

BIBLIOGRAPHY OF PROJECT REPORTS

ACADEMIC YEAR: 2023-2024

DEPARTMENT: INFORMATION TECHNOLOGY (INFT)

Title: Wine Quality Prediction System

Author: Ishika Patel, Kshama Singh, Kaustubh Thakare, Shravani Shete

Project Guide: Minal Lopes

Abstract: In the "Wine Quality Prediction System" project, a multifaceted approach is employed, combining extreme Gradient Boosting (XGBoost), Artificial Neural Networks (ANNs) and Random Forest to predict wine quality based on a comprehensive dataset comprising physicochemical features of red and white wines. The research journey begins with preprocessing, ensuring the dataset's integrity and suitability for machine learning models, followed by model selection, training, evaluation and deployment. Distinct models are designed and implemented, including a complex ANN with multiple hidden layers, Random Forest with its decision-making functions, and flexibility of XGBoost. Through extensive training and optimization, these models are fine-tuned to excel in predicting wine quality ratings, with strategies like Pearson Correlation Analysis, Normalization, Standardization etc. Rigorous evaluation utilizing Accuracy, Precision, Recall and F1 scores allows a scrutiny of their performance. By comparing the results of these diverse models, insights into their relative strengths and weaknesses in predicting wine quality are gained. Furthermore, the project goes beyond the modeling phase by offering a user-friendly web interface, making the system accessible to both experts and novices who can input wine attributes and receive instant quality predictions. These predictions have practical implications for the wine industry, assisting producers in optimizing their winemaking processes and ingredient choices to enhance the overall quality of their products. Looking forward, the project suggests future directions, such as incorporating more extensive datasets and exploring advanced machine learning techniques to deepen the understanding of the intricate relationships between wine attributes and quality. The "Wine Quality Prediction System" is a comprehensive and versatile solution that showcases the potential of machine learning in sensory evaluation and quality control, contributing to the

LEARNING AND INFORMATION RESOURCE CENTRE

advancement of the wine industry and offering a bridge between cutting-edge technology and practical industry applications.

Acc.No: PR 2436/INFT712

LEARNING AND INFORMATION RESOURCE CENTRE

Title: Deep Cadence Companion

Author: Ethan Moraes, Josh Jestine, Akshat Oza, Sharvil Kadam

Project Guide: Priyanka Patil

Abstract: Deep Cadence Companion represents a paradigm shift in the landscape of music composition. Its seamless integration of advanced technology with timeless artistry offers a transformative experience for artists across the spectrum of expertise. By providing a versatile platform that caters to the needs of both seasoned professionals and aspiring musicians, it democratizes the process of musical creation. At its core lies the powerful Python library, Music21, which serves as the backbone of the tool. This robust framework enables users to navigate the intricate nuances of music composition with precision and finesse. One of the hallmark features of Deep Cadence Companion is its exploration of algorithmic music generation. Leveraging Music21's algorithmic capabilities, the tool can generate sequences of notes based on user-defined parameters such as scale, tempo, and duration. These algorithms adhere to established music theory principles, ensuring that the resulting compositions are not only musically coherent but also harmonically satisfying. Moreover, Deep Cadence Companion incorporates sophisticated rule-based algorithms like the Krumhansl-Schmuckler algorithm. Drawing from cognitive psychology principles, this algorithm helps analyze the tonal hierarchy of a piece of music, providing invaluable insights for composition and analysis. Accessibility and usability are paramount considerations in the design of Deep Cadence Companion. Its intuitive interface streamlines the composition process, making it accessible to artists of all levels of expertise. Furthermore, the tool supports seamless integration with existing workflows, allowing users to export their compositions in various formats such as MIDI and MP3 for further editing or immediate playback. In summary, Deep Cadence Companion extends beyond traditional boundaries, ushering in a new era of musical exploration and creativity. With its powerful features, intuitive interface, and commitment to accessibility, it empowers artists to unlock the full potential of their musical imagination and embark on a journey of limitless expression.

Acc.No: PR 2437/INFT713

LEARNING AND INFORMATION RESOURCE CENTRE

Title: Visual Assist: Object Detection for partially impaired

Author: Rahul Thanvi, Gaurav Mishra, Yogesh Govari, Vrushal Bagwe

Project Guide: Nidhi Chitalia

Abstract: In the face of evolving digital landscapes, the 'Visual Assist' project addresses the critical need for inclusivity through innovative use cases of machine learning and computer vision. This system empowers individuals with visual impairments by combining the advanced object detection capabilities of the YOLOv5 algorithm and the user-friendly audio generation of Google Text-to-Speech (gTTS). Recognizing the limitations imposed by visual impairments, Visual Assist aims to connect the information gap and foster independent engagement with the environment. Leveraging the real-time processing power and accuracy of YOLOv5, Visual Assist analyzes visual input from cameras, swiftly identifies objects within the user's surroundings, and conveys this information through clear and concise auditory descriptions generated by gTTS. This seamless translation of visual data into readily understandable audio empowers users to perceive and navigate their surroundings independently and confidently. Deployable across various platforms, including smartphones, Visual Assist grants individuals with visual impairments greater autonomy in navigating not only public environments but also their personal environments. Real-world testing and user feedback play an essential role in refining the system to ensure it effectively meets the needs of users. The potential impact of Visual Assist extends beyond enhanced mobility; it cultivates a feeling of self-assurance and independence for individuals with partial visual impairments, empowering them to confidently venture into their surroundings and discover new experiences.

Acc.No: PR 2438/INFT714

LEARNING AND INFORMATION RESOURCE CENTRE

Title: Inertial Navigation System (INS) for Aircraft and Spacecraft

Author: Arvind Suthar, Nishant Gawade, Yash Kava, Nathan Tuscano

Project Guide: Nitika Rai

Abstract: Space exploration demands cutting-edge navigation systems to ensure the success and safety of missions. Inertial Navigation Systems (INS) have long been at the forefront of providing autonomous guidance, leveraging motion and rotation sensors alongside computational algorithms. However, despite their utility, INS face inherent challenges such as sensor errors and integration drift, which can lead to degraded accuracy over time. This research endeavors to push the boundaries of navigation technology by integrating Machine Learning (ML) techniques into INS to enhance accuracy and mitigate these challenges. The study embarks on a comprehensive exploration of ML models, including Neuro Evolution of Augmented Topologies (NEAT), artificial neural networks (ANN) with gradient descent, and simulated annealing, to determine their efficacy in addressing INS errors. By systematically comparing these models, the research seeks to identify the most suitable approach for enhancing INS accuracy in various operational scenarios. Building upon prior work, this study extends its insights by incorporating a holistic data recording approach that spans multiple axes, ensuring a more comprehensive assessment of navigation accuracy. Moreover, the research tackles challenges observed in Vision-Aided Inertial Navigation systems, aiming to enhance the robustness of INS in dynamically changing environments. Methodologically, the project evaluates ML model efficacy through diverse trajectory patterns, utilizing established metrics such as Root Mean Square Error (RMSE) and position drift. Fabrication and setup considerations ensure structural integrity and precision in data collection, laying the groundwork for rigorous evaluation and analysis. By contributing to the evolution of INS technology, this research aims to advance navigation capabilities for future space exploration endeavors. The findings of this study hold significant implications for the design and development of navigation systems, potentially paving the way for safer and more efficient space missions. Through interdisciplinary collaboration and innovation, this research seeks to push the boundaries of navigation technology, empowering future space exploration endeavors with enhanced precision and reliability.

Acc.No: PR 2439/INFT715

LEARNING AND INFORMATION RESOURCE CENTRE

Title: OTT StreamQuest: A Personalized Recommender Engine

Author: Vedant Kadam, Ahmed Husain Maghrabi, Rejith Jacob

Project Guide: Vandana Patil

Abstract: In an era marked by an explosion of exclusive and licensed content subscription services, the entertainment landscape is undergoing a transformation. While consumers have more choices than ever before, they also face a growing challenge: managing their limited interests and ensuring that their subscriptions align with their viewing preferences. This paper explores the pressing need to create a more customer-centric entertainment ecosystem that simplifies subscription management, allowing individuals to curate a personalized entertainment experience without paying for unused services. The digital entertainment industry has witnessed an unprecedented proliferation of subscription-based platforms, each vying for a share of consumers' wallets. This proliferation, often referred to as the "Streaming Wars," has led to an overwhelming array of content options, leaving many consumers grappling with subscription fatigue and content overload. Our study delves into the implications of this subscription fragmentation, emphasizing the necessity of rethinking the customer's role in this evolving landscape. To design a customer-centric entertainment ecosystem, we advocate for the development of user-friendly tools and interfaces. These tools should empower individuals to effortlessly manage their subscriptions, enabling them to add or remove services in real-time as their interests change. Personalization and recommendation algorithms can play a crucial role in helping users discover content that aligns with their preferences and dynamically adapt to their evolving tastes.

Acc.No: PR 2440/INFT716

LEARNING AND INFORMATION RESOURCE CENTRE

Title: Stylescribe -Text to Image Generator Using Generative Adversarial Network
Author: Renissa Dcunha, Rhea Samuel, Viraj Mhatre, Parth Mhatre

Project Guide: Garima Singh

Abstract: Historically controlled by human designers, the fashion industry is experiencing an evolution due to the combination of Artificial Intelligence (AI) and Generative Adversarial Networks (GANs). The proposed method bridges the gap between written descriptions and visual representations of fashion concepts by utilizing artificial intelligence (AI) technology, especially generative adversarial networks (GANs). The design process is being transformed by users' ability to produce high-fidelity fashion visuals through the entry of descriptive language. GAN eliminates the need for tedious drawing or conventional design software by allowing users to enter descriptive language, from broad ideas to exact specifications like color, pattern or texture and the AI system generates fashion images in accordance. Users can enter their choices for color, designs and patterns by interacting with the AI system to develop fashion pieces according to their own preferences.

Acc.No: PR 2441/INFT717

LEARNING AND INFORMATION RESOURCE CENTRE

Title: Proton BaaS: backend as a service

Author: Princewin William MARTI, Roslyn Tuscano, Sahil Gomes, Adrian Dbritto

Project Guide: Mrinmoyee Mukherjee

Abstract: Proton BaaS is a Backend as a Service. It can be extended as required by the developer or it can be used as a Backend Service. Developers prefer to use readymade backend services for their small or medium-scale side projects or for production-based versions. There exist other BaaS providers some are open source some are proprietary. Our Proton BaaS provides the most import Backend Services which are lightweight and most importantly Opensource. Our BaaS will consist of an Admin Dashboard with features like viewing data in real-time for MongoDB database also this admin dashboard is feature-rich and is accessible through HTTP protocol i.e. through the browser. Our features like authentication, MongoDB database with built-in schema builder and some basic customization. This Project is very much maintainable and can be used extensively.

Acc.No: PR 2442/INFT718

LEARNING AND INFORMATION RESOURCE CENTRE

Title: Handwritten Text Recognition and Speech Conversion

Author: Ajil Charunilkunnathil, Evet Fernandes, Anuja Shirode, Yash Shroff

Project Guide: Nitika Rai

Abstract: The aim of this work is to review existing methods for handwritten text recognition using machine learning algorithms and implement software with maximum accuracy. In handwritten text recognition and speech conversion the software interprets the user's handwritten characters or words into a format that the computer understands. This domain is widely challenging. It has various applications like helping the visually impaired and in government offices where there is a need to recognize handwritten documents and speech. Also, handwritten answers have been a challenging problem for scaling the education system for many years. It is a very challenging task to develop a robust system which can extract and recognize the texts from scenic images captured by camera due to complex backgrounds, the various text font sizes, different line orientations and non-uniform illumination and hence, it is still active research nowadays. Through this project we propose a system which. Every input image of the character that we have considered is of the standard size 32x32 pixels. The converter analyzes the pixels in the image and converts them into textual data, which can then be edited or saved as a digital document. The technology behind image to text converters has made it possible to digitize and process large amounts of visual information quickly and accurately, making it a valuable tool for businesses, researchers and individuals looking to streamline their document management processes. Our proposed system manages to produce good recognition rates.

Acc.No: PR 2443/INFT719

LEARNING AND INFORMATION RESOURCE CENTRE

Title: Heart disease prediction system

Author: Aash Rebello, Gifford Rodrigues, Bosco Nigrel, Halcyon almeida

Project Guide: Nikita Rai

Abstract: Heart disease usually refers to the conditions like narrowed or blocked blood vessel which will result in heart failure, pain due to reduced blood flow to the heart (angina) or stroke. With the rampant increase within the heart stroke rates at juvenile ages, we'd like to place a system in situ to be ready to observe the symptoms of a heart stroke at associate degree early stage and so forestall it. It's impractical for a standard man to oftentimes endure expensive tests just like the graph and so there must be a system in situ that is handy and at an equivalent time reliable, in predicting the possibilities of cardiovascular diseases. So, we have a tendency to propose to develop an associate degree application which may predict the vulnerability of cardiovascular diseases given basic symptoms like age, sex, pulse etc. Machine learning algorithms or models has evidenced to be the foremost correct and reliable formula and thence employed in the planned system. The prediction of heart disease is done in three phases: feature selection process. In this process we will automatically or manually select those features which contribute most to your prediction variable or output in which you are interested in. The second phase is applying the machine learning algorithms which are Ad- a Boost, random forest, decision tree and stacking in which the data will be trained and tested. The third and the last phase is the User interface in which the user will enter his details and then the machine learning models will predict that the user will have heart diseases in future or not.

Acc.No: PR 2444/INFT720

LEARNING AND INFORMATION RESOURCE CENTRE

Title: Fantasy Cricket Players' Prediction

Author: Ujwal Katariya, Manav Lohia, Vedant Mahajan, Riya Kadam

Project Guide: Pratibha Rane

Abstract: In the ever-evolving landscape of sports analytics, data science, and machine learning, this project stands at the forefront, bringing together cutting-edge technology and the excitement of cricket in the Indian Premier League (IPL). The focal point of this endeavor is the creation of an advanced predictive model tailored for fantasy cricket enthusiasts, particularly those engaged with platforms like Dream11. With the help of algorithms like 'Linear Regression' and 'Gradient BoostingRegressor' algorithm, this project delves into the intricate realm of IPL player selection, aiming to revolutionize the way fantasy teams are constructed. The primary objective of this research initiative is to empower users with unparalleled insights, enabling them to make strategic decisions while forming their fantasy teams. Through a meticulous analysis of diverse data points, ranging from individual player statistics to match-specific intricacies and historical performance trends, our model transcends the boundaries of traditional analysis. It discerns patterns and trends that are often elusive to the human eye, thereby offering users a competitive edge in the fiercely contested arena of fantasy cricket.

Acc.No: PR 2445/INFT721

LEARNING AND INFORMATION RESOURCE CENTRE

Title: Uniting E-commerce Purchases and OTT Entertainment with Reward Points

Author: Prashik Gamre, Glen Gonsalves, Sumit Sawant, Ayush Nalawade

Project Guide: Prajyoti Dsilva

Abstract: Our project uniquely combines online shopping and entertainment streaming to offer a seam less and innovative experience for customers. We are developing an e-commerce platform that provides a wide range of products, including clothing, electronics, and cosmetics, tailored to meet the diverse needs of our customers. Our distinctive reward system is based on data-driven insights, analyzing customer purchases, cart sizes, and item selections, then assigning points according to the profit margins of the items chosen. Customers can use these points to access a carefully curated selection of shows, series, and movies on our Over-The-Top (OTT) platform, effectively bridging the gap between shopping and entertainment. This seamless blend creates a cycle where customers enjoy their favorite content after shopping and then return to shop more once they have used up their allotted hours of content. By gaining insights into customer preferences and spending habits, we enhance their experience on both the e-commerce and OTT platforms. This approach encourages an ongoing and engaging relationship with our customers, providing a personalized and interactive online experience. It represents a new standard in the digital marketplace, combining technology, psychology, and entertainment to create a cohesive and innovative experience that adds value to both shopping and entertainment activities.

Acc.No: PR 2446/INFT722

LEARNING AND INFORMATION RESOURCE CENTRE

Title: TerraTranslate: Transforming Satellite Imagery to Maps via GAN

Author: Akshansh Sharma, Tejas Nibrad, Atharva Puranik, Mohd Adnan Shaikh

Project Guide: Shree Jaswal

Abstract: Maps condense complex geographical information into a user-friendly format, providing us with a holistic grasp of terrains, places, and their interconnectedness. The importance of maps goes beyond navigation; they are instruments for conveying knowledge, guiding well-informed choices, and addressing emerging challenges with efficiency. The synergy between computer vision and deep learning has unveiled new frontiers in map creation, enabling the transformation of satellite images into detailed and coherent map representations. This paper presents a solution which utilizes generative adversarial network (GAN) model that transforms satellite imagery into corresponding geographical maps. Our model builds on the strengths of traditional GANs by conditioning the generator on satellite imagery, ensuring that the resulting maps are consistent with the input data. The paper also analyzes the model performance over various epochs of training. Beyond computer algorithms, the impacts of model ripple through our physical world, empowering decision-makers, assisting disaster response efforts, and fostering resilience across various sectors. GAN model lays the foundation for a more informed and interconnected global community, underscoring the boundless possibilities that arise at the crossroads of innovation and exploration.

Acc.No: PR 2447/INFT723

LEARNING AND INFORMATION RESOURCE CENTRE

Title: SkillUp Bot - AI Driven Mock Interview Platform

Author: Shashank Rai, Alisha Miranda, Samiya Jagirdar

Project Guide: Nidhi Chitalia

Abstract: In the contemporary job market, preparation for interviews is a pivotal determinant of success in securing desired employment opportunities. To address this critical need, we introduce a comprehensive mock interview platform aimed at empowering candidates in their preparation journey. Our platform incorporates an array of advanced functionalities harnessing state-of-the-art artificial intelligence (AI) technologies to deliver an immersive and effective preparation experience. Central to our platform is the utilization of AI-driven video and audio analysis, providing candidates with real-time feedback on their interview performance.

Through sophisticated machine learning (ML) algorithms, we offer nuanced assessments of various elements including communication skills, body language, and tone of voice. This enables candidates to gain valuable insights into their strengths and areas for improvement, enhancing their overall interview readiness. Moreover, our platform features a dynamic resume builder tool, enabling candidates to craft personalized resumes tailored to specific job opportunities.

This

empowers candidates to present themselves in the best possible light, aligning their skills and experiences with the requirements of prospective employers. In addition, we are developing a cutting-edge resume analyzer within our platform. This tool will offer candidates invaluable insights into how well their resumes align with specific job descriptions (JDs), providing detailed feedback on areas for improvement and optimization. Additionally, we integrate a programming quiz platform designed to assess candidates' technical proficiency, particularly relevant for roles in the IT and software development sectors. By offering a diverse

range of evaluation tools, our platform caters to the multifaceted nature of modern job interviews, addressing both technical and soft skills requirements. Following completion of interview simulations and technical assessments, candidates receive

comprehensive performance reports based on the analysis conducted by our ML

LEARNING AND INFORMATION RESOURCE CENTRE

algorithms. These reports serve as valuable insights, guiding candidates in their ongoing preparation efforts and facilitating continuous improvement. Our platform represents a holistic approach to interview preparation, equipping candidates with the tools, feedback, and resources necessary to excel in today's competitive job market.

Acc.No: PR 2448/INFT724

LEARNING AND INFORMATION RESOURCE CENTRE

Title: Bike Customization using AR-VR

Author: Manas Salian, Leve Antony, Atharva Bhosale

Project Guide: Garima Singh

Abstract: The advent of Augmented Reality (AR) and Virtual Reality (VR) technologies has revolutionized various industries, offering innovative solutions to enhance user experiences and interactions. Bike customization is a popular trend among motorcycle enthusiasts, allowing riders to express their individuality through unique design elements and features. However, the conventional methods of bike customization are often limited in their capacity to visualize and experiment with various modifications, leading to suboptimal results and increased costs. Through the use of AR, users can overlay digital elements onto their physical bikes, enabling real-time visualization of potential modifications. VR technology complements this by creating a virtual environment where users can explore a wide range of customization options, from paint schemes and accessories to performance enhancements, with real-world physics and dynamics taken into account. The customization process is enhanced through an intuitive user interface, which simplifies the selection of bike components, colors, and accessories. Furthermore, haptic feedback and realistic rendering improve the user's sensory experience, making it possible to evaluate different customizations as if they were physically present. This immersive approach empowers users to make informed decisions, reducing the risk of costly mistakes in the customization process. The implementation of this AR/VR-based bike customization system holds great potential for both manufacturers and end-users. Manufacturers can gain insights into customer preferences, potentially reducing inventory and production costs by producing customized components on demand. On the other hand, end-users benefit from a more enjoyable and risk-free customization experience, as well as the opportunity to create truly unique and personalized motorcycles. This paper outlines the development, challenges, and benefits of the AR/VR-based bike customization system and discusses its potential impact on the motorcycle industry and the broader field of interactive product

LEARNING AND INFORMATION RESOURCE CENTRE

customization. As AR and VR technologies continue to advance, the future of bike customization is poised to provide an exciting and immersive experience for enthusiasts and a profitable paradigm shift for manufacturers.

Acc.No: PR 2449/INFT725

LEARNING AND INFORMATION RESOURCE CENTRE

Title: Integrated Workspace Management System

Author: Pratham Gaonkar, Balin Menezes, Harshil Parmar, Rovin Quadros

Project Guide: Shree Jaswal

Abstract: An Integrated Workspace Management System (IWMS) is a comprehensive software solution designed to streamline the management of various aspects of a workspace or facility. It represents a solution for modern businesses navigating the complexities of the evolving work landscape. For searching a particular employee record, it could take hours to find which is not productive in today's fast paced and technologically driven enterprises. This system integrates multiple functionalities and features into a single platform, providing organizations with tools to effectively oversee their entire workspace ecosystem. As flexible work arrangements and hybrid models gain prominence, the demand for adaptable workspace management systems has surged. Our IWMS offers a comprehensive platform, seamlessly integrating essential features to empower organizations in efficiently overseeing their workspace ecosystems. It optimizes space utilization, enhances employee experiences, and promotes sustainability, catering to the diverse needs of contemporary workplaces. At its core, the IWMS enables organizations to gauge and enhance employee productivity effectively, allowing for the creation of flexible workspace strategies tailored to evolving employee needs. This system is designed using a comprehensive Employee Management System which is designed using a three-tier architecture model that encompasses Employee Management, Monitoring, Project Management, and Attendance Leave Management. The system offers user-friendly authentication, efficient employee monitoring, and enhanced project management features, including Gantt chart visualization. Its methodology underscores the significance of performance management in HR strategies, addressing aspects of employee performance and leave management, culminating in a holistic approach to human resource management. This dynamic and adaptive system caters to the diverse needs of modern workplaces, ensuring that organizations remain agile, efficient, and employee centric as they navigate the evolving landscape of work.

Acc.No: PR 2450/INFT726

LEARNING AND INFORMATION RESOURCE CENTRE

Title: Parking Spot Detector and Counter

Author: Neha Sable, Chrisanne Rebello, Kashyap Rathod, Shawn Pereira

Project Guide: Mrinmoyee Mukherjee

Abstract: In modern urban environments, efficient utilization of parking spaces has become a critical challenge. While recent technologies have made strides in parking management, the identification of problems in scenarios with sparse vehicle density remains a significant hurdle. This project addresses the issue of parking space occupancy detection within distributed parking ecosystems, with a particular focus on lined and commercial parking lots. The primary objective is to develop an advanced system that leverages computer vision techniques to provide a robust and accurate solution for parking space occupancy detection, ultimately enhancing the efficiency of parking management. It focuses on the exploration of computer vision methods to overcome the challenges posed by varying lighting conditions, environmental factors, and sparse vehicle distribution. The proposed system aims to offer a comprehensive solution by tackling key aspects of the problem, including video clarity, parking spot detection accuracy, detection speed, and image preprocessing. The system's effectiveness will be evaluated based on established performance parameters, ensuring its ability to perform optimally in real-world parking scenarios. The project acknowledges the unique challenges posed by sparse vehicle density scenarios and aims to develop techniques that accurately identify empty and occupied parking spots even in such conditions.

Acc.No: PR 2451/INFT727

LEARNING AND INFORMATION RESOURCE CENTRE

Title: Face Matching using Autoencoder and Vector DB

Author: Tiwari Nilesh Ajay, Dalvi Mayuresh Ravikant, Tiwari Anshu Pradeep,
Dhandhukiya Dharmik Himmatbhai

Project Guide: Vaishali Jadhav

Abstract: Modern computer vision and biometric authentication systems depend heavily on face matching. The research describes a novel method for face matching that utilizes au- to encoders. Autoencoders are able to record and encode facial information in a smaller-dimensional space. By combining Convolutional Neural Network(CNN) autoencoders with a Vector Database (Vector DB), a potent high-dimensional data storage and retrieval solution. In several applications, such as facial recognition, security systems, more efficient and accurate face. matching can be made possible by this special combination. Implementing CNN-based autoencoders, developed and trained through research, facilitates the reduction of raw facial photo sizes. This transformation into vector representations not only enhances retrieval and matching efficiency but also fortifies privacy and security measures. The Vector DB offers a strong querying mechanism for quick and precise face matching in addition to storing the encoded facial representations. Proposed system's scalability and retrieval speed are improved by this integration, making real-time applications possible.

Acc.No: PR 2452/INFT728

LEARNING AND INFORMATION RESOURCE CENTRE

Title: Visualization of Data Structure Algorithms and Virtual Learning Test Portal

Author: Nishar Bafna, Melvin Tauro, Rinsey Menezes, Caroline Miranda

Project Guide: Grinal Tuscano

Abstract: In the ever-evolving landscape of education and technology, the fusion of algorithm visualization and virtual learning test portals presents a powerful platform for enhancing the learning experience. This project proposes a comprehensive system that integrates two crucial components: the visualization of data structure algorithms and a virtual learning test portal. The visualization of algorithms aims to facilitate a deeper understanding of complex computational processes. Through interactive and dynamic visual representations, learners can grasp the inner workings of algorithms, making it easier to comprehend key concepts in computer science and related fields. This visualization component serves as an invaluable pedagogical tool for educators and a resource for students seeking to master data structure algorithms. The virtual learning test portal complements this educational approach by offering a versatile and accessible platform for assessing and enhancing one's knowledge. This portal provides a diverse range of interactive assessments, quizzes, and practice tests, allowing learners to apply their understanding of algorithms in a structured and self-paced manner. Educators can also benefit from this portal by creating custom assessments and monitoring student progress. By combining algorithm visualization with the virtual learning test portal, this project creates a dynamic and adaptive learning environment. Students can engage with data structure algorithms in a visual and practical way, while educators can tailor their teaching methods to suit individual learning styles. Ultimately, this integrated system has the potential to revolutionize algorithmic education, making it more engaging, accessible, and effective.

Acc.No: PR 2453/INFT729

LEARNING AND INFORMATION RESOURCE CENTRE

Title: BlockEstate

Author: Adheesh Salian, Anurag Yadav, Shruti Yeole, Suneesh Kumar

Project Guide: Vandana Patil

Abstract: The real estate industry has struggled with problems like slow processes, hidden information, and increasing fraud, making property transactions slow and expensive. To tackle these issues, we present a new blockchain-based real estate platform that aims to make transactions faster, more transparent, and secure. Our platform uses blockchain technology, which is like a shared digital ledger, to provide a tamper-proof, up-to-date record of all real estate transactions. This improves trust and accountability for everyone involved, including buyers, sellers, agents, and banks. Traditional real estate transactions are known for their complexity and delays. Our platform simplifies these processes by using smart contracts, which are like self-executing agreements. They speed things up and reduce disputes because they make sure conditions are met before moving forward. Security is a big concern, especially when it comes to fraud. Our platform uses the unchangeable nature of blockchain and strong encryption to make fraud extremely difficult. We also have strong identity verification to make sure all participants are trustworthy. One of the big advantages of our platform is that it lowers costs. Traditional transactions have many middlemen who charge extra fees. With our platform, people can make secure transactions directly, saving money and making real estate more accessible.

Acc.No: PR 2454/INFT730

LEARNING AND INFORMATION RESOURCE CENTRE

Title: MiNDGRAPH.Ai

Author: Neandra Robert, Lindsey Pereira, Blossom Fernandes, Nimisha Naik

Project Guide: Vaishali Jadhav

Abstract: Knowledge graph creation, a vital endeavor in the field of natural language processing (NLP) and artificial intelligence, is undergoing a transformation through the application of large language models like GPT-3.5. These models, with their remarkable language comprehension capabilities, offer an innovative approach to structuring and organizing vast amounts of information from textual data sources into interconnected knowledge graphs. The process of creating knowledge graphs using large language models begins with the model's ability to understand human language. These models have been trained on diverse text sources, allowing them to capture the intricacies of language and the context in which words, phrases, and concepts are used. Leveraging this knowledge, the model processes unstructured text and identifies entities, relationships, and attributes that are embedded within the data. Entities, the core building blocks of knowledge graphs, can range from people and places to concepts, organizations, and more. The large language model identifies and categorizes these entities based on their contextual usage in text. The model also recognizes relationships between entities, determining how they are connected and the nature of these connections. Additionally, the model can extract attributes associated with entities, enriching the knowledge graph with additional information. The result of this process is a structured knowledge graph that represents a semantic network of information. Entities serve as nodes, while relationships between entities form the edges of the graph. Attributes further enrich the nodes with additional details[1]. The applications of knowledge graphs created using large language models are far-reaching. They have the potential to revolutionize information retrieval, making search engines more intelligent and context aware. Users can receive more precise and relevant results by leveraging the semantic richness of knowledge graphs. Similarly, question-answering systems can benefit from knowledge graphs, allowing them to understand and retrieve information from structured data sources effectively. Knowledge graphs can also enhance recommendation engines, providing more personalized and accurate recommendations by understanding user preferences and item attributes.

Acc.No: PR 2455/INFT731

LEARNING AND INFORMATION RESOURCE CENTRE

Title: EZ-Swap: For Electric Vehicles

Author: Justin Madhri, Sagar Shah, Dhruv Vakharia, Nidhi Sawant

Project Guide: Prachi Raut

Abstract: The rapid growth of electric vehicles (EVs) in the last decade owes much to advancements in EV technologies, battery materials, charger facilities, and public charging services. However, the charging process for EVs, limited by battery material characteristics and charger power, often takes longer than refueling a traditional gasoline vehicle, leading to drivers facing "range anxiety" and hindering the wider adoption of electric vehicles (EVs). In response, the battery swapping station (BSS) model has emerged as an alternative solution. This approach allows EV drivers to swap depleted batteries for fully charged ones, significantly reducing refueling times. Recent research has focused on optimizing battery swapping station operations, leading to successful implementations at both commercial and private stations. This research presents a comprehensive analysis of a battery swapping system tailored to meet the evolving needs of the EV market. The proposed system integrates cutting-edge technology, including interactive website and internet of things (IoT) connectivity, to optimize battery swapping operations and enhance user experience. Through strategic placement of swapping stations and dynamic scheduling algorithms, the system maximizes accessibility and minimizes wait times for EV owners. Moreover, by employing modular battery designs and incorporating recycling mechanisms, the system promotes resource efficiency and environmental sustainability. Real-world case studies and performance evaluations validate the effectiveness and viability of the proposed battery swapping system in accelerating the transition to sustainable transportation. This study underscores the potential of battery swapping stations as a pivotal component in the transition to sustainable transportation. By offering a seamless and efficient alternative to traditional charging infrastructure, these stations address key barriers to electric vehicles (EV) adoption, including range anxiety and charging time constraints. Through advanced technologies and innovative design, battery swapping systems have the capacity to revolutionize the electric vehicles (EV) market, facilitating widespread adoption and contributing to a greener future. Continued research and investment in this field are essential to

LEARNING AND INFORMATION RESOURCE CENTRE

realizing the full benefits of battery swapping stations and accelerating the global shift towards cleaner, more sustainable mobility solutions.

Acc.No: PR 2456/INFT732

LEARNING AND INFORMATION RESOURCE CENTRE

Title: Sign Language Translator

Author: STEVE CORREIA, NATHEN CARNEIRO, ROYCE BARBOZ, DHEERAJ NAIK

Project Guide: Grinal Tuscano

Abstract: Sign language is undeniably a rich and expressive form of communication, playing a vital role in the lives of deaf and hard-of-hearing individuals. It offers a unique means of expressing thoughts, emotions, and ideas, enabling these communities to connect with one another and convey their perspectives. However, the digital divide has been a persistent barrier, impeding their ability to effectively communicate and participate fully in the hearing world, which is predominantly driven by spoken and written language. In an era where technology has shown tremendous potential for bridging these gaps and fostering inclusion, our project stands as a beacon of hope. We are dedicated to the development of a sign language translator, driven by the power of machine learning. Our primary goal is to create a real-time translation solution that transcends these barriers, enabling effective communication between sign language users and the broader hearing community. By harnessing the capabilities of modern technology, we aim to empower deaf and hard-of-hearing individuals, allowing them to fully engage with society, access information, and express themselves in a way that is both natural and inclusive. This project represents a significant step towards a more accessible and equitable world for all.

Acc.No: PR 2457/INFT733

LEARNING AND INFORMATION RESOURCE CENTRE

Title: Modern Delivery Services

Author: Ramprasad Ghosh, Shweta Malekar, Prathamesh Upadhye

Project Guide: Ms. Mrinmoyee Mukherjee

Abstract: Drone delivery refers to use of unmanned aerial vehicles (UAVs) to transport packages from one place to another and is further enhanced to autonomously navigate to specific destinations. Timely delivery of medicinal packages like vaccines, blood bags or even organ transplants is crucial. However, the current system is remote-controlled that uses parachutes to deliver packages or just drops them without checking if the intended recipient has received it. In order to overcome them, this project proposes a prototype on building an autonomous self-driving drone system equipped with GPS tracking and collision avoidance through ultrasonic sensors to achieve safe flight and deliver the package to desired destination while tracking over the android interface built using flutter. The main objective is to design and develop battery operated autonomous drone, achieve object avoidance through ultrasonic sensors, practice safe package landing and release mechanism, building a user-friendly flutter application to track the system with integrated GPS tracking and radio telemetry modules to support LOS (line of sight) and BLOS (beyond line of sight) communication up to 5 km and a battery optimization setup to return to control unit when it falls below 30 percent. This approach ensures that the delivery is attempted autonomously which only requires manual input of source and destination address that generates a route for the system to follow and accordingly tracked over the app. On arrival a user prompt method is used to confirm presence and deliver the package through hook mechanism. Hence, automating logistics provides efficient deliveries of emergency supplies.

Acc.No: PR 2458/INFT734

LEARNING AND INFORMATION RESOURCE CENTRE

Title: DocConvo - Chat with PDF

Author: Kunal Shekte, Amey Birute, Vinit Bhamare, Latesh Billava

Project Guide: Joanne Gomes

Abstract: The realm of generative artificial intelligence (AI) stands as a testament to the remarkable strides made in machine learning, where algorithms are designed to not only comprehend existing data but also to produce new and innovative content. Generative AI, a subset of AI, focuses on the creation of content that possesses coherence, relevance, and context, often indistinguishable from

human-generated material. This technology's ability to produce text, images, and even audio has paved the way for applications across numerous domains, from creative arts to data synthesis, and is now poised to revolutionize how we engage with documents, particularly within the PDF format. PDF files have been instrumental in shaping modern document management practices, ranging from business reports and legal documents to educational materials and research papers. However, the traditional utilization of PDFs primarily entails passive reading or limited annotations. In this era of data-driven innovation, the potential for augmenting these files with dynamic conversational features remains largely untapped. This project introduces a novel approach by integrating generative AI and Hugging face Language Models into the PDF ecosystem. By bridging the gap between static documents and interactive communication, the project envisions a future where users can engage with PDF content in a more fluid, natural, and collaborative manner.

Acc.No: PR 2459/INFT735

LEARNING AND INFORMATION RESOURCE CENTRE

Title: HELPING ADDA

Author: Viraj Gujar, Harsh Mandviya, Yash Patel, Harshit Awasthi

Project Guide: Shree Jaswal

Abstract: The proposed system involves building an integrated mobile application ecosystem consisting of three distinct apps: one for users, one for NGOs, and one for delivery agents, collectively named Helping Adda. The primary objective of this system is to address the issue of unreliable offline donations by ensuring that donations reach the intended beneficiaries. The NGO app serves as the central hub where authorized NGOs, verified through an OCR matching process with a government database, can manage incoming donations. Users can donate items within a 10km radius of their location, with their privacy maintained as their information is not disclosed to NGOs. Features for users include tracking previous donations and live tracking of ongoing donations. Delivery agents, on the other hand, are provided with a platform to view and accept donation requests, with details including NGO name, distance, addresses, and donation images. The delivery process is divided into pickup and delivery operations, with statuses updated in real-time to ensure transparency and reliability. Additionally, delivery agents are incentivized with rewards points and can track their performance and completed orders. By utilizing Flutter technology, this system aims to provide a seamless and dependable solution to facilitate charitable donations and overcome previous challenges in the process.

Acc.No: PR 2460/INFT736

LEARNING AND INFORMATION RESOURCE CENTRE

Title: Code Along

Author: Dev Parikh, Jannesh Maniya, Karan Panchal, Shubham Boghara

Project Guide: Priya Chaudhari

Abstract: In the fast-evolving landscape of web-based applications, the demand for real-time collaboration tools for developers is ever-growing. The proposed system introduces an innovative Realtime Code Editor Web Application, powered by a technology stack comprising React.js, Node.js, and Socket.io. The system leverages how developers collaborate, transcending geographical boundaries. Our application boasts a suite of powerful features such as code formatting and code execution. These capabilities not only enhance code quality but also streamline the interview process, resulting in increased productivity and improved collaboration. With a foundation in modern technologies and a commitment to advancing real-time collaboration in software development. Real Time Code Editor offers promising prospects for the future. It represents a significant step forward in empowering developers to work seamlessly and efficiently on coding problems and help conduct technical interviews and friendly coding sessions seamlessly.

Acc.No: PR 2461/INFT737

LEARNING AND INFORMATION RESOURCE CENTRE

Title: Malware Detection

Author: Nathan Vaz, Placido Pereira, Shashank Keny

Project Guide: Shree Jaswal

Abstract: As there is a continuous rise in computer tech, hackers and hacking incidents are also increasing. As a result of which the demand for security is also elevating. Malware has been a great pain for computer users around the world. Huge organizations have gone into huge losses due to a loophole in security. In current

world of technology, Machine learning is considered to be the future and the most powerful concept in technology. The aim is to utilize the concept of machine learning and to build a model using ensemble algorithm which can be trained efficiently to detect malware in a system. This project is about the comparative study of general machine learning algorithms and hybrid algorithms to understand how much impact a hybrid machine learning algorithm can produce in identifying the malware over general machine learning algorithms.

Acc.No: PR 2462/INFT738

LEARNING AND INFORMATION RESOURCE CENTRE

Title: Neural Intelligent Virtual Assistant

Author: Kalpesh kadam, Mahendra lohar, Swayam mane

Project Guide: Minal lopes

Abstract: In today's rapidly evolving technological landscape, the integration of advanced systems like machine learning, artificial intelligence (AI), and deep learning has ushered in an era where computers are no longer mere tools but dynamic companions capable of comprehending and executing a myriad of tasks. Despite this remarkable progress, the conventional mode of human-computer interaction through input devices remains a bottleneck, impeding the seamless utilization of these advancements. To address this gap, we present NIVA- a cutting-edge voice assistant meticulously crafted using Python, an increasingly pervasive language renowned for its versatility and ease of use.

Acc.No: PR 2463/INFT739

LEARNING AND INFORMATION RESOURCE CENTRE

Title: Attendance Automation and Real Time Notification System

Author: SMITH NUNES, RAJ BURKHAO, AAHAN COUTINHO, REEVE GONSALVES

Project Guide: Prachi Raut

Abstract: Taking attendance in educational settings, particularly universities, is becoming increasingly challenging due to the growing student population. In many universities and colleges, student attendance is a crucial component, as it is often considered when assigning final grades. Traditionally, attendance is recorded either by passing around a paper for students to sign on, or by having the lecturer call out names and mark attendance on paper. Firstly, the students might miss their roll-calls and at the same time some students may call out attendance on behalf of other students who are absent. Even though this type of cheating can be mitigated, the process can be time consuming, utilizing a significant portion of the lecture, especially in large classes. Both methods are time-consuming, involving calling each student's name and filling out details, and are prone to frauds, with students sometimes signing in for absent peers. To address all these issues, we have developed a system that focuses on attendance recording as well as sending notifications through Email and Sms. We provide an intelligent attendance system that employs NFC technology, streamlining the procedure by enabling students to confirm their presence with a touch either on an attendance poster or the lecturer's mobile device equipped with NFC and sending notifications as soon as the attendance is recorded. This system consists of a college Erp website and a mobile app using NFC technology which offers a more efficient and secure way to manage attendance.

Acc.No: PR 2464/INFT740

LEARNING AND INFORMATION RESOURCE CENTRE

Title: AR in Library navigation

Author: Joshua D'Souza, Shruti jaganiya, Yash Giradkar, Swedel Corda

Project Guide: Sonali suryawanshi

Abstract: The rising prevalence of mobile devices has led to the gradual fusion of traditional navigation methods with the convenience of mobile devices. This integration incorporates voice, video, wire- less transmission, and database technologies, utilizing real-time internet connectivity to create an advanced mobile navigation system for Indoor Navigation Services (INS). INS is a branch of Loca- tion Based Services (LBS), which aims at locating people inside a building and guiding them to their destinations by using various techniques, either individually or fused. Within this dynamic context, the "AR In Library Navigation System" project, utilizes Augmented Reality which can be an valuable application in Library Management Systems, particularly in revolutionizing book tracking methods. At the core of AR In Library Navigation System lies the A* algorithm which is used to find the shortest path to the destination, that is renowned for its outstanding precision and the ability to process data in real-time. This robust technology serves as a beacon of innovation within our AR library navigation app. It diligently processes input from cameras, swiftly identifies objects within the user's environment, and subsequently communicates this critical information through mobile displays, enhancing the library navigation experience. The result is a complex fusion of various technologies, including the A* algorithm, augmented reality, and ZXing library, all working to- gether to guide users to their destination with minimal need for interaction with their surroundings. Deployment of AR In Library Navigation System is designed to be a valuable companion for students. It streamlines the book-finding process, guiding users directly to their desired titles with augmented reality assistance, significantly reducing the time spent searching for bookshelves and specific volumes. Moreover, it enriches the user experience by providing contextual information about each book once located. The app keeps users informed with real-time updates on book avail- ability and locations. With its user-friendly interface, AR In Library Navigation System ensures that all library visitors can easily make the most of its features. Beyond libraries, AR In Library Navigation System extends

LEARNING AND INFORMATION RESOURCE CENTRE

its utility to various cultural and educational spaces. This app not only makes library visits more efficient and enjoyable but also enhances accessibility for diverse user needs, ensuring that everyone can benefit from the vast world of knowledge a library has to offer.

Acc.No: PR 2465/INFT741

LEARNING AND INFORMATION RESOURCE CENTRE

Title: Audio Transcription of Meetings and Action Items Using Llama 2

Author: Krutika Chaudhari, Esha Dhuri, Vishal Yadav, Dyanaraj Vanniyar

Project Guide: Amrita Mathur

Abstract: Action items are crucial components of any meeting or project management process, serving as tangible outcomes that drive progress and accountability. These tasks are specific actions or objectives assigned to individuals or teams during a meeting to achieve desired goals or objectives. The need for a system capable of extracting action items from meetings arises from the increasing volume of information generated in today's fast-paced work environments. Meetings serve as crucial platforms for decision-making and collaboration, often resulting in numerous action items that require follow-up. However, manually identifying and documenting these action items can be time-consuming and error prone. Existing systems are completely built on NLP which does not use large language models, these models require monitoring of each process by a human. Our system is an advanced system developed to harness the capabilities of Llama 2, a cutting-edge large language model, for the efficient extraction of action items from meeting transcripts or recordings. Built on the Django framework, the web application seamlessly integrates front-end and backend processing, offering a user-friendly interface for enhanced usability. Leveraging Llama 2's state-of-the-art natural language processing (NLP) capabilities, the system is capable enough to automate the extraction process, significantly reducing the time and effort required for manual identification of action items. It ensures smooth task tracking and follow-up, thereby promoting accountability and transparency within teams. The implementation of such a system enhances productivity, communication, and collaboration within organizations, thereby optimizing the outcomes of meetings and driving organizational success. The project streamlines workflow, reduces manual effort, and optimizes outcomes through advanced technology integration, fostering efficiency and success in organizational meeting management.

Acc.No: PR 2466/INFT742

LEARNING AND INFORMATION RESOURCE CENTRE

Title: Translation of Government Notices in Indian Languages using LLM

Author: Rushikesh Borakhede, Neel Mistry, Parth Rambhia, Pratham Muchhala

Project Guide: Amrita Mathur

Abstract: India is a democratic country where people with various linguistic backgrounds live together across the different regions of the country. But the dissemination of Government information is majorly done via notices that are written in regional languages, making it a major challenge for people in other region or of different origin to access these Government updates. The system discussed in this context focuses on addressing linguistic disparities in the dissemination of government information in India. Google and other existing models provide basic translation but here the primary objectives are to develop a mechanism capable of converting local languages (Marathi) into a more user-friendly and accessible language (English) no matter what format it is received in or however complex the language is, ensuring equitable access to crucial government updates for all citizens, regardless of their language proficiency. Additionally, the system aims to empower individuals from diverse linguistic backgrounds, enabling their active participation in the democratic process. To achieve these goals, the system utilizes the LLAMA2 model, renowned for its NLP (Natural Language Processing) capabilities which is further fine-tuned using a custom dataset derived from official Government notices, in conjunction with Streamlet, a user-friendly web application framework. The ultimate output of this system is the transformation of government notices into an inclusive format that fosters transparency, inclusivity, and unity in diversity across the nation

Acc.No: PR 2467/INFT743

LEARNING AND INFORMATION RESOURCE CENTRE

Title: TextifyMe: Digitize with Ease

Author: Mahiba Jeyaraj, Sweta Patil, Bhakti Gada, Manasi Madkar

Project Guide: Joanne Gomes

Abstract: In today's data-driven world, valuable information is often locked within handwritten documents, creating barriers to accessibility, understanding, and cross-linguistic communication. "TextifyMe" is an ambitious project designed to address these challenges by harnessing the power of cutting-edge machine learning and deep learning algorithms. The project's primary goal is to develop a web application that seamlessly converts handwritten text into digital format, translates it into multiple languages, and provides concise textual summaries. By doing so, TextifyMe not only bridges the gap between handwritten and digital content but also offers a robust solution for individuals, businesses, and educational institutions to enhance communication and comprehension. This project not only aims to enhance the accessibility and usability of handwritten documents but also delves into the challenges presented by handwriting variability, multilingual support, low quality images, abbreviations, translation ambiguity, and summarization precision. Through a systematic approach and the integration of state-of-the-art technologies, TextifyMe endeavors to be a comprehensive and user-friendly tool for managing handwritten content. TextifyMe aligns with the broader technological advances in artificial intelligence and machine learning, specifically in the realm of Natural Language Processing (NLP). Its potential to facilitate communication across linguistic boundaries and its contributions to enhancing technical skills and understanding of AI and ML concepts make it a valuable and impactful project.

Acc.No: PR 2468/INFT744

LEARNING AND INFORMATION RESOURCE CENTRE

Title: Study of Human Anatomy Using Augmented Reality

Author: Sahil Patel, Rishab Talla, Gaurav Yadav, Rahul Avhad

Project Guide: Priyanka Patil

Abstract: Augmented Reality (AR) has emerged as a transformative force in education, particularly in the domain of human anatomy and biology. Traditional teaching methods have often fallen short in conveying the complicated parts of anatomical structures, leading to passive and abstract learning experiences. AR's integration into education has revolutionized this paradigm, offering three-dimensional, interactive, adaptable, and accessible learning experiences. It allows students to immerse themselves in lifelike anatomical models, encouraging deeper engagement and understanding. This technology enables real-time assessment and personalized learning, breaking down the barriers between theory and practice. Moreover, AR's accessibility and portability make learning possible anywhere and anytime, reducing the confines of the traditional classroom. One of the most significant importance of AR in education is its capacity for real-time assessment and feedback. With traditional methods, understanding anatomical structures was often solitary hard work, with limited opportunities for immediate correction and guidance. In contrast, AR applications can provide instant feedback on a student's actions, enabling educators to identify areas of difficulty and involve oneself promptly. This feature not only enhances the learning process but also reduces the frustration often associated with the complexities of human anatomy.

Acc.No: PR 2469/INFT745

LEARNING AND INFORMATION RESOURCE CENTRE

Title: Decentralize Payment System

Author: Vaibhav Bhaliya, Rahul Biya, Gauresh Wadekar, Sasank Paria

Project Guide: Balaraju Vijayalakshmi

Abstract: Blockchain technology has revolutionized various sectors, including finance, and ushered in a new era of decentralized payment systems, offering unparalleled transparency and security. While numerous technologies have been developed in the blockchain field, they often lack innovation, and there is no perfect system that incorporates new features to enhance the overall speed of cryptocurrency transactions. This paper introduces an innovative approach to enhance existing decentralized payment systems by incorporating a scan-to-pay feature and fortifying security through the utilization of the SHA-512 hashing algorithm. Our aim is to significantly enhance transaction speed and ensure seamless experience, by incorporating a scan-to-pay feature. The scan-to-pay functionality introduces a seamless and intuitive payment method, allowing users to conduct transactions swiftly through QR code scanning, thus reducing errors. By simplifying the payment process and reducing transaction complexities, this innovation enhances user experience and accelerates transaction speeds. Its versatility allows for easy integration into existing systems without requiring extensive modifications. Furthermore, the integration of the SHA-512 hashing algorithm adds an additional layer of security, ensuring the confidentiality and integrity of transaction data. Our solution presents an advanced method to optimize the efficiency and security of decentralized payment systems, which can potentially redefine industry standards, offering users a more streamlined and secure financial transactions within the decentralized ecosystems.

Acc.No: PR 2470/INFT746

LEARNING AND INFORMATION RESOURCE CENTRE

Title: IrriGreet:Two Level Precision Farming

Author: Rishma Kurumboor, Vedang Mhadgut, Abhishek Patel

Project Guide: Nitika Rai

Abstract: Agriculture has emerged as the primary foundation of human civilization. Farming stands as the guardian of livelihoods that demand the highest attention and cannot be disregarded. Use of technology can be exploited to make a timely and judicious choice of the crop that can be grown and further to assist the farmers so as to maximize the yield and quality of the crop. This project aims to employ a sensor-based hardware system to capture the live parameters of the environment and machine learning (ML) model algorithm to recommend the right choice of suitable for the given environmental conditions. The project is developed in two modules. Firstly, the standard dataset is subjected to a comparative study utilizing the following four algorithms: Random Forest, Decision Tree, K-Nearest Neighbors (KNN) and Support Vector Machine (SVM) by which, following a careful examination and analysis of performance metrics, the optimal method is identified. The machine learning (ML) model is then integrated into the sensor-based hardware module. The system employs a user-friendly front-end application allowing the farmers or government authorities to obtain precise recommendation of the crop that can be grown in their farm and can view incoming real time data on dashboard. Thus, with efforts to revitalize and integrate traditional farming wisdom with modern technologies will ultimately offer promising pathways toward more resilient and sustainable crop production.

Acc.No: PR 2471/INFT747

LEARNING AND INFORMATION RESOURCE CENTRE

Title: Multi-Modal Speech Emotion Recognition (SER)

Author: Abhishek Tiwari

Project Guide: Nitika Rai

Abstract: 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 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 2472/INFT748