cost effective IOT based dual axis solar tracker which serves for solar power towers applications and positioning photovoltaic (PV) panels. The solar tracking system is the most effective technology to improve the efficiency of solar panels by tracking and following the sun's movement. With the help of this system, solar panels can improve the way of sunlight detection so that more electricity can be collected as solar panels can maintain a sunny position. Thus, the project discusses the development of dual axis solar-tracking developers using arduino as micro controller unit. To develops this project, four light-dependent resistors (LDRs) have been used for sunlight detection and a maximum light intensity. The IoT technology is facilitated to track solar PV (photovoltaic) power generation that can improve plant upkeep, tracking, and efficiency. The IoT which stores the data and automatically preserves track of the voltage supply that solar panel detects the towards of sunlight and demonstrates the online utilisation of solar PV power.

Acc.No. PR 2248(10)

Title: Solar Powered Wireless Electric Vehicle Charging

Author: Pratiksha Patil, Shweta Pawar, Rohan Fernandes, Taufique quireshi

Project Guide: Varsha Thandassary

Abstracts: Electric vehicles have now hit the road worldwide and are slowly growing in numbers. In the last years, the production and sales of Electric Vehicles (EVs) have known an important growth in many European and Asian countries, (e.g. in Norway and Netherlands the compound annual growth rate is more than 100This evolution is due mainly to the severe limits regarding the CO2 footprint imposed by EU Air Quality Directive of 2008 that cannot be respected by internal combustion vehicles. These restrictions apply not only to light vehicles but also to trucks and buses which are also important pollution sources in urban areas of nitrogen oxides (NOx) and particulate matter (PM). The widespread use of EVs will greatly contribute to the reduction of pollution in large cities in the near future, but for now the limited number of battery charging points and the range anxiety is causing serious concerns to potential buyers. A solution that may contribute decisively to the expansion of electro-mobility within or between big cities is represented by the on-road dynamic wireless charging of EVs. This Wireless Power Transfer (WPT) technology allows the drastic reduction of the necessary capacity and weight of batteries carried by EVs in parallel with the expansion of their operation range to an almost unlimited one. Thus, the inconvenience and hazard caused by traditional conductive method can be essentially overcome with wireless charging Method. The implementation of special roads equipped with such systems involves high costs, the energy optimization of these systems being thus very important.

Acc.No. PR 2249(11)

Title: Automatic Power Factor Correction

Author: RUTHIK PATIL, PREM POOJARI, AJAY RAJBHAR, RAJAT WARKE

Project Guide: Varsha Thandassary

Abstracts: In this proposed system, two zero crossing detectors are used for detecting zero crossing of voltage and current. The project is designed to minimize penalty for industrial units using automatic power factor correction

unit. The microcontroller used in this project belongs to 8051 family. The time lag between the zero-voltage pulse and zero-current pulse is duly generated by suitable operational amplifier circuits in comparator mode is fed to two interrupt pins of a microcontroller. The program takes over to actuate appropriate number of relays from its output to bring shunt capacitors into load circuit to get the power factor till it reaches near unity. The capacitor bank and relays are interfaced to the microcontroller using a relay driver. It displays time lag between the current and voltage on an LCD. Furthermore, the project can be enhanced by using thyristor control switches instead of relay control to avoid contact pitting often encountered by switching of capacitors due to high in rush current. Acc.No. PR 2250(12)

Title: Real Time Communication over CAN Protocol in EV HMI Using ESP32 Module

Author: Kaustubh More, Anish Vedant, Adriel Furtado, Ashish Cherian

Project Guide: Ms. Josna Jose

Abstracts: This project proposes a system for on-board charging and energy metering in electric vehicles, with the aim of making EV owners more aware of their driving cycle and predicting driving range using battery State Of Charge (SoC)parameters through a deep learning model. The proposed system includes a custom-built power metering circuit, fault detection circuit, and ESP32 communication interface all connected to each other through CAN, that communicates battery parameters to the owner via an Message Queuing Telemetry Transport (MQTT) communication network. The data such as Voltage, Current, Temperature acquired is combined with, Google Maps Application Programming Interface (API) for terrain information which entails us to get a more accurate prediction model. The data is processed using a deep learning algorithm and sent to a web server, allowing for remote monitoring of the vehicle's battery health and battery state of charge. The project has applications in vehicular design parameters, machine learning data analysis, and the design of optimal chargingstation placements, vehicular range prediction models.

Acc.No. PR 2251(13)

Title: Condition Monitoring of Wind Turbine Using Machine Learning

Author: Pranay Dhumale, Sania Khatri, Sumit Patil

Project Guide: Adil Sheikh

Abstracts: Wind energy has grown significantly over the last decade. With this, various improvements in the design of the wind turbine are geared towards increasing the reliability of several components. The gearbox system is one of the most critical subassemblies in wind turbine drivetrains whose failures could lead to long downtimes and high repair costs. In our project, we are implementing the use of vibration analysis for the detection of gearbox component deterioration and detection of electrical faults occurring in the grid line with the help of data generated using sensors and supervisory control and data acquisition (SCADA). Operation of wind turbine is significantly impacted due to grid line failures, which causes the turbine to shut down or trip off leading to lost energy production and revenue. Analysis and detection of faults can improve the reaction time of the turbine. Condition monitoring of wind turbines using machine learning automatically monitors asset condition to provide an early fault detection. Machine learning algorithms like Random Forest (RF), Support Vector Machine (SVM), k-nearest neighbor (kNN), and Naive Bayes (NB) are applied and the results are summarized for implementing real time alerts and notifications when anomalies Care detected.

Acc.No. PR 2252(14)

Title: Bidirectional Buck-Boost Converter

Author: Soham Chavan, Rushank Girkar, Jai Sawant, Sachin Vishwakarma

Project Guide: Josna Jose

Abstracts: The Aim of the bidirectional buck boost converter for the smart grid and electric vehicle project is to develop an efficient and reliable power conversion solution that can handle bidirectional power flow between the grid and electric vehicle battery. The converter should be capable of providing high efficiency and power density while maintaining a high-power quality factor. The bidirectional buck boost converter was designed and optimized using simulation tools (MATLAB SIMULINK) to achieve the desired performance specifications. The key components of the converter, including inductors, capacitors, and power

switches, were carefully selected, and optimized for efficient operation. A prototype converter was designed, built, and tested to validate its performance in a real-world scenario. The prototype converter was tested under various operating conditions, including varying input and output voltage, temperature, and load conditions. The performance of the converter was evaluated in terms of efficiency, power density, and power quality. The design, development, and testing process were thoroughly documented, including technical specifications, schematics, and testing results. The economic viability of the bidirectional buck boost converter solution was analysed, and it was found to be a cost effective and efficient solution for electric vehicle charging infrastructure and renewable energy systems.

Acc.No. PR 2253(15)

Title: Integrated Multiple output Synchronous DC to DC Converter for EV Application

Author: Ganesh Gupta, Siddhesh Maurya, Yadnesh Wagh, Adarsh Zingade

Project Guide: Pratik Rahate

Abstracts: A Dc To Dc Buck Converter is a power electronic circuit frequently used in electric vehicles (EVs) to lower the voltage level of the dc supply at the load side. The synchronous buck converter is more efficient than a traditional buck converter because the diode that causes conduction losses is being replaced with a switching device. However, synchronous converter problems are very expensive. As a result, an integrated multi-output converter has been proposed. Compared to the typical converter, which consists of two separate DC-DC buck converters, the proposed one has lower switching elements. Additionally, it lowers current stresses which helps in reducing conduction loss. Detail is provided on the operational principle and diagnostic analysis. The experimental result is obtained, verified, and compared with the conventional strategy.

Acc.No. PR 2254(16)

Title: CAN Protocol Implementation for EV Chargers using Xtensa Dual Core Processor with GUI on Nextion Display

Author: Chinmay Pawar, Kabir Ohekar, Mohan Chipkar, Shreyansh,Jain

Project Guide: Pratik Rahate

Abstracts: This project report presents the design and implementation of a Low Voltage DC Charger with advanced IoT capabilities, named LVDC. The LVDC charger is designed for charging electric vehicles and other low voltage DC devices, and it comes equipped with a CHAdeMO gun, which facilitates easy connection to EVs with CHAdeMO charging ports. The charger is integrated with the Control Area Network (CAN) protocol for communication and control, allowing for seamless integration with other systems. The IoT integration provides remote monitoring and control of the charging process via a user-friendly web interface, providing real-time information on the charging status. The LVDC charger is also well-protected against overvoltage, overcurrent, and short-circuit, ensuring safe charging of the battery. This project report provides detailed information on the design, implementation, and testing of the LVDC charger, demonstrating its superior performance and reliability compared to already existing chargers in the market. The LVDC charger is expected to provide a cost-effective and reliable solution for low voltage DC charging, meeting the increasing demand for EV charging infrastructure.

INFT

Title: Algorithm Simulator

Author: Jash Shah, Shubham Shettigar, Viral S.Soni, Aniket V.Suvarna

Project Guide: Ms. Amrita Mathur

Abstracts: Artificial Intelligence is a booming technology and is applied in almost every domain of application. Over the years we have observed that algorithms, even though being a complex subject, are the foundation of computational thinking and programming skills of a student. So to ease up the hardships of students this idea of the project was formed. To design an intelligent system, a thorough understanding of complex AI Algorithm is required. The idea behind

the AI Algorithm Simulator was born from the recognition that algorithms are a critical component of a person's computational thinking and programming abilities. Our application Algorithm Simulator is both interactive and alluring to students. It gives the students hands-on experience of the algorithms' implementation. It feeds into their imagination to help them get a better understanding while also helping teachers to help make their students understand better. Through this project every student can learn at their own pace with our three speeds of learning: slow, average and fast. This interface is designed to make one feel fully engaged and concentrated. We have made use of HTML and JavaScript as primary languages for our project. The purpose of this project is to make learning less of a burden and more of an incredible experience which leaves students with the want to learn more. Despite their complexity, our AI Algorithm simulator seeks to make the subject more accessible and engaging for learners. The AI Algorithm Simulator is designed to be both interactive and visually appealing, providing learners with hands- on experience in implementing algorithms.

Acc.No. PR 2256(1)

Title: Image Forgery Detection

Author: Meet Patel, Kartikay Rane, Niyati Jain, Praneel Mhatre

Project Guide: Shree Jaswal

Abstracts: This report examines the results of image forgery detection algorithm, Convolutional Neural Network (CNN).This algorithm was implemented on forged and unmodified images, including a selection of images from an image manipulation dataset. Different Algorithms were studied thoroughly, and decision was made to implement Convolutional Neural Network (CNN) algorithm as it was found suitable for our project. Error Level Analysis provided decent results on previously compressed, high-quality JPEG files, but struggled with newly compressed images or low-quality samples. Copy-Paste Cloning Detection was highly successful on images forged using cloning methods, however the overall runtime was much higher than the other methods, and due to the nature of the algorithm false positives were routinely detected. Image Resampling Detection operated on a wide variety of images, provided good overall results on each dataset, and the rate of false positives was low. The algorithm was also highly efficient; however, resampling must have occurred in

order for any forgery to be detected, and it was therefore unsuitable for direct copy paste forgeries. Metadata Tag Detection was also run on each image, however it was found to be too rudimentary to be considered a method in its own right, as tags within files can be cleared or removed without much effort. Convolutional Neural Network (CNN) was more efficient then the previously mentioned algorithms, thus we decided to go with Convolutional Neural Network (CNN). This project therefore provides an ideal base for a user to determine the most applicable image forgery detection method for their use, depending on the types of images that they routinely deal with. For Training and Testing purposes, the dataset was taken from the internet as there were already a lot of datasets easily available that were useful for our project. This decision was made to save time by not having to create our own dataset.
Acc.No. PR 2257(2)

Title: Supply Chain Authentication for Vaccine Passport using Blockchain

Author: Arya Doshi, Gideon Harpanahalli, Arpan Dhamelia, Ashna Kabsuri

Project Guide: Nitika Rai

Abstracts: The COVID-19 pandemic has led to the creation of vaccination passports as a means of verifying an individual's vaccination status for travel and access to certain services. The validity of immunization records and supply chain procedures, however, are significant issues. The supply chain for vaccination passports has been called for to be made more secure and transparent using blockchain technology. To ensure safe and effective supply chain management, this article suggests a blockchain-based authentication mechanism for vaccination passports. The issuer, the prover, and the verifier will be the system's three key actors. The issuer will be in charge of producing inventory tokens and providing immunization certificates. The prover will verify the authenticity of the vaccination supply chain, and the verifier will ensure that the inventory token is legitimate. The proposed system will enhance transparency, security, and efficiency in the supply chain for vaccination passports, thereby improving the trustworthiness of vaccination records and facilitating safe travel during the pandemic.

Acc.No. PR 2258(3)

Title: Computer Vision for Industrial Safety

Author: Srishti Shetty, Shreya Shetye, Srushti Shinde, Chaithanya Madhu

Project Guide: Amrita Mathur

Abstracts: The growing deployment of computer vision in industrial processes significantly contributes to strengthening the manufacturing sector in terms of productivity and safety of the workers. Manufacturing workers are often working in hazardous environments handling different dangerous equipment putting their life on the line every day. Work accidents are reminders for which companies must make efforts to reduce its occurrence and their adverse impact on the lives of workers. In case of an active accident, the computer vision system can send an alert to managers and staff about location and the intensity of the accident so the production process can be halted in that specific area and proactively ensure the safety of employees. The deployment of computer vision-powered systems operating 24/7 accelerates manufacturing cycles increasing productivity. Computer vision applications have a major role in product and component assembly in the manufacturing space. They also aid in defect detection with increased accuracy and precision. Manufacturers conduct constant monitoring of equipment used for production manually. To improve the safety and working conditions for the workers and increase productivity in the manufacturing sector, this project aims to implement computer vision as a monitoring method to assure the security measures are followed and analyze the productivity in the organization. Data is collected from various sources like web crawlers and videos in the form of images to perform the training and testing of the object recognition algorithm, YOLOv3.

Acc.No. PR 2259(4)

Title: Plant Disease Detection using Machine Learning

Author: Dylan Butelho, Elton Gonsalves, Gilchrist Gonsalves, Nash Pimenta

Project Guide: Nitika Rai

Abstracts: This paper talks about a web based Deep Learning model that is capable of identifying healthy and diseased plants and recommend a remedy for those diseased plants. Early diagnosis of crop diseases is essential since they

affect the growth of their particular species. Emergence of accurate techniques in the field of leaf-based image classification has shown impressive results. The proposed model makes use of the Convolution Neural Network (CNN) for identifying between healthy and diseased plants. It also discusses the various issues related to image classification.

Acc.No. PR 2260(5)

Title: Find X: Track down missing people using MTCNN and FaceNet

Author: Rangel Koli, Deep Kotian, Hemant Mistry, Rushi More

Project Guide: Grinal Tuscano

Abstracts: Every single day thousands of missing people cases are registered with the police. These cases take extended amounts of time to solve and the cases keep on piling up for the police to solve. Facial recognition plays a big role in identifying a human being. A human has 5 important facial features with which a person can be recognized including eyes, nose and the edges of the lips. This report augments the existing system used to find missing persons by involving citizens in the process and feasibly shortening the time taken to find these missing people. The proposed tool," FindX" aims to reduce the time taken to trace the person and improve the process of finding the missing person. FindX is an interactive website where users are able to upload a photograph and detect whether the scanned photo belongs to a missing person. The system works in such a way that if the photograph is found to be of a missing person the nearest police station is alerted and they can then carry out the needful. Find X a WebApp for common citizens to use built using Python for the police stations by also including a face recognition algorithm based on MTCNN(Multi-task Cascaded Convolutional Neural Networks).

Acc.No. PR 2261(6)

Title: Melanoma Skin Cancer Detection

Author: Zohair Merchant, Sumit Kumar, Darshit Rupapara, Alastin Porathur

Project Guide: Amrita Mathur

Abstracts: Cancer is currently one of the main health issues in the world. Among different varieties of cancers, skin cancer is the most common cancer in the world and accounts for 75 percent of the world's cancer. Indeed, skin cancer involves abnormal changes in the outer layer of the skin. Although most people with skin cancer recover, it is one of the major concerns of people due to its high prevalence. Most types of skin cancers grow only locally and invade adjacent tissues, but some of them, especially melanoma (cancer of the pigment cells), which is the rarest type of skin cancer, may spread through the circulatory system or lymphatic system and reach the farthest points of the body. Many papers have been reviewed about the application of image processing in cancer detection. Currently, Deep learning has revolutionized the future as it can solve complex problems. The motivation is to develop a solution that can help dermatologists better support their diagnostic accuracy by ensembling contextual images and patient-level information, reducing the variance of predictions from the model. This project aims to develop a predictive model using Computer-Aided Diagnosis (CAD). The approach uses Convolutional Neural Network (CNN) to analyze skin lesion images and detect melanoma. This reduction of a gap has the opportunity to impact millions of people positively.

Acc.No. PR 2262(7)

Title: Autonomous Vehicle Simulation

Author: Harshkumar Bhikadiya, Shivam Bhosale, Parth Dali, Pranav Dalvi

Project Guide: Nitika Rai

Abstracts: Autonomous vehicles (AVs) are considered one of the most promising solutions for enhancing road safety, saving individuals' time, and reducing energy consumption. Autonomous vehicles are still in their early stage to be publicly accepted and gain a high level of trust. They need to be comprehensively and continuously evaluated and improved through road tests which are risky, costly, and time-consuming. Path planning and obstacle avoidance are essential for autonomous driving cars. On the base of a self-constructed smart obstacle-avoidance car, which used a depth camera and various sensors like LIDAR, RADAR, and IMU, this paper established a map of an unknown indoor environment based on depth information via CARLA software. The Dijkstra algorithm is used as the global path planning algorithm and the dynamic window approach (DWA) as its local path planning algorithm, which are applied to the

smart car, enabling it to successfully avoid obstacles from the planned initial position and reach the designated position. The tests on the smart car prove that the system can complete the functions of environment map establishment, path planning and navigation, and obstacle avoidance.

Acc.No. PR 2263(8)

Title: Vehicle Damage Analysis Using Computer Vision

Author: Shreyansh Doshi, Amarjit Gupta, Jay Gupta, Nidhi Hariya

Project Guide: Aruna Pavate

Abstracts: Vehicle damage is one of the major issues in the transportation sector. Manual Inspection of these damaged vehicles is a very time-consuming process. Vehicle insurance processing using damaged car images is a critical sector with a lot of room for automation. To resolve these problems quickly, a vehicle-damage-detection segmentation algorithm based on transfer learning and an improved mask regional convolutional neural network (Mask R CNN) is proposed in this work. Using images taken at the site of an accident can save time and money when filing insurance claims, as well as provide more convenience for drivers. This work deals with estimating car damage. The proposed work uses the technique Moire effect and metadata of the image to classify counterfeit images. The basis for algorithms used lies in Convolutional Neural Networks. The Mask R CNN algorithm identifies the damaged section of a car, determines its position, and then estimates the severity of the damage. This work further opens the door in car damage detection and insurance. The Mask RCNN model's mAP score is 0.273, and the CNN model's detection accuracy for moire patterns is 73.35%.

Acc.No. PR 2264(9)

Title: Algorithm Visualizer

Author: Himanshu Chaurasiya, Vikas Chaurasiya, Mukesh Gupta, Ashly John

Project Guide: Alvina Alphonso

Abstracts: Algorithms Visualizations contribute to improving computer science education. The method of teaching and learning algorithms is commonly complex

to understand the problem. Visualization is a helpful technique for learning in any engineering course. Within the report we discuss the possibility of enriching the standard methods of teaching algorithms, with the algorithm visualizations. As a step in this direction, Our own algorithm visualization platform will visualize topics such as Sliding window problem, matrix chain multiplication, levenshtein distance, and Longest Common subsequence. Sliding windows is a very intriguing technique used to solve some of the complex problems involving an array or a string. Matrix chain multiplication is an optimization problem that seeks the most efficient method of multiplying a given sequence of matrices. The Levenshtein distance is a string metric used to compare two sequences. The longest common subsequence (LCS) problem is the problem of finding the longest subsequence common to all sequences in a set of sequences. Through this project every student can learn at their own pace with our three speeds of learning: slow, average and fast. This will form a clear understanding of the underlying mechanics behind some confusing data structures thus building the foundation for the concepts of advanced methodologies and implementations.

Acc.No. PR 2265(10)

Title: Automatic Question Generator with NLP

Author: Trishali Rao, Lincy Rebello, Mohmmad Yasir Khan, Wahid Shaikh

Project Guide: Nitika Rai

Abstracts: Question paper generation is a tedious and time-consuming task especially in educational settings where quizzes and multiple-choice questions are most after pedagogy to assess student learning. In this project, our aim is to design and develop an automatic question paper generator using natural language processing. The proposed system takes a block of text as input and frames desired What types of questions.

Acc.No. PR 2266(11)

Title: Decentralized Learning Platform

Author: Raj Jaiswal, Ashish Yadav, Allan Rodrigues, Jonathan Sardinha

Project Guide: Joanne Gomes

Abstracts: This project work proposes use of Blockchain framework for securing the e-learning platform. The proposed framework was used to build a widely manageable and safe data delivery facility that will provide educational courses to users. Biggest weakness of the centralized system is the presence of a single point of break down or compromise and blockchain which creates a decentralized system solves this issue as each block of data shared is hashed and connected to the next node, it is impossible for third parties to access it, only two parties are able to read and manipulate data, hence it will be unusable by third parties in the case of leakage. Blockchain technology records the transactions on a database which are encrypted and distributed over many computer networks like a digital ledger of online transactions. This technology can be utilized in the e-learning industry to develop a decentralized platform where users can buy courses. Data distribution can be used with smart contracts to ensure that admin of the website will continue to be in control of creating, updating and deleting the courses and are kept up-to-date when any course is purchased by the user. The user can log on to the system by connecting their meta-mask wallet, thus no personal information is shared and hence data privacy is maintained. There exists a marketplace in the application where users can browse through different courses and enroll for the same by purchasing them. All transactions are done by using Ethereum digital currency and the Payment gateway provides a slippage of +2 percent and -2 percent if the price of Ethereum is unstable and rolls back the transaction within a few minutes if it exceeds that range.

Acc.No. PR 2267(12)

Title: HEALTHCARE WEB APPLICATION

Author: Mrunmai Musale, Kinjal Chauhan, Harsh Malhotra, Twinkle Salviya

Project Guide**:** Shree Jaswal

Abstracts: Health is the most vital part of life. If someone doesn't have good health, they can't enjoy their life. Health is not just about having a healthy body; it’s about being mentally sound. Be it health of the body or of the mind, life is incomplete without it. During Covid times, we have seen that people were not able to contact the doctor because of the lockdown and outspread of the Covid-19 virus. People prefer the online mode for everything right from ordering groceries to conducting online consultations. Hence, we have come up with a digital solution for this problem Docbook is a web-based platform that provides

consumers with healthcare services. With an aim to make affordable and quality healthcare accessible to all, we have also made it very convenient for people to access the doctors and healthcare providers.

Acc.No. PR 2268(13)

Title: Osteoporotic Fracture Analysis Using ML

Author: William Rathod, Tejas Kashid, Asher Rodrigues, Rohan Vanmali

Project Guide: Sonali Suryawanshi

Abstracts: Osteoporosis is a disease of bones that results in an increased risk of fracture, and it is characterized by low bone mineral density and micro-architectural deterioration of bone tissue. Around the world, 1 in 3 women and 1 in 5 men aged fifty years and over are at risk of an osteoporotic fracture. In fact, an osteoporotic fracture is estimated to occur every 3 seconds. The most common fractures associated with osteoporosis occur at the hip, spine and wrist. The likelihood of these fractures occurring, particularly at the hip and spine, increases with age in both women and men. Osteoporosis, which literally means porous bone, is a disease in which the density and quality of bone are reduced. As bones become more porous and fragile, the risk of fracture is greatly increased. The loss of bone occurs silently and progressively. Often there are no symptoms until the first fracture occurs. The scope of the proposed exhaustive methodology is to help therapists in osteoporosis prediction, avoiding unnecessary further testing with bone densitometry. In our project we are going to develop an accurate and a validated Machine Learning model to identify the risk of osteoporotic fracture depending upon various parameters like age, gender, medical history, etc.

Acc.No. PR 2269(14)

Title: Hand Gesture and Voice Controlled Mouse

Author: Aleena James, Atheena James, Minoli Bagwe, Aarti Morajkar

Project Guide: Aruna Pavate

Abstracts: This paper proposes a Human-Computer Interface (HCI) that enables users to control the mouse cursor using hand gestures and voice commands. The

primary goal of the system is to create a more efficient and intuitive way of interacting with the computer, which is especially beneficial for people with physical disabilities. The system uses computer vision Efficient Net B4 architecture with no code machine learning to identify different hand gestures and map them to corresponding cursor movements. The traditional computer mouse can be difficult to use for people with physical disabilities, such as those who have limited hand mobility. The proposed HCI system provides an alternative way of controlling the mouse cursor that is more accessible and efficient. The system utilizes a combination of hand gestures and voice commands to provide users with more control and flexibility. The system's computer vision Efficient Net B4 architecture is used to identify different hand gestures accurately. This architecture can recognize different hand shapes and movements with high accuracy, making it an ideal choice for this application. The system also utilizes no code machine learning, which simplifies the development process and allows for rapid iteration and customization. The system is highly configurable, allowing users to customize how it works to suit their needs best. For example, users can adjust the sensitivity of the hand gestures or change the mapping of gestures to cursor movements. The setup process is straightforward and user-friendly, making it easy for users to start using the system quickly. To evaluate the system's performance, several experiments were conducted, which demonstrated that the hand gesture-based mouse control system can accurately and reliably move the mouse cursor. The system's accuracy and speed were tested under various conditions, such as different lighting conditions and distances from the camera. The results showed that the system performed well under a wide range of conditions. Overall, this HCI system has the potential to improve the quality of life and increase the independence of individuals with physical disabilities. The system provides an alternative and more accessible way of interacting with the computer, which can enhance the user's overall experience. The highly configurable nature of the system also allows it to be tailored to the individual's needs, making it a versatile tool for a wide range of users. In conclusion, this paper presents a novel approach to HCI that has significant potential for improving the accessibility and usability of computers.

Title: Image Caption Generator

Author: Austin Emmanuval Noble, Abin Mathew Thomas, Sheneal Butello, David Joseph

Project Guide: Garima Singh

Abstracts: Automated image captioning is an essential task in computer vision that has various real-world applications, such as assisting visually impaired individuals and providing descriptions of website content. However, generating high-quality image captions that accurately capture the content and context of the input image is still a challenging problem. Existing approaches rely on complex architectures, such as Convolutional Neural Networks (CNNs), Gated Recurrent Units (GRUs), and Recurrent Neural Networks (RNNs), which are prone to issues like vanishing gradients and difficulty in capturing long-term dependencies. Additionally, the generated captions often lack coherence and fluency, leading to readability issues. These challenges highlight the need for novel techniques and architectures that can address these problems effectively. Our project aims to tackle these challenges by using transformers, a type of neural network architecture that has significantly improved the state-of-the-art in natural language processing. By leveraging the power of trans- formers, our approach can capture long-range dependencies between words and generate more coherent and natural-sounding captions. Additionally, the attention mechanism in our approach allows the network to focus on the most relevant image features at each time step, improving the accuracy and coherence of the generated captions. Our project will demonstrate the effectiveness of this approach on benchmark datasets and show that it outperforms existing state-of-the-art methods in terms of both quantitative evaluation metrics and the visual quality of the generated captions. Ultimately, our project will contribute to the field of automated image captioning by providing a novel and effective approach that can generate high-quality captions that accurately capture the content and context of the input image.

Title: Detecting Online Cyberbullying Using Machine Learning

Author: Rohan D'cruz, Varun D'souza, Reon Figueiro, Rohan D'silva

Project Guide: Alvina Alphonso

Abstracts: Cyberbullying is a disturbing online misbehavior with troubling consequences. It appears in different forms, and in most of the social networks, it is in textual format. More than 1.96 billion are bound to have an inevitable social life. However, the growing decade poses serious challenges and the online-behavior of users have been put to question. Increasing cases of harassment and bullying along with cases of fatality have been a serious issue. Automatic detection of such incidents requires intelligent systems. Most of the existing studies have approached this problem with conventional machine learning models and the majority of the developed models in these studies are adaptable to a single social network at a time. In recent studies, deep learning based models have found their way in the detection of cyber-bullying incidents, claiming that they can overcome the limitations of the conventional models, and improve the detection performance. Though many old-school models are available to control the mishap, the need to effectively classify bullying is still feeble. To effectively monitor the bullying in the virtual space and to stop the deadly aftermath with implementation of Machine Learning and Language processing. In this paper, we propose a methodology to provide a binary classification of cyberbullying. Our method uses an innovative concept of Hybrid Algorithm for text analysis however the existing methods use a naive approach to provide the solution with less accuracy. An existing dataset is used for experimentation and our framework is verified with other existing procedures and is found to provide better accuracy and classification

Acc.No. PR 2272(17)

Title: IoT Server for Secured Data Integrity and Acquisition

Author: Kence Lopes, Luvina Mary, Kim Machado, Crystal Budul

Project Guide**:** Garima Singh,

Abstracts: The Internet of Things (IoT) is growing exponentially but the security for IOT projects and deployments still remains an obstacle for many organization. Systems are susceptible to hacker exploitation because of the vast accessibility and interconnectedness of IoT devices. Therefore, a sophisticated security framework is required that addresses problems with data security, data confidentiality, and data integrity. To identify the components and themes in the body of current literature, the study employs a systematic literature review (SLR) methodology. With an IoT Dash board as the front end, a secure IoT Server is

created. Users can monitor and communicate with linked devices via an IoT dashboard, which is the user interface found within an IoT platform.Through the visualization of device data, dashboards enable us to control every aspect of connected devices and gain perspective on the environment. With this IoT dashboard we are able to simulate several sensors, whose data would be gathered and shown on the dashboard. The solution additionally enables the writing of data from the dashboard to numerous simulated devices and sensors.

Acc.No. PR 2273(18)

Title: Audio Source Separation using Wave-U-Net with Spectral Loss

Author: Tanish Ashwin Parmar, Varun Anand Patkar, Vedant Ritesh Pawar, Parth Prasad Narvekar

Project Guide: Joanne Gomes

Abstracts: With the immense amount of data present worldwide, an excessive amount of audio content is consumed on a day-to-day basis. Audio being an important source of content where sharing of audios are common, which in turn results in decreasing the quality of audio source. Audio source mainly contains vocals and instruments. Audio or music consumption being a favorite part in everyone's life, which has multiple parts, a popular example of karaoke. Our Problem Statement is basically taken from "cocktail party problem". The "cocktail party problem" is encountered when sounds from different sources in the room mix in the air before arriving at the ear, requiring the brain to estimate individual sources from the received mixture. So we are making a system that would be able to take a song as a input and will give us separated individual sounds like vocals of the lead singer, sound of specific music instruments like drums, piano etc. By using our system a person would easily be able to separate the audio channels in a song without having an extensive knowledge of professional sound separation tools. The aim is to save human effort and unleash to a potential market. We endeavor to create an algorithm that gives the best results and try a new Deep Learning based approach for separation. Firstly to separate vocals and instruments from an audio we have ICA algorithm. The first step after loading the data is to center and normalize it so it is easier to work with. Before applying the ICA algorithm, we must first "whiten" our signal. To "whiten" a given signal means that we transform it in such a way that potential correlations between its components are removed (covariance equal to 0) and the

variance of each component is equal to 1. Then we negative entropy and convergence to separate the vocals and instruments.

Acc.No. PR 2274(19)

Title: Identification of Fake Vs Original Logos using Deep Learning

Author: Jay Sanghavi, Sakshi Nemade, Jay Rathod, Hasti Panchal

Project Guide: Aruna Pavte

Abstracts: In this study, we propose a method for detecting fake logos using the B0 Efficient Net architecture and transfer learning. With the increasing use of logos in various domains, there is a growing concern about the spread of counterfeit logos. Our proposed method uses transfer learning, which enables the use of pre-trained models to classify images, thereby reducing the time and computational resources required for training. We used the B0 Efficient Net architecture, which has achieved state-of-the-art results in image classification tasks, and fine-tuned it on a dataset of real and fake logos. Our experiments show that the proposed method achieves high accuracy in detecting fake logos, with an F1-score of 0.95, outperforming existing methods. The results demonstrate the potential of using transfer learning and the B0Efficient Net architecture for detecting fake logos, which could have significant implications in various fields, such as e-commerce, marketing, and intellectual property protection.

Acc.No. PR 2275(20)

Title: Big Data for Marketing Using ELK and ML

Author: Faustina Lazarus, Bennet Menezes, Ankshith Naik, Jofin Johnson

Project Guide: Vaishali Jadhav

Abstracts: With the growing rate of E-commerce marketing, finding the right products within your budget becomes a tedious task. Customers have to sit for hours, viewing, browsing, finding and deciding on the right product, and generally end up leaving without having bought anything or having a bad experience with the website or organization. This leaves a bad impression on the customers, and they tend not to return to the site. This provides a bad experience for the customer and the organization, as they lose out on potential customers and

lots of revenue or income. Creating a system that provides users with a plethora of options of similar products within their budget, to get a variety of alternatives to choose from, along with the forecasting of the rise and fall of prices in the future, provides the customers with the opportunity, to make a detailed decision, on which product they want to buy and when. Our system provides users with the same functionality. A detailed analysis of the trends and patterns of the historical data of prices provides customers with the forecasting of prices which enables them to make a detailed decision on when to buy it, along with saving money. We aim to provide a faster, quicker and more efficient E-shopping experience for the customers, by giving them better options, and cost-saving alternatives, which increases their faith in the company or organization and also provides increased revenue to the company.

Acc.No. PR 2276(21)

Title: Virtual Interior Home Decor

Author: Trijjal Prajapati, Vaishnavi Puthran, Sarah Furtado, Akssa Juby John

Project Guide: Minal Lopes

Abstracts: Every individual has an idea and desire of creating a pleasant environment where they can stay. Interior designing is one of the sectors where advancements in technology has not been utilized to its fullest potential. Our proposed application illustrates a 3D representation of interiors to enhance the visual portrayal of architectural plans. The smartphone's camera will detect the environment wherein, the application will superimpose a 3D model of the real world using augmented reality. As an outcome the end user can see the real environment augmented with physical objects where you can interact with them. In an AR environment, the virtual furniture, decor items can be displayed and modified in real-time on the screen, allowing the user to have an interactive experience with the virtual objects in a real-world environment. The most important novelty AR technology brings to the home and interior design field is a highly interactive experience. Augmented reality in interior design is remarkably useful as it enables users to visualize how their desired room would look like. Recent decades have seen a massive accelerating pace in the development and advancement of new technologies and one such technology is augmented reality and virtual reality. Augmented reality is a technology that combines virtual reality with reality. The rapid development of augmented reality

technology has aroused people's high attention. Every human has an idea and desire of creating a pleasant environment where they can stay. This is where they begin to think about the various objects and designs, they will require for their space. Hence, Augmented Reality (AR) technology enables the objects in real time. AR is a new technology that includes the placing of some of the virtual objects in the real environment. As an outcome the end user can see the real environment augmented with physical objects where you can interact with them. In an AR environment, the virtual furniture, decor items can be displayed and modified in real-time on the screen, allowing the user to have an interactive experience with the virtual objects in a real-world environment. Nothing can be compared to trying out 3D models in a real-world environment and evaluating them from the outer and inner sides. Finally, this project proposes a new method for applying AR technology to interior design work, where a user can view virtual home decor objects and communicate with 3D virtual objects using a dynamic and flexible user interface.

Acc.No. PR 2277(22)

Title: Neural Bee - A Beehive Health Monitoring System

Author: Yash Mahajan, Deep Mehta, Joel Miranda, Ron Pinto

Project Guide: Vandana Patil

Abstracts: Bees are essential as they are responsible for the pollination of one-third of the world's food. Without bees, the availability of fresh produce would be significantly less and could also lead to the collapse of several ecosystems. This study proposes a system that uses computer vision to detect Varroa mite infestation levels in a beehive using object detection techniques and a beehive audio analysis system using Mel spectrograms and Mel-frequency cepstral coefficients (MFCCs) as input features to a deep learning model to discriminate between a healthy hive and a weak hive. For this experiment the object detection algorithms YOLOv8, YOLOv7, YOLOv5 and SSD, are compared based on their accuracy, speed, and compute requirements. A dataset consisting of over 10,000 ground-truth images of bees infected with varroa mites and healthy bees was used and the models achieved the highest precision of 0.962 for Varroa mite detection. For audio analysis, a custom dataset with over 2 hours of audio recordings from "strong" and "weak" beehives was used to train and evaluate a neural network that reached a maximum accuracy of 0.998.

Acc.No. PR 2278(23)

Title: Boulevard: Street Administration and Brilliance Management System

Author: Jeet Vartak, Yash Vasani, Parth Magiya, Aashay Narkar

Project Guide: Priya Chaudhari

Abstracts: Traffic congestion and accidents caused by over speeding vehicles have been a major cause for concern in societies due to their negative effects such as stress to commuters, release of more toxic fumes into the atmosphere, accidents and loss of productive hours. The conventional traffic light system works as per the in-built configuration assigned to it without taking into consideration the density of traffic along each lane which proves to be tedious and problematic to the commuters. Our proposed system solves this problem by placing IR sensors along each lane which help in calculating the density and thereby easing the traffic congestion. Streetlights are the elemental part of any city since it facilitates better night visions, secure roads, and exposure to public areas, but it consumes a quite large proportion of electricity. In the manual streetlight system lights are powered from sunset to sunrise with maximum intensity even when there is sufficient light available. This energy wastage can be avoided by switching off lights automatically. The saved energy can be efficiently utilized for other purposes like residential, commercial, transportation etc. Our application is designed in such a way that we place light sensors in all the streetlights circuits which are responsible to switch on and off automatically. The system also features a SOS button which is great in helping commuters during emergency situations. In the traditional toll system, more human labour is required, and it also requires an attendant to sit there all overtime which consumes a lot of time resulting in traffic jams near the toll booth. In order to overcome the difficulties faced in the manual toll collection system, Electronic Toll Collection (ETC) came into existence. In order to overcome the wastage of time and fuel at the same time we have come up with the concept of RFID based automated toll collection system using arduino.

Acc.No. PR 2279(24)

Title: Smart Inhaler and Remote Asthma Monitoring System

Author: Neha Stanley, Jubia Oommen, Julia Oommen,Vidita Ravle,

Project Guide: Prachi Raut

Abstracts: The domain of IoT deals with the physical objects like sensors, processing ability, software, and other technologies that connect and exchange data with other devices and systems over the Internet or other communications networks. Healthcare providers have greatly benefited from the advances in IoT, with the help of wearable devices, glucometer, etc to name a few. Traditional inhalers lack the convenience to monitor the person's medicine usage over a period of time, manage the information on an application, track inhalers position or predict the inhalers use based on external (environment) and internal (patient vitals) factors. Smart inhalers are inhalers that have been equipped with sensors that detect when the inhaler is being used. This data is then sent to a smartphone app, which can track medication usage and provide reminders to patients when it is time to take their medication. This can help ensure that patients are adhering to their medication regimen and can help healthcare providers monitor how well their patients are managing their asthma. Remote asthma monitoring systems can be particularly helpful for patients who have difficulty keeping track of their symptoms or who live in remote areas where access to healthcare may be limited. Both smart inhalers and remote asthma monitoring systems have the potential to improve asthma management and reduce the frequency of asthma attacks. By providing patients with personalized insights and empowering them to take control of their asthma, this technology can help improve quality of life for asthma sufferers and reduce healthcare costs associated with asthma-related hospitalizations and emergency room visits. We begin the paper with the introduction to our topic, motivation for our project and the problem statement. Chapter 2 deals with the Literature review and gaps identified. We expand the concept of our project by discussing the objectives, scope, methodology, algorithms used in chapter3. Under chapter 4, System Analysis, we work with functional and non-functional requirements, along with use-case diagram. Analysis modelling is discussed in chapter 5. Chapter 6, which discusses the implementation steps and code base to make the project work. Testing is summarized in chapter 7 regarding hardware and mobile application. Finally, we provide the results and conclude the book with conclusion and future scope.

Title: Picturesque: Bringing Old Photos Back to Life

Author: Riddhi K Kothari, Sanika Acharya, Sachin Shinde, Nelson Amaran

Project Guide: Aruna Pavate

Abstracts: As a medium of information transmission, photos record people's meaningful time and carry many people's beautiful memories. Nevertheless, when stored in unfavourable conditions, antique photo prints deteriorate and damages the priceless photo content. However, manual retouching is typically time-consuming and often make old photos impossible to restore. Therefore, it is beneficial to develop automatic algorithms that can immediately fix damaged images for those who wish to bring old photos back to life. With the advent of image restoration technology, photos that have been damaged can be virtually restored on computer to preserve people's memories of the past. If the first one seems rather objective, the other is subjective. Digital retouching is the process of making an image look better, while restoration is the process of reversing known degrading operations applied to images so that they are no longer visible in the images. Normally, face restoration relies on several factors such as facial geometry. However, the low quality of input images often does not help in applying techniques related to this geometry, which limits restoration applications.

To overcome this problem, GAN which exploits other features and techniques to successfully restore a photograph in which a face appears. Generative Adversarial Nets were recently introduced as a novel way to train generative models. In this work we introduce the conditional version of generative adversarial nets, which can be constructed by simply feeding the data, we wish to condition on to both the generator and discriminator.

The purpose of this project is to restore old photos that suffer from severe degradation with the help of deep learning, improve the quality of old images using deep learning as well as to remove grain, blurriness and high contrasts and enhance the image. This project proposes a deep neural network that solves the denoising and colorization problem simultaneously. For our project we are using Generative adversarial network (GAN). The generator network is trained to generate an indistinguishable image from the ground truth, fooling the discriminator with the reconstructed image. Similarly, the discriminator is trained to distinguish reconstructed images from real images.

Therefore, we included a learned discriminator sub-network to classify if each input image is real or fake. The project deals with the joint denoising and

colorization problems. The colorization with a GAN pix2pix and a well-chosen objective function can come closer to produce results indistinguishable from real color photos. It improves the quality of old images using deep learning and remove grain, blurriness and high contrasts and enhance the image. Model depends on different lighting conditions of the input image, which leads to different colorization of the same object. The calculated SSIM metric for denosing was 0.79 and for colorizing was 0.74

Acc.No. PR 2281(26)

Title: Touchless Fingerprint Recognition System

Author: Yash Patel, Meet Hadiyal, Rasik Sawant, Harsh Sanas,

Project Guide**:** Vandana Patil

Abstracts: Fingerprint recognition systems have become essential to security and authentication systems in various applications. In recent years, touchless fingerprint recognition systems have gained attention due to their ability to provide contactless and hygienic biometric identification. Our touchless fingerprint recognition system combines image processing techniques and machine learning algorithms. The system uses an R307 fingerprint scanner to store touch-based fingerprints in a database. It then uses a hand detection model to detect the user's hand and captures a touchless fingerprint image using a Raspberry Pi camera. The captured image is then processed using various techniques such as RGB to grayscale conversion, segmentation using rembg, normalization using CLAHE, rigid orientation estimation, filtration using thinning and binarization, and SIFT detection for matching. Finally, the touchless fingerprint is compared to the touch-based fingerprint in the database to determine a match. Our proposed system shows promising results and can be used in various applications where touchless biometric recognition is required. Our system is accurate and reliable, as well as the potential applications of the system in various fields such as security, healthcare, and banking.

Acc.No. PR 2282(27)

Title: P2P Negotiation Framework for Trading Carbon Credits

Author: Alden Aguiar, Asit Shigwan, Derrick D'Abreo

Project Guide**:** Shree Jaswal

Abstracts: The act of bargaining between two parties over the allocation of a resource whose supply is constrained by the laws of nature is known as negotiation. One goal of the digital revolution as we move closer to the digital era has been to replicate, simulate, and automate processes that need higher level human cognition, such as negotiation. The introduction of e-negotiation is the main force behind the automation of negotiation. Our goal is to present a P2P negotiating framework in this study that may be broadly applied in a range of scenarios and domains. Our proposed, domain-specific solution is primarily driven by fuzzy controllers.

Acc.No. PR 2283(28)

Title: CareerBuddy: Career Guidance Website

Author: Sherly Mathias, Aditi Pednekar, Christian Manakkal, Anudnya Patil

Project Guide: Priya Chaudhari

Abstracts: Career is a very important part of an individual's life. But, with the increasing competition in today's world and due to the set stereotypes existing in society, students tend to make career decisions that can further turn into frustrations while working for a job. Career decisions can be affected by several factors, an important one being parents and teachers, where they too might not have enough information to guide their children and students. The existing solutions in this space are career guidance systems, which in India are mostly privatized as compared to foreign countries. The focus of the research is to find gaps where a design intervention can be introduced to help students be more aware of the career decisions they are making, and in the process, try to remove some ambiguity. In today's world, selecting the right career is a very complicated and difficult task for anyone. While choosing the right career one should think with respect to their skills, area of interest, abilities and capabilities. This project is an approach to provide proper guidance to the students by recommending them careers after 10th and 12th grade. The students are evaluated on the basis of the aptitude test and available career options are recommended accordingly. In this system we have used different data mining algorithms for better visualization.

Acc.No. PR 2284(29)

Title: Sanjaya: A Blind Assistance System

Author: Niyati S Agarwal, Pranav Bangera, Roger Dsouza, Hitanshu Parekh

Project Guide: Grinal Tuscano

Abstracts: In 2017, the World Health Organization (WHO) reported nearly 284 million individuals world- wide experienced some degree of visual impairment. with approximately 39 million individuals suffering from total blindness. People with visual impairments often rely on assistance from others or use canes to move around and identify obstacles. Our proposed system aims to aid the visually impaired by identifying and classifying common objects in real-time, as well as recognizing text from various sources such as documents and signs. This system provides voice feedback to enhance understanding and navigation and utilizes depth estimation algorithms to determine a safe distance between objects and individuals, promoting self-sufficiency and reducing dependence on others. We employ the COCO image dataset, which contains everyday objects and people, and utilize the Mobile net SSD algorithm for real-time object identification. To enable real-time Optical Character Recognition (OCR) Text-To-Speech functionality, we employ advanced technologies such as OpenCV, Python, and Tesseract for text detection and recognition, and the Pyttsx3 library for converting recognized text into audible speech. Our proposed system is dependable, affordable. realistic, and feasible.

Acc.No. PR 2285(30)

Title: Glimpse - Virtual Exhibition Framework

Author: Mariam Abidi, Monik Kaole, Dhruv Dave, Christina Noronha

Project Guide: Prachi Raut

Abstracts: Glimpse is a user-friendly Google Slides add-on that aims to simplify the process of creating high-quality virtual exhibitions. Traditional physical exhibitions can be costly and time-consuming to organize, and their reach is often limited to a local audience. Meanwhile, existing virtual exhibition platforms can be complex to use, have compatibility issues, and may not be engaging enough to hold attendees' attention. Glimpse addresses these challenges by automating data entry and including embedded interactive features, enabling laymen to create high-quality virtual exhibitions quickly and efficiently. The framework is well-

suited for businesses, non-profits, and educational institutions seeking to create virtual exhibitions and is cost-effective and easy to use. It leverages Google Workspace and Apps Script to provide a familiar and intuitive interface for users, allowing them to select a theme, design the structure, perform data entry, establish communication, and add interactive activities. Room styler is used to create graphics for the exhibition. Glimpse is also scalable and can accommodate a range of multimedia content, including text, images, videos, and 3D models. The framework is designed to be accessible from various platforms, including desktop and laptop computers, and can be easily navigated by visitors. By providing a more accessible and engaging alternative to traditional physical exhibitions and complex virtual exhibition platforms, Glimpse has the potential to revolutionize the way exhibitions are created and experienced.

Acc.No. PR 2286(31)

Title: Multi-Modal Speech Emotion Recognition (SER)

Author: Aman Kumar Yadav, Ankur Yadav, Mushal Shaikh

Project Guide: Prajyoti Dsilva

Abstracts: Speech is a commonly used signal for interaction between humans, this leads to the usage of speech for human and machine interactions as well. Improvements in this interactive system reach toward speech emotion recognition (SER) systems. SER gives sufficient intelligence for efficient natural communication between humans and machines. The SER system classifies emotional states such as sadness, anger, neutral, and happiness from the speaker's utterances. This paper describes speech features and machine learning models that can be used for SER. For effective classification and to learn multidimensional complex data, a deep learning algorithm is used in this system. This paper also presents the preliminary results of a system with an MFCC feature and an LSTM algorithm.

Acc.No. PR 2287(32)

Title: Clustering of Indian Addresses Data for Insights

Author: Manav Parmar, Dev Patel, Deep Patel, Rexon Pambujya

Project Guide: Vaishali Jadhav

Abstracts: Autonomous vehicles (AVs) are considered one of the most promising solutions for enhancing road safety, saving individuals' time, and reducing energy consumption. Autonomous vehicles are still in their early stage to be publicly accepted and gain a high level of trust. They need to be comprehensively and continuously evaluated and improved through road tests which are risky, costly, and time-consuming. Path planning and obstacle avoidance are essential for autonomous driving cars. On the base of a self-constructed smart obstacle-avoidance car, which used a depth camera and various sensors like LIDAR, RADAR, and IMU, this paper established a map of an unknown indoor environment based on depth information via CARLA software. The Dijkstra algorithm is used as the global path planning algorithm and the dynamic window approach (DWA) as its local path planning algorithm, which are applied to the smart car, enabling it to successfully avoid obstacles from the planned initial position and reach the designated position. The tests on the smart car prove that the system can complete the functions of environment map establishment, path planning and navigation, and obstacle avoidance.

Acc.No. PR 2288(33)

Title: Smart Robot for Spraying Pesticides on Plants

Author: Adengill Rozario, Prajwal Patil, Princewel Manbhat

Project Guide: Prajyoti Dsilva

Abstracts: The process of spraying pesticides is a very risky job. As the human spraying the pesticides comes in direct contact with the fumes. Inhaling these fumes usually has instant side effects like coughing, nausea, vomiting, secretion of more saliva than usual, red eyes, sweating. Itchy skin. laboured breathing and running stomach. Long term exposure may lead to chronic diseases such as Alzheimer’s. Cancer. Birth Defects. Endocrine disruption. Reproductive issues. Asthma. Diabetes. Parkinson’s disease. Development and learning disorders. The proposed automated robot will have the functionality to follow the path to the plant. It will move towards the plant by moving on the tape. After reaching the plant, the car will detect the plant via image processing. Once the plant is detected an adequate amount of pesticides will be sprayed on the plant. As a result, no humans will come in direct contact with the fumes emitted from the spray.

Acc.No. PR 2289(34)

Title: BOOK MY TABLE

Author: Yash Jethva, Janavi Shah, Dhrumil makwana, Deep parmar

Project Guide: Shree Jaswal

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

Title: IMPLEMENTATION OF PERSONAL VOICE ASSISTANCE FOR AN ERP SYSTEM

Author: Yachi Agrawal, Kunal Nayak, Dylan Dmello, Rohunn Jain

Project Guide: Joanne Gomes

Abstracts: Knowingly, or unknowingly, personal voice assistants have become an integral part of our lives these days. It is because of all the features and ease of use they provide. Personal voice Assistants are also capable of automating some day-to-day tasks, so that a user can focus on what matters the most to them. So, utilization of a personal voice assistant will save an individual a lot of time, and effort. It is important to focus more on what matters the most for an individual, whether it could be personal work, or professional work. This paper describes a voice enabled personal assistant will help automating this process. User is expected just to give a voice command, and the assistant will take care of the rest. also, People often spend more time on doing routine tasks, and they can

be automated with these types of personal assistants. When someone works in an environment with which he/she is not familiar with, they often find it difficult to locate applications that they need, like a browser, any IDE or any other software. Most of the time, they will end up wasting hours of time, searching for the application alone. This results in unnecessary time wastage. Similarly, Voice enabled personal assistants can be implemented by using technologies like Speech-to-Text and Text-to-Speech recognition.

Acc.No. PR 2291(36)

MECH

Title: DOMESTIC STAIR-CLIMBING FORKLIFT

Author: Mayur Rane, Ceabron Andrades, Ryan Rebello, Shaun Pinto

Project Guide**:** Ravindra Garmode

Abstracts: The sole objective of a forklift is lifting off heavy objects and transporting them from one location to another. These criteria were considered while designing and fabricating the model. A modified forklift has been presented that is capable of climbing staircases and lifting a certain amount of load to a certain height simultaneously. The designed forklift uses a low-speed motor, which is cost efficient, with a reduction gearbox and a pulley to lift the weight instead of using a hydraulic set up which is traditionally used in industrial forklifts. This increases the load capacity of the forklift in comparison to the industrial forklifts. Efforts have been made for coupled construction of the forklift and the climbing trolley.

Acc.No. PR 2292(1)

Title: Voice Controlled Prosthetic Arm

Author: Akhil Nadar, Rohith Kennedy, Jaydeep Patil, Snedon Kartan,

Project Guide**:** Magesh Nadar

Abstracts: In the present world, the number of amputee cases is rising every year, which needs to be resolved. Currently, many different types of a prosthetic arms,

which are medically certified, are around the market. These are either too expensive or don't satisfy the needs of the patients to the fullest. In this project, technological advancement for the arm by enabling servo motors has been provided, and even managed to cut down the cost of the electronic and mechanical equipment required in building a working prototype of the prosthetic arm. Our prototype resembles the functional structure of the biological human arm. Most of the complex movements of the arm and hand are made possible by achieving near-perfect replication of the movements of the biological human arm. The joints of the fingers on the prosthetic arm have been modeled based on the biological human fingers to replicate all the actions typically obtainable by any human finger. The prototype of the prosthetic arm presented here doesn't rely on the biological signals from the nerve endings of the residual arm in the human body. This project specifically tackled the above problem by printing 3D parts for the robotic prosthetic arm which we modeled using economical devices and equipment to cut down the heavy cost of affording a prosthetic arm.

Acc.No. PR 2293(2)

Title: Sonic Fire Extinguisher

Author: Alensheron Alappadan, Amogh Rane, Harshil Shetty, Elden Leitao

Project Guide: Mr. Vikrant Bhatia

Abstracts: The main idea of this paper is to propose an extinguisher that utilizes sound waves to extinguish fire and also should ensure the environmental sustainability. The conventional fire extinguisher posses various drawbacks. The water fire extinguisher freezes in cold climate and cannot be used in electrical fires. The foam fire extinguisher contains foam concentrate which can cause various respiratory problems during the incident and after the fire. The idea of acoustic fire fighter will be able to reduce all those drawbacks and can evolve as a future of extinguishers. The major raw material is sound which is nothing but a pressure wave. The sound is generated using the amplifier where the input is fed by the function generator. The Output is fed to a sub-woofer which will produce a maximum hertz of about 20Hz to 200Hz. The alternating high and low-pressure waves created by the sub-woofer is sent into a focused collimator. The focused sound waves from the collimator will tend to extinguish the fire.

Acc.No. PR 2294(3)

Title: Stair Climbing Wheelchair

Author: Alvin Massey, Darryl Dsouza, Kenneth Michael, Dev Surve

Project Guide: Yunus Dalal

Abstracts: Every wheelchair is manually operated to move in and around. However, the Stair climbing wheelchair brings independence and effortlessness to a person. A stair climbing wheelchair is a mechanically controlled device designed to have self-mobility with the help of the user command using head/hand effortlessly. This reduces the user's effort to drive the wheels of the wheelchair. Out of 58.76 crore females in India, 1.18 crore females are disabled, and as for males, 1.5 crore males are disabled out of 62.32 crore males. India's 20% (backslash percent) of the population faces movement-related challenges. Maharashtra's 2.64% (backslash percent) population suffers from a disability. Mumbai's 1.46% (backslash percent) (around 1,81,900 people) population experience disability (Data referred from India, Census 2011). The purpose of this project is to manufacture a stair climbing wheelchair, featuring a linear actuator to keep the wheelchair seat always parallel to the ground when climbing stairs in reverse.

Acc.No. PR 2295(4)

Title: Electric Bicycle

Author: Ameya Dengane, Gurudayal Singh Dalawat, Sankshep Singh, Keshav Khetan

Project Guide: Vikrant Bhatia

Abstracts: This report provides an overview of electric bicycles, their design, types, usage, and environmental impact. There are two main types of electric bicycles: pedelecs and throttle-based e-bikes. Pedelecs, also known as pedal-assist e-bikes, provide assistance only when the rider is pedalling. The motor is activated by the rider’s pedalling motion, and the amount of assistance is determined by the level of assistance selected by the rider. Throttle-based e-bikes, on the other hand, are activated by a hand throttle and do not require pedalling. These e-bikes can reach higher speeds and are more suited for recreational use.

The advantages of electric bicycles include their ability to provide assistance to riders, making it easier to travel longer distances or uphill. Additionally, they can be a more affordable modeof transportation compared to cars or public transportation, especially in urban areas where parking and fuel costs can be high. Moreover, electric bicycles can have a positive impact on the environment by reducing carbon emissions from transportation. However, there are also some disadvantages to electric bicycles. The cost of purchasing an e-bike can be relatively high, especially compared to traditional bicycles. Additionally, the added weight and complexity of an electric bicycle can make it more difficult to transport or store. Moreover, the battery life and range of an e-bike may be limited, depending on the model and usage. However, this report also went beyond just discussing the general aspects of electric bicycles and provided a practical example of designing an electric bicycle with complex calculations and CAD design, tailored for the rental model of SAAS. The design process involved numerous calculations and considerations, such as selecting the appropriate motor power, battery size, and frame geometry, to ensure the optimal performance and safety of the electric bicycle. Furthermore, the use of CAD software allowed for a precise and detailed design, ensuring that all components were accurately placed and assembled. Moreover, the report highlighted the potential benefits of incorporating electric bicycles into a SAAS rental model. This would allow for an easy and affordable mode of transportation for users, while also promoting sustainability by reducing carbon emissions.

Acc.No. PR 2296(5)

Title: Experimental Analysis of Nanoparticles On PCM

Author: Swaraj Khade, Jay Raut, Nikhil Mane, Aditya Kanse

Project Guide: Rohit Patil

Abstracts: This study uses materials that alter their phase to store energy with the goal of improving the thermal energy storage capacity. To improve their thermal properties, these substances known as Phase Change Materials (PCM) are combined with Nanomaterials. For our study, we combined Graphene nanoparticles with Paraffin wax, OM46 grade, as our PCM material. Graphene nanoparticles of 2 percent weight each were used in our experimental setup, together with paraffin wax as a nano-enhanced phase change material (NEPCM). The concept behind latent heat thermal energy storage is a material phase change.

The process of melting and solidifying a material is typically employed to turn a solid into a liquid. When a substance melts, heat is transferred to it, causing it to store a significant quantity of heat at a constant temperature until it solidifies and releases it. PCMs are substances that can store latent heat. Using a mechanical stirrer, Graphene nanoparticles were gradually added to the heated paraffin wax and stirred continuously for 30 minutes to ensure thorough mixing. Additionally, NEPCM was created using the ultra-sonification process and contained 2 percent wt of Graphene nanomaterial. Using both real-world and simulation models, we conducted an examination of the thermal characteristics of PCM and NEPCM in this study.

Acc.No. PR 2297(6)

Title: Adult Walker with Safety Braking and Obstacle Sensing System

Author: Amey Ghadigaonkar, Siddhesh Bansode, Abhay Chaudhary, Apurva Muthaye

Project Guide: Rohit Patil

Abstracts: The aging process is associated with declines in cognitive and physical functioning, including reductions in cognitive processing speed and muscle strength. Older adults also tend to walk at slower speeds and rely more heavily on visual feedback during locomotion. To support mobility and prevent falls, walking aids such as walkers are frequently prescribed. However, despite their intended purpose of enhancing safety, the use of walkers has been identified as a potential risk factor for falls in older adults. Wheeled walkers (WWs) are used to improve mobility and for fall prevention in older persons, but increased mobility leads to decreased stability. Occurrence of fall related injuries due to wheeled walker is greatly diminished yet a major issue leading to severe injuries and sometimes death. With declining age not only physical abilities diminish but also vision is reduced leading to difficulty in seeing nearby as well as far away object. Also visually impaired individuals are often not taken into consideration while making a walker as visually impaired individuals may require walker with their declining age. Therefore, even though walkers assist the restricted physical abilities but do not assist the vision. The aim of this project is to develop a walker with saftey braking system to assist a person in case of stumbling and prevent him/her from falling avoiding injuries and also adding object detection system to assist his/her vision.

Acc.No. PR 2298(7)

Title: Future Tree - A Hybrid Energy Generation System

Author: Sampada Ketkar, Omkar Parab, Akash Patil, Tejas Phadtare

Project Guide: Saurabh Vichare

Abstracts: Future Tree is a green energy harvest project that combines the power generated from solar panels and wind turbines, which can then be used for various small and large-scale applications. It is a solution to the problems that solar panels and wind turbines face when operated separately. It is a Renewable Energy project (Energy generated from solar, wind, biomass, hydropower, geothermal and ocean resources), which means it takes the burden off from fossil fuels when implemented on large scale. In recent years, many countries are shifting their energy needs from non-renewable to renewable as it saves resources, reduces pollution and harmful emission of toxic gases, zero fuel cost, ease of installation and is cost efficient over the period of time. Energy generation from solar panels is also becoming popular in India. In this project, the frame of the body is created using PVC pipes, 40 Watts solar panel and Savonius type wind turbines for energy harvesting, solar tracker system to increase the output from the panels, battery to store the energy, solar charge controller to regulate the DC from solar and adjusting it to match the requirements for battery loads, connected through wires. It ensures the optimum utilization of resources and hence improve the effectiveness as compared with their individual mode of generation. Besides, it increases the reliability and brings down the dependency on one single source. This solar-wind power generating system has applications mainly suitable for domestic areas.

Acc.No. PR 2299(8)

Title: An Autonomous Robot for Safe and Contactless Food Delivery in Healthcare Settings

Author: Savio Pullkotil, Prapti Salaskar, Shivam Shrimal (PID

Project Guide: Bysani Malakondaiah

Abstracts: In recent years, the demand for autonomous robots in healthcare settings has increased, particularly after the COVID-19 pandemic. Traditional

methods of food delivery in hospitals, requiring staff to transport meals to patients' rooms manually, can be dangerous in isolated hospitals where people infected with highly contagious diseases are treated. This report details the design and implementation of Transbot, a robot that acts as an intervening medium between doctors and patients infected with communicable diseases. It can autonomously navigate to any required location while simultaneously recognizing and avoiding obstacles, ensuring safe and efficient delivery of meals to patients' rooms. It is also equipped with the Rocker-Bogie mechanism, allowing it to navigate between floors of a hospital with ease.

Acc.No. PR 2300(9)

Title: Staircase Elevator

Author: Arison Dabre, Rylan Fereira, Snowil Lobo, Novia Machado

Project Guide: Saurabh Vichare/Sunil Pansare

Abstracts: A staircase elevator is a motorized device that assists people with mobility issues in safely traversing stairs. The device typically consists of a chair or platform that is mounted on a rail system, which moves up and down the stairs. Staircase elevator is particularly useful for people who have difficulty climbing stairs due to age, injury, illness, or disability. Staircase elevators come in different types to fit various staircases, including straight, curved, or narrow stairs. They can be customized to meet the specific needs of the user and their environment. For example, some can be folded and stored out of the way when not in use. Staircase elevators are operated by a user or a caregiver with a remote control, making them a practical solution for independent living. They are safe, reliable, and easy to use, with features such as seatbelts and sensors to prevent collisions with objects on the stairs. Some staircase elevators also have adjustable speed and gentle starts and stops to provide a smooth and comfortable ride. Staircase elevators are an effective way to maintain independence and avoid moving to a new home or living space with fewer or no stairs. They provide a practical and affordable solution to a common problem for many people with mobility issues. With the ability to customize and adjust to different needs and environments, staircase elevator are an invaluable tool for maintaining independence and improving quality of life.

Acc.No. PR 2301(10)

Title: Design and Fabrication of Fit-mE Cycle

Author: Hamza Shaikh, Ankit Sharma, Varun Rane, Joel Nadar

Project Guide: Jitendra Thombre

Abstracts: The COVID-19 pandemic has brought this fast-moving world to a standstill. The impact of this pandemic is massive, and the only strategy to curb the rapid spread of the disease is to follow social distancing. The imposed lockdown, resulting in the closure of business activities, public places, fitness and activity centers, and overall social life, has hampered many aspects of the lives of people including routine fitness activities of fitness freaks, which has resulted in various psychological issues and serious fitness and health concerns. Regarding this, we thought is there any technology that can be adopted by India to overcome this problem, if yes will it be feasible in the current scenario in India. We researched that the electric walking bike called Lopifit is a blend between a scooter, an electric bike, and a treadmill. The bikes use a motor to assist the treadmill, so using the bikes takes no more effort than a walk in the park.

Acc.No. PR 2302(11)

Title: Automated Cooking Machine

Author: Aarnav Crusoe, Pramesh Pawar, C Stalin Francis, Rijo Rajasekar

Project Guide: Jitendra Thombre

Abstracts: In day to day life, still the majority of the household having an extremely hectic schedule for cooking. The time taken to cook food in kitchen is very huge, which formulate them exhausted. Currently the technology has grown and automation process was introduced to society for human welfare. The proposed model of a new automatic cooking machine which is fully automated totally based on Arduino and using an Indexing Mechanism. The fundamental inspiration behind this is to create a modernization in kitchen. Such innovation in kitchen will help reducing human efforts which is extraordinarily favorable to every person. This is where we came up with Spice up i.e Automated Cooking Machine. An autonomous robot chef designed for cooking your meals with precision while ensuring the outmost level of quality along with hygiene. It comes

with a rotary vessel into which the ingredients are added for cooking. The vessel is heated using induction and the rotating motion ensures even spreading of heat. The ingredients are added into the vessel by a hopper mechanism. Once the meal is cooked the vessel flips and transfers it into a bowl to be served. There is a nozzle and sink attached under the vessel that can be used to flush clean the vessel when needed. Also, this machine maintains the quality with quantity of cooking food. The main aim of this model is to create the cooking very simple, trouble-free and a lesser amount of time consuming.

Acc.No. PR 2303(12)

Title: Active Damping System

Author: Soorya lyer, Jay Ghosalkar, Anish Gorhe, Siddhesh Lele

Project Guide**:** Sunil Pansare

Abstracts: Magnetorheological fluid is a smart material that has iron particles suspended in oil. The specialty of this fluid is that it changes its viscosity upon the application of a magnetic field. This property of Magnetorheological Fluid can be used in a damper to change the damping coefficient of the system as and when required. It has a wide range of applications ranging from automotive to civil engineering where it can be used in regions prone to earthquakes. This project aims at fabricating and testing the Magnetorheological Fluid. This project also aims at fabricating the mixing setuprequired for the preparation of Magnetorheological Fluid and the testing setup to test the Magnetorheological Fluid. The testing will determine the damping coefficient of the MR Fluid with different composition. The experimental setup is designed in such a way that errors due to various factors are avoided.

Acc.No. PR 2304(13)

Title: Wing-in-Ground Effect Vehicles: Design, Analysis and Manufacturing

Author: Siddhi Naik, Shreyansh Bhandari, Vineeth Puthran

Project Guide**:** Yunus Dalal

Abstracts: This paper discusses wing-in-ground effect vehicles (WIGs), which utilize aerodynamic interaction between the wings and Earth’s surface to control

flight levels near the surface. The ground effect phenomenon increases lift and reduces drag, making WIGs efficient for transporting goods over long distances at high speeds. However, WIGs are not commercially viable for public transport due to the challenging control problems that arise from the nonlinear aerodynamics close to the ground and constraints for actuators and states. This paper presents a case study in aerodynamics to reveal available research data and support the development of WIGs. The study analyzes various aspects that need to be considered for WIG vehicles, including their weaknesses, advantages, and possible applications. The review highlights the research required to overcome the control problems and suggests that WIGs have the potential to become favored transport vehicles for mean distances in coastal regions. The objective of this project is to design, analyze and formulate a working model for a WIG vehicle.

Acc.No. PR 2305(14)

Title: Object Sorting Robotic Arm based on Colour

Author: Chaitanya Shirodkar, Dhruv Shah, Jignesh Sharma, Gaurav Sharma

Project Guide: Sanjay Ghaskatta

Abstracts: Manual sorting of items or products in companies that employ human labour is time and energy consuming, especially when many items need to be sorted. Robotic sorting procedures could replace human ones, saving time and effort while producing superior results. Robotic arms are a kind of programmable mechanical arm that almost exactly resembles a human arm and is designed to perform repetitive tasks accurately and faithfully. However, replicating the human sense of touch through artificial means has proven difficult. Detecting objects with different colours is a challenge. In this study, an object of a certain colour is detected using a light intensity frequency converter approach. A microcontroller-based DC servo motor system controls the robotic arm. The detection procedure is followed, especially the counting for each sorted colour block. This study also compares the effectiveness of the robotic arm indoors and outdoors. The chosen colour sensor (TCS3200) works by identifying the different frequencies produced for different light intensities. Based on the detection of an object at a distance of 5 cm from the sensor, it can distinguish colours at 95 percent in bright conditions and 91 percent in dim conditions.

Acc.No. PR 2306(15)

Title: Manufacturing of Axial Flow Compressor Blade Using Additive Manufacturing

Author: Maitrik Patel, Aadarsh Aare, Dhruvika Solanki, Joyal Dsouza

Project Guide: Bysani Malakondaiah

Abstracts: This project report presents a design methodology for axial flow compressor blades to improve their efficiency. The standard NACA 65-(3) 618 airfoil was modified by adjusting the airfoil's geometry and giving it a slight angle of twist. The blade geometry was optimized for maximum aerodynamic performance and minimum weight while satisfying various structural and manufacturing constraints. The lift and drag coefficients were compared to a standard airfoil, and the pressure distribution along the surface of the compressor blade was observed. The blade of the subsequent stage was given a chord length of 10mm, and computational fluid dynamics (CFD) simulations and finite element analysis (FEA) were used to validate the design and ensure that the blade operates efficiently and withstands the mechanical stresses experienced during operation. The proposed methodology can be used as a guideline for designing axial flow compressor blades for various applications. In addition, CFD analysis was performed to verify the flow characteristics of fluid under turbulent conditions. This project report provides valuable insights into designing efficient and reliable axial flow compressor blades. Alongside the blade was manufactured using 3D manufacturing in the college and outsourced.

Acc.No. PR 2307(16)

Title: Incinerator with Catalytic Converter

Author: Sahil Shaikh, Vishwajeet Singh, Lance Tuscano, Gaddam Sujeev Rao

Project Guide: Amit Kamble

Abstracts: The incinerator is designed, and an entirely new machine has been fabricated and tested. This incinerator is relatively low cost, with a capacity of 5 napkins per cycle and with low power consumption. The Manufacturing cost of the incinerator is Rs.5000/-. The incinerator uses a band-type heater placed around an SS304 cylindrical shell and a 11 V DC-powered fan. The incinerator

comes with the incredible features of a heater-auto on/Off, air circulation with a fan for a better combustion process and using an IR sensor with Arduino controller featured to observe and measure the Temperature and Actuation. A small LCD display is used to provide the temperature and counter of pads. It also has an exhaust layout that contains a particulate filter that can filter up to 1-micron size particle and a MM diesel walker catalytic converter to tackle the Central Pollution Control Board (CPCB) norms for incinerators that are implemented, and a provision has been made by using naphthalene balls for eliminating the bad odour released during burning. The total power consumption of the machine will be 500 Watt and the time for a burning cycle.

Acc.No. PR 2308(17)

Title: Robotic Arm for Library

Author: Saahhiel Saawaant, Luke Sequeira, Kunal Bangera, Kaif Kohari

Project Guide: Farhat Khan

Abstracts: In order to pick and place books in a library, this project suggests using a SCARA robotic arm. The goal is to create a system that can automate the process of book arrangement, which will boost library operations' efficiency and lighten librarians' labour. The setup will consist of Stepper motors, pulleys, belts, lead screw, etc. The robot will have 4 degrees of freedom. The project involves developing the control system, designing and building the robotic arm, and integrating it with the library management system by putting the system to the test for accuracy, efficiency, and speed in book layout, the effectiveness of the system will be assessed.

Acc.No. PR 2309(18)

Title: Pneumatic can Crusher

Author: Yash Chavan

Project Guide: Farhat Khan/Sanjay Ghaskatta

Abstracts: Automation in the Modern world is inevitable. Any automatic machine aimed at the economical use of man, machine and material worth the most. This paper is based on the design and fabricate of a pneumatic can crush that will

reduce to the smallest possible amount of the volume of aluminium cans by 70%. The pneumatic can crusher is made up of various parts containing parts such as a lever, base frame, piston, pneumatic cylinder. The inspiration behind this design came from the wastage in eateries, canteens of big companies where people gather and consume a lot of canned beverages. Thus, it make sense that were should be an easy way to dispose of used cans properly during large social gatherings. The Can Crushing machine works with the helps of pneumatic double acting cylinder. The machine is possible in size, and as such is easily transportable. Most companies find it difficult to dispose of their used cans in hotels and canteens and to create enough storage space that is required. A Can Crusher is a device to reduce large material object into a smaller volume. The crusher reduces the size or change the form of waste materials so that they can be disposed off or recycled easily. The Can Crushing machine is designed to crush aluminium waste for recycling purposes. It uses compressed air for its operations with the following component parts: pneumatic cylinder,5/2lever operated valve, air line connectors and pneumatic pipes. The air compressor through the pneumatic cylinder supplies the required crushing force to crush the cans. The crushed cans drop through the created space into the collection tray below the crushing chamber.

Acc.No. PR 2310(19)

CMPN

Title: Student Accommodation Service

Author: Reuben Aninda Chatterjee, Vivian Vincent Dmello, Ralph Joseph Dsouza, Nigel Keith Fernandes

Project Guide: Dakshata Panchal

Abstracts: A college roommate has the potential to have a huge impact on your academic performance, health, and attitudes. They are more than just someone with whom you share a refrigerator. It should come as no surprise that students spend much more time each day with their roommates than their friends. With the use of a machine learning module, we created an application that pairs potential roommates based on their personalities and lifestyle preferences. In order to further develop the suggested product, we gathered data from users based on a personality assessment questionnaire, which assisted in classifying them into

comparable clusters and afterwards matching them as roommates using the K-Means algorithm. Users of the application will be able to view the profiles of potential roommates and choose whether or not to like them. Whether you are a landlord with a vacancy, or someone looking to rent a place, this application provides you the necessary means to connect with the right people.

Acc.No.PR 2311(A1)

Title: Smart Living Solution

Author: Medhashakti Khatri, Esha Martis, Ekta Masrani, Dwarkesh Patel

Project Guide: Nidhi Gaur

Abstracts: In this era of new technologies with the ever growing need for reliable ecological energy supplies, monitoring and reducing the energy consumption of buildings becomes a very crucial concern. Improved healthcare institutions available in the city, more employment opportunities, high standards of living, along with increase in population, has led to rapid urbanization resulting in development of a huge number of buildings. Buildings have become one of the most important contributors to energy consumption, which are responsible for around one-third of energy that is consumed in cities. This makes it very important to monitor and analyze the energy usage by such territories in a meaningful manner to further save energy and even help in cutting down financial costs. The proposed system provides various features as a solution to conserve energy, monitor the power consumption and water usage along with real time monitoring. Smart living allows you to have greater control of your energy usage, all while automating things like adjusting devices based on weather conditions, turning on or off appliances based on occupancy of the room, etc. It provides insights into energy use that can help you become more energy efficient and mindful of ecological factors.

Acc.No.PR 2312(A2)

Title: Smart Sustainable Construction Lifecycle Management

Author: Prajwal Bawankule, Sarthak Dharia, Jason Dsouza, Avnish Raut

Project Guide: Varsha Nagpurkar

Abstracts: The report discusses the designing and implementation of a system for Smart Sustainable Construction and lifecycle management . In today's time for the continuation of life, it is necessary to create a sustainable cycle without deteriorating the environment and without destroying the origin of the resources. The construction industry, by its nature, is one of the top users of natural resources. With the growing concern of finite natural resources and climate change there is increasing pressure in the construction industry from the government and some private sectors to minimize their environmental impact. Smart solutions for smart cities consist of building smart systems for revamping the construction industry with revolution to accelerate sustainability.

Title: PRECISION AGRICULTURE

Author: Admon Aloz, Jaden Butelho, Orvil D'silva, Basil Koli, Nigel Lobo

Project Guide: Kavita Sonawane

Abstracts: Agriculture is one of the top three contributors to the Indian economy. However, most of the agricultural practices are still quite traditional in nature. During these times, when the world is facing very intense population growth, farmers who are striving to meet the global food demands have become true heroes. Unfortunately, their mission of feeding the world is a demanding battle with unfavorable weather conditions, various pests, weeds and plant disease that work against them. Precision agriculture management practices can significantly help mitigate these problems while boosting yields. Precision Agriculture is a Mobile or Web application which improves the efficiency of agricultural activities via minimal initial input of material and human resources and avoiding harmful effects on the environment on one hand and automatizing the production on another hand, thus providing environmental, social and economic benefits. Farmers are able to getinsights of their farm, by using our system's modules such as Disease Detectionand Classification, Species Recognition, Pest Prediction and Classification, Weed Classification, Crop Recommendation and Crop Yield Prediction. For instance, for Crop Recommendation, the classification is done based on the values from the soil's report, and numeric data is required as input for Crop Yield Prediction. On the contrary, for Species Recognition or Disease Detection and Classification, images are taken as input. Therefore, the system can be divided into two modules where one requires image data as input and the other

requires numeric data as input. Various datasets were collected for each module which include the Plant Village dataset, the Pest Dataset etc. For image input based modules like pest prediction and classification, the input image from the dataset is preprocessed and segmented using techniques like Otsu‘s Thresholding and Morphological Transform, followed by extracting texture features using Convolution Neural Networks (CNN). We have also calculated color and texture features which also equally play a pivotal role in feature extraction to perform Bins Approach for classification. The algorithms which were used for image input-based modules were CNN with ResNet50 and DenseNet and Bins Approach with Support Vector Machine (SVM), Decision Tree and Logistic Regression. And the algorithms used for numeric data based modules were Naive Bayes, Decision Tree, Random Forest, SVM and XGBRegressor. Performance of the image modules and Crop Recommendation module is evaluated and validated using the following parameters: Accuracy, Precision, Recall and the F1-score. Performance of Crop Yield Prediction is evaluated and validated using the following parameters: MAE, MSE and R2.

Acc.No.PR 2314(A4)

Title: Hate and Offensive Speech Detection in Marathi

Author: Steve Gonsalves, Shubham Jha, Yugandhar Khair, Obaid Khan

Project Guide: Ankita Karia

Abstracts: Marathi language is predominantly spoken by nearly 95 million people in the whole world. It is the third most spoken language in our country right after Hindi and Bengali. So, with this ever-increasing use of the Marathi language, Overall analysis is essential for maintaining the decorum of the official documents, letters, tweets, blogs, and social media posts in Marathi. With the help of our project, It is very easy to predict if the given text or dataset contains any hateful or offensive content. In this project, we are using L3Cubeś MahaHate Dataset which contains 37,500 samples scraped from Twitter. In this project, hateful and offensive speech will be detected from given data, which can be segregated into two possible categories which are 2-class: HOF, NOT and 4-class: HATE, OFFN, PRFN, NOT classes. We have performed the training and testing on the dataset using different deep learning techniques like LSTM, CNN, and BERT and tried to fine-tune these models further to increase the accuracy.

We have selected the best fitting model amongst the mentioned above which is a modified version of BERT model called DistilBERT and implemented it.

Acc.No.PR 2315(A5)

Title: Custom Object Detection Using Transfer Learning

Author: Naman Dangwal, Steve Dsouza,Pratik Mahankal,Nigel Malappan

Project Guide: Prachiti Pimple

Abstracts: Currently, the advancements in technology are moving us in the direction of a future where we would be incorporating technology into every aspect of our daily lives. Neural Networks provide us with a doorway to achieve enhanced accuracy when creating models for such automated tasks. One of the fields where such automation has been stagnant would be inventory management for various tailored-made products. In this project, we aim to address this problem by creating a product tailored object Detection mechanism to streamline inventory management-based needs. By employing Transfer Learning based Deep Learning Neural Networks, we would be able to obtain higher accuracy with a marginally decreased processing time. A number of Convolutional Neural Network(CNN) algorithms were also compared on two parameters i.e., training time and accuracy. Our project aims at making our system more efficient and user-friendly when it comes to adding or removing custom made objects from their database. Thus, making it easier for even a non-technical employee to manage inventory. We would also be employing data augmentation techniques that would enable us to populate the initially limited dataset.

Acc.No.PR 2316(A6)

Title: Detecting Fraud Apps Using Sentiment Analysis and SigPID

Author: Franklin Elango, Jemil Almeida, Jonathan Almeida, Advait Dhamnaskar

Project Guide: Rajkumar Shinde

Abstracts: With the increase in the number of mobile applications in the day to day life, it is important to keep track as to which ones are safe and which ones unsafe. One cannot judge how safe and true each application is based only on the reviews that are mentioned for each application. Hence it is necessary to check

and initiate a system to make assured that the apps present are genuine or fraud. The objective is to develop a web system in detecting fraud apps before the user downloads by using sentimental analysis and support vector machine. Sentimental analysis is to help in determining the emotional tones behind words which are expressed in online. This method is useful in monitoring social media and helps to get a brief idea of the public opinion on certain issues. The user cannot always get correct or true reviews about the product on the internet. The reviews may be fake or genuine. Analyzing the reviews involving both user and admins comments, we can determine whether the app is genuine or not. Using sentimental analysis and support vector machine, the machine is able to learn and analyze the sentiments, emotions about reviews and other texts. The manipulation of review is one of the key aspects of App ranking fraud. By using sentimental analysis and support vector machine, analyzing reviews and comments can help to determine the correct application for both Android and iOS.

Acc.No.PR 2317(A7)

Title: Summize - Cross-Lingual Multi-Script Summarizer

Author: Alister Andrew Dmonte, Leah Neville Dsouza, Alwyn Anthony Fernandes, Shaun Sandeep Figueiro

Project Guide: Dakshata Panchal

Abstracts: In this day and age, easy access to an expansive amount of information has gotten all the more tedious with the expeditious growth of the internet. To administer this enormous information, we need systematic tools and methods. In this project, a graph based text summarization approach has been detailed. It has been developed using the text rank algorithm that is based on the concept of the page rank algorithm. This approach formulates a graph with sentences as nodes and similarity between two sentences as weight of the edge between them. The graph is then split into different clusters supposing that the sentences with the cluster are similar to each other and those of a different cluster depict their dissimilarity. With advances being made in technology with growth of online information, it is paramount to lay out improved mechanisms to present a summary.

Acc.No.PR 2318(A8)

Title: Face Recognition Based Attendance System

Author: Collin Ferreira, Siddhi Gharat, Kris Kajar, Monish Raval

Project Guide: Reshma George

Abstracts: Authentication is one of the significant issues in the era of information systems. Among other things, human face recognition (HFR) is one of the popular techniques which can be used for user authentication. As an important branch of biometric verification, HFR has been widely used in many applications, such as video monitoring/surveillance system, human-computer interaction, door access control system and network security. Despite of having low accuracy when compared to iris recognition and fingerprint recognition, HFR is being widely used due to its contactless and non-invasive process. Furthermore, face recognition system can also be used for attendance marking in schools, colleges, offices, etc. This system aims to build a class attendance system which uses the concept of face recognition as existing manual attendance system is time consuming and cumbersome to maintain. There may also be chances of proxy attendance. Database is created by the images of the students in class. Face detection and recognition is performed using Histogram Oriented Gradient(HOG) and Python Libraries. Faces are detected and recognized from live streaming video of the classroom. Attendance will be mailed to the respective faculty at the end of the session.

Acc.No.PR 2319(A9)

Title: Summarization Of Video Clips using Subtitles

Author: Eleesa Anil, Sherine Sebastian, Janice Johnson, Janhavi Rane

Project Guide: Priya Karunakaran

Abstracts: Due to the ever growing world of high speed internet, videos have become a common medium for information on the web. When we want to gain information about anything from educational topics to entertainment we prefer watching videos instead of reading long paragraphs. With the vast diversity of videos available on the internet today on every single topic possible it gets confusing to find the right content for our needs. People end up wasting time on trying to find a good video instead of on the actual work the video is needed for.

Video content being such a big part of our information source today it is necessary to have a system that will enable users to understand a gist of the video instead of having to sit through hours of content just to find nothing useful. The primary objective of our project is to propose a method to create a video summary in a way that it contains only the necessary and important information in a concise format by using various NLP algorithms such as Textrank, LexRank and LSA(Latent Semantic Analysis).

Acc.No.PR 2320(A10)

Title: English text to Braille

Author: Shiny Alexander, Vaishnavi Malgundkar, Anosh Nagarkar, Saravana Sundar Nadar

Project Guide: Varsha Shrivastava

Abstracts: For persons who are blind or visually impaired, Braille is a vital method of tactile reading and writing in which raised dots act as the imprints of the alphabetized letters. The alphabet is represented by each letter in a different way, and each letter also has combining signs that function similarly to punctuation. Six impressions are combined. Usually, to read Braille, one must trace each line from left to right using their fingertips and sense of touch. Braille is present in just a very small portion of written or printed texts. A system for automatic recognition of English text to braille is necessary to bridge the gap between written text systems used by sighted people and access mechanisms via which visually impaired people may communicate. There is always a need for a system that can extract text from images utilizing the potent Open-Source Tesseract OCR Engine and then convert the text to Braille. Once the text has been extracted, our system transforms it into Grade 1 Braille, which is the most basic format. Our Project provides an efficient way of converting a text to Braille.

Acc.No.PR 2321(A11)

Title: Interior Design and 3D Visualization using Augmented Reality

Author: Aaron Albuquerque, Aditi Dipak Desai, Rebecca Aurelia Dsouza, Suved Ganduri

Project Guide: Jayashri Mittal

Abstracts: Augmented Reality is a name of recent technology which integrates virtual objects with the real user's environment. AR technology is often used in applications that simulate an arrangement of furniture. Here we are trying to build a system which supports Augmented Reality for Home Decoration, which supports real-time tracking, changing colors of the products, getting their dimensions. This project is an mobile application developed using the concepts of augmented reality which facilitates its users including interior designers and home residents in placing and visualizing virtual furniture, wall and door models on real plane thus helpful in interior Designing. Moreover, this application also provides additional functionality of measuring distance or length of real horizontal plane and writing text on real surface. A method that can add virtual objects to the real environment (Augmented Reality) using a camera. Augmented Reality furniture arrangement systems are useful for viewing furniture in rooms or building layouts without having to buy or move real furniture in. A system that automatically calculates the most suitable viewpoint to improve understanding of the room layout as a whole and allows the user to easily transition to that viewpoint.

Title: Virtual Hotel Booking System

Author: Joyston Britto, Suzanne D'mello, Jonathan D'souza, Justin Dsouza

Project Guide: Rupesh Mishra

Abstracts: The report discusses the designing and implementation of a Virtual Hotel Booking System. Virtual Hotel Booking is an online platform that connects customers to hotels seamlessly. It provides a simple, modern way for you to book your hotel in just minutes. The project aims at creating a virtual hotel reservation system that can be used by customers to tour and book hotel rooms virtually. Users can view rooms and amenities. Users can register and log into the system. The administrator will know the details of daily reservation done by users. Purpose of making such an application is to make people's work quicker and save time for users as well as bring an advancement to thehospitality industry by using virtual reality resources.

Title: VISUAL STORY TELLING

Author: Christy Chittilappilly, Cyrus Melroy Fernandes, James Fernandes, Vini Kandankulathil

Project Guide: Shamsuddin Khan

Abstracts: Generally, stories are varied and extremely individualised, there is a wide range of potential tale outputs. Because they are restricted to the vocabulary and knowledge in a single training dataset, existing end-to-end techniques result in repetitive stories. Vision-Language Pre-training (VLP) has advanced the performance for many vision-language tasks. However, most existing pre-trained models only excel in either understanding-based tasks or generation-based tasks. Furthermore, performance improvement has been largely achieved by scaling up the dataset with noisy image-text pairs collected from the web, which is a suboptimal source of supervision. In this paper, we propose Bootstrapping Language-Image Pre-training(BLIP), a new VLP framework which transfers flexibly to both vision-language understanding and generation tasks. BLIP effectively utilizes the noisy web data by bootstrapping the captions, where a captioner generates synthetic captions and a filter removes the noisy ones. We achieve state-of-the-art results on a wide range of vision-language tasks, such as image captioning and Visual Question Answering(VQA).This project will be helpful for various domains and people like the specially abled (blind) without needing another person to interpret for them.

Acc.No.PR 2324(A14)

Title: Heuristic Evaluation of Website using HCI Principles

Author: Arshan Bhanage, Varun Changarankattil, Alaster Cheeramkuzhyil, Reo Correia

Project Guide: Nazneen Ansari

Abstracts: The report discusses the designing and implementation of a tool for Heuristic Evaluation of Websites Using HCI Principles. The design quality of human machine interface (HCI) is influenced by many factors, such as the percentile of human models, the position and structure of display or control

equipments and so on, because the relationship between these factors are very closed, so it is difficult for designers to use enough human factor parameters in design process. Through this report we aim to take the input of multiple users on a well known website and the website on which evaluation is to be performed. This input will be taken through the medium of google form or by answering the questions on the website. The data collected in the evaluations performed were analyzed from the 10 Nielsen usability heuristics, and Shneiderman's 8 Golden Rules which give us the scores of the website. The results showed in this tool will be effective in pointing various usability issues in the targeted website, and provide an overview on the design, functionality, and usefulness of the website.

Acc.No.PR 2325(A15)

Title: AUTOMATED GENERATION OF QUESTION-ANSWERS IN RESPONSE TO SUMMARIZED TEXT USING NLP

Author: DAVE,DHVANI, DHERANGE,RUTUJA | DSOUZA,NAMITHA | DSILVA,SEAYON

Project Guide: SACHIN MORE

Abstracts: Recent years have seen a considerable technological breakthrough in both deep learning and natural language processing. The goal is to use text input to automatically create questions that are correct and pertinent. Automatically generating multiple-choice questions is an important but challenging task in natural language processing (NLP). The suggested method employs an NLP to extract information and keywords from the input text. The retrieved keywords are used to generate multiple choice questions. In this study, we are using picture captioning and natural language processing to generate questions from textual and visual inputs.

Acc.No.PR 2326(A16)

Title: Online FIR Application System

Author: Sai Mhatre, Vishwa Mhatre, Yash Mirajkar, Riddhi Sansare

Project Guide: Snehal Kulkarni

Abstracts: India has more population as compared to other countries. So, public security is the most important part of the security system of our country. FIR is a First Investigation Report. If we are in any trouble then we can lodge a complaint.

FIR is the first step, after FIR police can start the investigation. In previous days this system was offline. Person has to go to the police station to lodge a complaint against someone else. There is a problem if there is no police station in a nearby area. Also, the current online FIR logging system differs for each sector and area. To solve this problem we are developing an online system using which the user can give an application for registering the complaint of a user or victim which will be consistent nationwide. To do so, we are decision tree algorithm to assign the complaint to the nearest police station , video recording recording of the user for security and text summarization and translation for ease of work.

Acc.No.PR 2327(A17)

Title: KYC Using Blockchain

Author: Suraj Gupta, Bibin Joseph, Christo Joshy, Luke Ricky

Project Guide: Rajkumar Shende

Abstracts: The report discusses the designing and implementation of a KYC Using Blockchain. Blockchain technology can reduce the high costs and manual efforts involved in the Know Your Customer (KYC) processes in the financial sector. KYC processes are crucial for anti-money laundering efforts, but a significant amount of resources are spent on gathering information rather than assessing and monitoring data. Blockchain can improve transparency and reduce costs by removing manual tasks. Smart contracts can be written in Solidity programming language and deployed on a private Ethereum blockchain and tested using Truffle. Hyperledger fabric is another solution for implementing

Kyc using blockchain

Acc.No.PR 2328(A18)

Title: Fundchain

Author: Yogesh Nayal, Durgesh Palekar, Vivek Pinto, Harshit Shetty

Project Guide: Kavita Sonawane

Abstracts: As the crypto market evolves, new projects appear with blockchains and tokens aiming to achieve specific goals. Some of them target beating Ethereum and offer developers improved scalability, little to no fees, and other

perks. Others are created to be used only within decentralized applications such as online casinos or crypto loan services. Eventually, this incredible diversity of options leads us to a need for exchanging one crypto for another just as we would exchange dollars, euros, and yen. There are many ways to exchange cryptocurrencies in the market. There are many applications and various other platforms in the blockchain network that help in swapping cryptocurrencies from one token to another. But there are many complications during the process. In some platforms you have to write long lines of code in order to swap tokens or the transaction fee in some platforms is very high which makes it difficult for a token holder to swap the tokens and also earn profit with it. Therefore, to solve this problem, we have come up with a web application "Fund chain" that will help the token seller to sell their tokens at a discounted price by creating a discount pool. The system will be an easy-to-use system for token swapping. The system will help the token seller to increase the brand value of the tokens by hosting the tokens on the platform for sale at a discounted rate. The token owner can give detailed information about the token like the social media links, website, and various other information about the tokens in order to create awareness about the token and help buyers to get more insights about the token.

Acc.No.PR 2329(B1)

Title: INDISENT: MULTILINGUAL SENTIMENT ANALYSIS

Author: SHAIKH,HUSSIAN , DMELLO,BLAISE , RORDRIGUES,LINSON

Project Guide: NAZNEEN ANSARI

Abstracts: IndiSent is an api service that provides sentiment analysis for 11 indic languages and is also capable of translating text from indic languages to english and vice versa. IndiSent performs translation by making use of neural machine translation based on a transformer model trained on the samanantar dataset. It performs sentiment analysis by translating text into english and then uses a pre-trained sentiment analysis model SiEBERT. Using this approach we will be able to achieve multilingual sentiment analysis with increased accuracy for low resource indic languages. Using state of the art transformer models the need of training multiple models for each language is also eliminated.

Acc.No.PR 2330(B2)

Title: Malicious Webpage Detection

Author: Saniyo Narlea, Yash Parab, Shruti Mahalpure, Sara Shaikh

Project Guide: Nazneen Ansari

Abstracts: The use of URLs directed to malicious websites to exploit them for execution of criminal activities is a growing cybersecurity concern in the contemporary cyber-space. The aim of developers of these malicious URLs is to lure unsuspecting victims into scams or fraudulent activities. In most cases, the motive behind such activities is for financial gain. Over the past few years, these criminal activities have led to loss of billions of money or destruction of devices. As a solution to this, anti-malicious software is used to indicate the online presence of exploitative and malicious URLs. However, most of these have proved ineffective against malicious injections. This leads to increasing complexity of cyberattacks and cybercrimes in the real world environment. However, the adoption of a variety of advanced machine learning techniques that are strategically dynamic is increasingly proving effective to counter online criminal endeavors executed through various malicious URLs. As a result, in this project, we detected malicious webpages with the help of machine learning techniques. Random Forest is one of the best classification algorithms that has a higher accuracy rate as it involves the use of a higher number of trees, splitting points and the bagging concept. The model is trained with the URL dataset, along with its features, thus achieving a higher accuracy rate for this project. Apart from this, we have developed an extension for Google Chrome & Microsoft Edge, in order to detect the malicious URLs with the use of our generated machine learning model. While using the extension, if it encounters a malicious shortened URL, it warns the user about the same. This extension acts as a barrier between users and malicious websites, assuring privacy as well as security of the users' data.

Title: Cloud Based Pharmacy Web App

Author: Aron Dabre, Snedan Dabre, Frisan Dabre, Glen Rodrigues

Project Guide: Snehal Kulkarni

Abstracts: An online shop is a way of trading and shopping online via the internet. Online sales in the business sector will significantly help reduce operational costs, especially for customer activities; in its contribution to commerce, online sales can also increase selling power and widely facilitate the marketing of a product. Pharmacy is an agency engaged in the business of selling medicines and medical equipment. Pharmacy requires an online sales website or online store, which is intended to maximize service to existing or new customers. Therefore, the authors conducted research on the design of the e-pharmacy application, which is a web-based medicine sales system at the Pharmacy. This study aims to increase the revenue of the relevant agencies and provide complete information about drug use to customers. Data collection methods use observation and interview methods for system models using Data Flow Diagrams, Entity Relationship Diagrams, and Activity Diagrams. The software we are going to use is AWS for Database and cloud services, MERN Stack for creating a website And Python Flask . The result of the system that has been completed is an online store application that makes it possible to sell and purchase drugs online; the online shop at the Pharmacy can increase sales turnover and promote business.

Acc.No.PR 2332(B4)

Title: SMART MOBILITY SOLUTION

Author:PINTO,DOMINGOS,
PRATIK,SOMNATH | RODRIGUES,LESTER | DSOUZA,JOEL

Project Guide: SHAMSUDDIN KHAN

Abstracts: Developing efficient and economical mobility solutions for urban cities is one of the most crucial issues of urban development. Smart Mobility Solution is an Intelligent approach to commuting which promises the citizens, organizations efficient and smart solutions to various transportation issues. This solution revolves around two main components of urban mobility: individual and logistics transportation. The module will take into account your location constraints and will recommend the most suitable and optimal route. Thus with the application's assistance, one may effortlessly plan their journey. The user can book a parcel delivery. After fulfilling the company 's payment requirements, the delivery would be assigned a tracking number which the sender and receiver could use for tracking the parcel. For companies handling logistics, an administrator could manage the fleet of vehicles and ongoing deliveries. The administrator, users can know where orders or packages are, at all times as per

the updates from the respective delivery partners. The administrator can allot the deliveries to delivery partners that are free. One could get the delivery status, the anticipated delivery time and all the other information required. Thus, application would act as a bridge between the organization and the customers. All of this would be available under one roof to the users at their fingertips. The proposed solution addresses urban mobility issues that hinder convenient and seamless movement, enables efficient management of logistics thus promoting quick and efficient transportation of people and goods. The aim of the solution was to maximize societal impact for common citizens and small scale logistics firms

Which stands fulfilled.

Acc.No.PR 2333(B5)

Title: FUREVER: PET ADOPTION PLATFORM

Author:WELIS,VAIBHAVI,
SONAWANE,MAYURI | NAIKDHURE,SAMARTH | NELSON,AARON

Project Guide: ANNIES MINU

Abstracts: In its most recent report, the State of Pet Homelessness Index (1) found that there are approximately 62 million crore stray dogs and 9.1 million street cats in India and around 68% of the population report spotting a stray cat at least once a week, while approximately 77% of the population report seeing a stray dog with the same frequency. If more people adopted pets rather than purchasing them, the number of euthanized animals could significantly decrease. We set out to develop a solution called "FurEver" with these issues in mind. Every animal in a shelter hopes to find a forever home. However, the shelter frequently houses bully breeds like pitbulls, animals with health issues, and certain black dogs for extended periods of time. Shelters face a difficult emotional and financial situation as a resultofthis.There was a need for creative solutions to promote pet adoption with ablendoftechnology for an easy adoption process due to the overwhelming number ofabandoned pets and the severe lack of resources to find every pet a forever home.By increasing adoption rates of long-term shelter residents, "FurEver" aims to alleviate emotional and financial strain for employees and owners of animal shelters. In addition, it assists customers by matching them with a companion animal that best complements their personality and lifestyle from a vast selection. We want to create a one-stop solution for the benefit of our

"pawtners" by bridging the gap between adopters, animal shelters (NGOs), and individuals who want to put their pets up for adoption.

Acc.No.PR 2334(B6)

Title: FlashMe (Automatic Flashcard Generation)

Author: NAIR,NIKHIL, PIKLE,SHLOK ,SAVE,SOHAM ,VARGHESE,RYAN

Project Guide: KAVITA SONAWANE

Abstracts: The process of revision can be challenging as it involves revisiting complex concepts from dense textbook materials, which may lead to tedium. A study conducted in March 2018 revealed that note-taking or lecture review activities consume approximately 14% of students' time outside the classroom. This finding is significant and noteworthy. Nevertheless, there is a lack of tools and techniques available to aid students in the development of efficient note-taking skills. Our proposal outlines an automated system that utilizes flashcards to enhance the learning experience while also optimizing time management. Flashcards are diminutive cards utilized for the purpose of assessing and enhancing memory via the process of active recall. Our study involved the examination of several cutting-edge natural language processing models, resulting in the proposal of a methodology for the automatic creation of flashcards based on technical texts. Hence, the development of an automated and proficient instrument that can assist students in eradicating this monotonous responsibility from their agenda.

Acc.No.PR 2335(B7)

Title: Detection of Deepfake video using Deep Learning and MesoNet

Author: Lian Rebello, Linnet Tuscano, Yashvi Shah, Alvin Solomon

Project Guide: Varsha Shrivastava

Abstracts: Fraudsters are increasingly using evidence tampering to evade criminal charges and the acquisition of personal data for identity-related offenses. Deepfake is one of the most common strategies used today for identity theft and reputation defamation. To prevent the spread of these crimes, we need a system that can tell the difference between real and deepfake videos. Deep Neural Networks will be used in our system to identify and mark films as legitimate or

manipulated, as well as the altered sections, by running the video through our trained Sequence Model, which can detect any discrepancies or alterations as a sequence of frames. LSTM will be used for temporal sequence analysis, and CNN will be employed for frame feature extraction. MesoNet is a deep neural network built primarily to identify deepfakes, but it would also be used for other purposes. MesoNet manages the noise produced by low-quality video processing, which impedes analysis. DeepFakes jeopardizes facial recognition and internet content. This deception is risky and can be exploited to impersonate a legitimate user. Our approach will propose a temporal-aware method for automatically detecting deepfake videos.

Acc.No.PR 2336(B8)

Title: SBTCert: Soulbound Certificates

Author: Pranav Yadav, Swastik Sawant, Collin Dbritto, Ishaan Bandekar

Project Guide: Rajkumar Shende

Abstracts: Nowadays, certificates have a major importance in human life. They can be any degree certificates, skill certificates or a course certificates. All of these must be saved at the right place. And at any instance, one should be able to show it to the required authority. Traditional approach of storing these certificates i.e. on google drive or any website (university website) makes it centralize and when these centralized servers go down, we are unable to retrieve our data. Centralization creates trust issues as well. SBTCert system aims to create a decentralized platform to reduce the level of centralization in existing systems used by educational institutions to provide digital copies of academic certificates to students and the online verification systems. By utilizing Blockchain (Polygon) technology as well as Distributed Storage Systems such as Interplanetary File Storage (IPFS).

Acc.No.PR 2337(B9)

Title: BEREDY (PERIOD TRACKER AND PCOS DIAGNOSIS)

Author:POOJARY,ANUSHREE| SEQUEIRA,LIAN | SOKHI,MANJOT KAUR | TIWARI,ASHITA

Project Guide: ANKITA KARIA

Abstracts: We're on a mission to help all menstruating individuals understand their menstrual cycle and make it less of a taboo topic. Menstruating individuals often face a range of challenges related to their menstrual cycle, including difficulty keeping track of their cycles, finding appropriate sanitary products, and managing symptoms such as cramps. BeRedy is a one-stop solution to all your menstrual problems. We plan to develop a system that solves the many issues that menstruating individuals have, through our easy-to-operate system. We believe that menstrual health is a fundamental human need. That's why we have created our system ``BeRedy'' so that one can identify the problems in their period cycle and check whether the symptoms are of PCOD/PCOS, if one is diagnosed with the disease our system will suggest various exercises and changes in their diet plan that they can make which will help to overcome it. Our system also recommends support groups that will help people cope with the mental distress that they might go through because of PCOS/ PCOD. With this system, menstruating individuals can track their period cycle and take precautionary measures like carrying supplies \& meds for periods, our system also gets insightful articles, and helpful tips on periods with the help of our blogs, users can also share their period experiences like their first-period experience or any other experience they have with others anonymously and read others' experiences. Another useful feature of our system is the ability to purchase menstrual products from trustworthy websites. This ensures that users are able to access high-quality products that are safe and effective. Our system also includes a chatbot that can answer common questions about menstruation and provide users with personalized advice and support - all for free! We offer a suite of tools that are all free to use, with no ads or in-app purchases.

Title: AUCTION.IFY

Author:PARMAR,KARTIK,
SOLANKI,JAIMIN | TONDLEKAR,ROHAN | VAZ,KEEGAN

Project Guide: NIDHI GAUR

Abstracts: Auctionify is a decentralized auction platform built on the Avalanche blockchain network, design to provide a secure and transparent way for users to buy and sell goods in an auction-style format. Leveraging the power of blockchain technology, Auctionify allows for secure, trustless transactions and immutability of data, ensuring the integrity of the auction process. The platform features a user-friendly interface that enables users to easily browse and bid on items, as well as to list their own items for sale. Smart contracts handle the bidding and auction process, with all bids and transactions recorded on the blockchain for transparency and accountability. Auctionify also integrate with the MetaMask wallet, providing an additional layer of security and convenience for users. With its fast transaction speeds, low fees, and robust security features, Auctionify is poised to disrupt the traditional auction industry and provide a more efficient and equitable way for individuals and businesses to participate in auctions.

Acc.No.PR 2339(B11)

Title: OCR Notes Application

Author:KHATU,SALONI |
PARMAR,KEVIN | MANE,ADITYA | SINGH,RAJAT

Project Guide: PRIYA KARUNAKARAN

Abstracts: Even currently, handwritten documents have an omnipresence that makes it difficult to disregard them. A great deal of people still prefers to note things down in a more conventional fashion. In a manner that is almost habitual, people favor the use of pen and paper to note things down. However, this poses a problem of longevity and security. A key objective in our solution to this problem is developing a Handwritten Text Recognition (HTR) System that will allow users to convert their notes into digital text and integrate in the system various useful functionalities that will enable users to store, share and manage their notes in a user-friendly manner. Handwritten Text Recognition or Character Recognition is enabling a computer to derive and recognize the characters from an image. Much research has been conducted on this technology in the past

decade, making it a highly discussed topic. Even so it remains a big challenge to correctly implement it in such a way that it provides substantial precision in a diverse range. HTR is a technology that is proving to be of great use currently. Even though Optical Character Recognition systems for the English language are in existence, yet HTR systems that process handwritten text are not as common and often provide sub-par precision. Our goal is to create a Notes Application with Handwritten Text Recognition capabilities. We aim to achieve this using Artificial Neural Networks for Handwritten Character Recognition along with additional functionalities to store, sort, share and manage the notes.

Acc.No.PR 2340(B12)

Title: Blockchain Technology in Banking

Author:RohitRahatal,
PEREIRA,MAURICE | RAUT,VANDAN | DSOUZA,PRIYEN

Project Guide: DAKSHATA PANCHAL

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, 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 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 fortrustedthird party, which is a third party through which various transactions and banking information must flow.

Acc.No.PR 2341(B13)

Title: GuitarGuru: A Realtime Guitar Chords Detection System

Author: Allan D'souza, Tripti Nayak, Neha Pattankar, Nipun Henriques

Project Guide: Varsha Nagpurkar

Abstracts: Guitar is one of the most popular and widely used instruments. The guitar's popularity makes it an obvious choice for many who wish to learn an instrument. And due to its popularity, there are many materials available to learn with. Learning guitar can be a fun and exciting experience for a budding musician but unfortunately with the resources available today learning an instrument without the aid of a professional musician can be challenging and tricky. The available systems do not completely help the guitarists to identify the chords. An alternative to taking music classes is to follow online courses or applications to learn the guitar but these methods come with their own set of drawbacks. Hence there is a need of a system which will help the guitarists for the same. This is where the Guitar Guru application comes in. Our main aim is to combine the best elements of various methods of learning the guitar into one ultimate application while leaving out the failures and drawbacks that come with these methods. We want to make it easier for budding musicians as well as experienced guitarists to learn, analyse and track their performance in order to make faster progress while learning this sophisticated and beautiful instrument. We plan to make, Guitar Guru application to be a one-stop shop for all budding musicians that want to make quick progress on learning and mastering the guitar in the most efficient manner without the aid of an actual musical instructor or an online course that doesn't provide any live feedback. When words fail, music speaks.

Acc.No.PR 2342(B14)

Title: Peer to Peer Crypto Exchange

Author: Joel Thalakottur, Alex Victor, Aryan Vyas, Ben Ray

Project Guide: RESHMA GEORGE

Abstracts: The debt market is a substantial industry, estimated to be of significant value and projected to grow further in the near future. However, its size is marred by inefficiencies due to a lack of transparency and trust. To address these issues, DeFy, a blockchain-based system, offers loans to borrowers using their cryptocurrency assets as collateral. Leveraging smart contract technology and a decentralized network, DeFy creates a secure and transparent lending environment that operates globally without intermediaries. Empowering users

with autonomy to select their preferred lenders through a robust bidding system, DeFy enhances transparency in the borrowing process and empowers borrowers to make informed decisions. This user-driven lending approach provides an efficient and secure means for borrowers to access capital without liquidating their cryptocurrency holdings, while allowing lenders to earn interest on their capital through the lending process.

Acc.No.PR 2343(B15)

Title:SOLCON:AUTOMATEDTOOLFOR AUDITING SMART CONTRACTS IN SOLIDITY

Author: Karthik Menon, Ryan Nayak, Siddharth Pasalapudi, Prachit Tupe

Project Guide**:** Rupesh Mishra

Abstracts: The proliferation of emerging blockchain technologies such as DeFi, DApp, DAO, and others has been conspicuous since the onset of the current decade. Smart con- tracts refer to computer programs that are stored and executed on the blockchain. Smart contracts typically written in Solidity have been widely utilised for implementation of these blockchain technologies in Ethereum. Once smart contracts are deployed on the network, they are immutable and cannot be modified or re- vised. As a result, the attribute of immutability inherent in smart contracts has rendered such applications vulnerable to various malicious attacks. Empirical evidence has shown that hackers possess the capability to exploit said contracts by detecting and exploiting diverse forms of vulnerabilities that may be present within them. It is imperative to ensure a high level of confidence in the safety and dependability of the deployed smart contracts. Conducting a security audit on these contracts serves as a protective measure against potential malicious attacks that may exploit any existing vulnerabilities within these programs.

Acc.No.PR 2344(B16)

Title: SIGNIT-A BILATERAL SIGN LANGUAGE INTERPRETER USING DEEP LEARNING

Author: Janice Monteiro, Surabhi Naik, Preksha Prakash, Antony Koshy

Project Guide**:** Ms. Monalisa Lopes

Abstracts: Sign languages are the native languages of the deaf community and are used for communication by them. Even though sign languages are used by the deaf, those who can hear but cannot speak also use them. Approximately 300 sign languages are in use today in different parts of the world. Sign languages are of various kinds and are in use in different countries. There is no universal sign language.

Different sign languages are used in different regions. For instance, American Sign Language (ASL) and British Sign Language (BSL) are two distinct sign languages.

We propose to create a two-way sign language translator that converts sign to text and text to sign using computer vision and deep learning. Sign language consists of various components- Fingerspelling and Word-level sign vocabulary. Fingerspelling gestures form a word by combining each gesture where a gesture representsletter.

Word-level sign vocabulary is used for the majority of communication. Our system will take the dataset of fingerspelling which can be used to form words and sentences and achieve greater accuracy by increasing the dataset. Sign Language will be converted to text using CNN model. Sign language can be showcased using single-handed and double-handed gestures, we aim to combine the two datasets. We propose to integrate two sign languages to cater to more

people and have viable communication among them.