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1	CSE	Prof. Deepthi M B	4VP21CS001 4VP21CS003 4VP21CS015 4VP21CS019	SMART SURVEILLANCE WITH EDGE AI: REAL-TIME THREAT RESPONSE	Functional	This Smart Surveillance with Edge AI: Real-Time Threat Response focuses on developing a smart surveillance system that can automatically detect and respond to possible threats in real time. Traditional CCTV systems only record video and require continuous human monitoring, which can lead to delays in identifying and reacting to dangerous situations. The system aims to solve this problem by using intelligent methods to observe surroundings and identify unusual or suspicious movement without human involvement. The system is designed to recognize actions such as suspicious movement, or entry with suspicious objects. When such activities are detected, it immediately sends an alert to the concerned authorities, helping them take quick and effective action. This improves the speed of response and enhances the overall safety of the area being monitored. This smart surveillance approach can be used in various places like schools, offices, residential areas, or public spaces. It reduces the need for constant manual monitoring, saves time, and increases the chances of preventing incidents before they happen. Overall, the project aims to make security systems more intelligent, efficient, and reliable.

NehruNagar,Puttur-574203,DK,KarnatakaState–INDIA.
Phone:+91-8251-235955,234555Fax:+91-8251–236444,Web:www.vivekanandaedu.org,E-Mail:vcet_puttur@yahoo.co.in

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2	CSE	Prof. Radhika Shetty D S	4VP21CS002 4VP21CS005 4VP21CS041 4VP21CS057	TRANSFORMING 2D OSTEOTOMY IMAGES INTO 3D MODELS	Functional	This project addresses the limitations of traditional osteotomy planning, which relies on interpreting two-dimensional (2D) medical images such as CT scans or X-rays. Visualizing complex anatomical structures from 2D slices is cognitively demanding and prone to errors, potentially leading to suboptimal surgical outcomes. To overcome this challenge, the project focuses on developing a system that transforms 2D CT scan slices into accurate three dimensional (3D) models of bone structures, enabling surgeons to gain a clearer and more intuitive understanding of patient anatomy. The system employs a U-Net-based deep learning model for precise segmentation of anatomical features from the CT images. Following segmentation, surface mesh generation and 3D reconstruction techniques such as Marching Cubes are applied to build detailed 3D models. These models are then visualized using the Visualization Toolkit (VTK), offering interactive exploration and enhanced surgical planning capabilities. By integrating deep learning-based segmentation with advanced 3D reconstruction and visualization techniques, this project aims to improve the precision of osteotomy procedures, facilitate the creation of patient-specific surgical guides, and contribute to better surgical outcomes and faster recovery. Ultimately, the proposed workflow sets a new benchmark for patient-centered, accurate, and modern surgical planning practices in orthopedics.

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3	CSE	Prof. Thapaswini P S	4VP21CS004 4VP21CS021 4VP21CS028 4VP21CS051	SARPA ARCHITA- IDENTIFICATION OF SNAKES USING BITE MARK	Functional	Snake bites are a significant public health problem in many parts of the world, especially in rural areas. According to the World Health Organization, snake bites are responsible for up to 100,000 deaths worldwide each year. With millions of snake bite incidents reported annually, prompt and accurate identification of the snake responsible is crucial to ensure that the appropriate antivenom is administered quickly. Traditional methods of snake identification based on bite marks are often unreliable and time-consuming. This project aims to develop advanced imaging techniques and machine learning Algorithms to improve identification accuracy. Snake bites can result in symptoms such as pain, swelling, bruising, and tissue damage. In severe cases, they can lead to life-threatening complications such as organ failure and blood clotting disorders. By analyzing the bitemarks left on the victim's skin, machine learning algorithms can be trained to identify the characteristic features of each snake's bite pattern. This system can be used in the field by healthcare workers and snake bite victims to capture and analyze bite marks. Early detection and identification can help ensure that appropriate treatment is given promptly, reducing the risk of complications and improving the chances of a full recovery. This technology has the potential to revolutionize snake bite treatment and become a vital tool for snake bite management programs in regions where snake bites are a major public health concern. With the ability to identify the snake responsible for the bite quickly and accurately, appropriate antivenom can be administered without delay, potentially saving countless lives.

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4	CSE	Prof. Rashmi P C	4VP21CS006 4VP21CS013 4VP21CS031 4VP21CS046	SEAMLESS SHOPPING EXPERIENCE WITH HASSEL-FREE TROLLEY	Functional	The rapid advancement of robotic and automation technologies has paved the way for innovative solutions in retail, such as the Hassle-free Smart Trolley. This project focuses on enhancing the traditional shopping experience by integrating automation into conventional trolleys. The smart trolley is designed to autonomously follow a specific user using infrared (IR) transmitter and receiver technology, eliminating the need to manually push the cart and offering a truly hands-free shopping experience. Equipped with ultrasonic sensors, the trolley can intelligently navigate through crowded and cluttered environments, ensuring safety and ease of movement. Additionally, an RFID- based system is implemented to automatically scan products as they are added or removed from the cart. Each item in the store carries an RFID tag containing essential information such as the product name and price. The trolley's RFID reader captures this data in real-time. To enhance this functionality, an ESP8266 Wi-Fi module is integrated into the system, enabling the total cart amount and itemized product list to be displayed dynamically on a dedicated webpage. This real-time update ensures that both customers and staff can monitor the cart contents from any device connected to the same network. To complete the shopping process, a dedicated mobile application or the web interface allows users to manually enter the final amount, make a secure digital payment, and receive an electronic bill instantly. This simplified approach ensures quick checkout without queues or delays. By minimizing physical effort, reducing checkout times, and enhancing convenience, the Hassle-free Smart Trolley transforms the traditional retail experience into a faster, more efficient, and user-friendly journey. This project represents a step toward intelligent retail automation, redefining how customers interact with shopping environments.

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Phone:+91-8251-235955,234555Fax:+91-8251–236444,Web:www.vivekanandaedu.org,E-Mail:vcet_puttur@yahoo.co.in

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5	CSE	Prof. Mohan K	4VP21CS007 4VP21CS016 4VP21CS027 4VP21CS030	AI BASED YOGA POSE DETECTION AND CORRECTION	Functional	In recent years, yoga has witnessed a resurgence in global popularity due to its comprehensive benefits for physical, mental and emotional well being. However, improper posture during asana practice can lead to ineffective results or even physical injury. This project presents Yoga Mithra, an AI-powered mobile application designed to assist users in performing yoga poses accurately through real-time pose detection and correction. By integrating computer vision technologies such as Media Pipe with a Random Forest classifier, the system analyzes user's body key points and angles from a live video feed, comparing them with predefined ideal poses to deliver instant visual and audio feedback. Users can also input health concerns to receive personalized pose recommendations, making the app both corrective and prescriptive. Through its interactive design and robust algorithmic foundation, the application aims to democratize access to quality yoga instruction, minimize injury risk and enhance user engagement. This fusion of ancient practice with modern deep learning techniques opens pathways for safer and more personalized wellness experiences, fostering holistic health in a digital age.
6	CSE	Prof. Radhika Shetty D S	4VP21CS008 4VP21CS012 4VP21CS023 4VP21CS058	PARNASUTHRAM	Functional	Tulu, a language belonging to the southern branch of the Dravidian language family, is predominantly spoken in Tulu Nadu. With approximately 1.8 million speakers globally, Tulu has a significant cultural and linguistic presence. Historically, Tulu boasts a rich heritage, with its earliest known inscriptions dating back to the 14th century. Despite this deep-rooted history, the Tulu script has faced challenges in preservation due to its reliance on oral tradition and the influence of dominant languages like Kannada and English in the region. This project aims to bridge this gap by creating a comprehensive and high-quality dataset of handwritten Tulu characters. Recognizing the importance of preserving linguistic

						heritage and supporting digital literacy in lesser-known scripts, we have undertaken the task of manually writing and collecting individual Tulu characters to generate a diverse and representative dataset. The images in this dataset are meticulously curated to ensure clarity and freedom from artifacts, making them suitable for various machine learning applications. A Convolutional Neural Network (CNN) is trained on this dataset to accurately recognize Tulu characters and support automated transcription of handwritten Tulu text. By addressing the challenges of handwritten character recognition and providing a reliable dataset, we aim to contribute meaningfully to the broader effort of preserving and promoting the Tulu language and ensuring its continued accessibility in the digital era.

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7	CSE	Prof. Pradeep Kumar K G	4VP21CS009 4VP21CS014 4VP21CS025 4VP21CS029	YANTRA PRASAMVIDHA	Functional	An all-encompassing rental and booking platform for agricultural tools and construction tools designed to revolutionize the workflow in the agricultural sector and construction sector respectively. This comprehensive application aims to bridge the gap between tool demand and supply, ensuring that site owners can efficiently manage their agricultural operations. Customers who may already possess some tools, can use our platform to request additional equipment as needed. These requests are seamlessly handled by providers. Providers maintain an updated inventory of available tools and handle the logistics of tool allocation. When the requested tools are not available in the current inventory, Customers can effortlessly procure them from partnered hardware shops through an integrated procurement system. Our platform also features a robust communication system, enabling customers to communicate directly with providers. This streamlined communication process eliminates the complexities of traditional methods, fostering a more collaborative and efficient working environment.
8	CSE	Prof. Shrinidhi A	4VP21CS010 4VP21CS034 4VP21CS035 4VP21CS060	CHITTHAJNA-AN INTENTION ANALYSER BASED ON TEXT CONVERSATION	Functional	In today's digital world, protecting underage children from online threats has become more important than ever. Our project, Chitthajna – An Intention Analyser Based on Text Conversation, is designed to help parents better understand and safeguard their children's online interactions. Using advanced Natural Language Processing (NLP) techniques, Chitthajna analyses text conversations to detect emotional states like happiness, sadness, aggression and curiosity, while also identifying underlying intentions such as friendship, harassment or inappropriate behaviour. By combining keyword detection, sentiment analysis through Google's NLP API and machine learning models, the system offers realtime monitoring of conversations. When harmful or concerning messages are

						detected beyond a safe threshold, alerts are immediately sent to parents via SMS using Twilio. Built with a responsive Flutter frontend and a powerful Supabase backend handling authentication, real-time chats and database management, Chitthajna ensures a seamless and secure user experience. It also incorporates preprocessing techniques like tokenization, stopword removal and data augmentation to enhance the accuracy of intent detection. More than just a monitoring tool, Chitthajna aims to create a safer and more supportive digital environment for young users, helping parents intervene early in harmful situations and encouraging responsible online behaviour among teenagers. Future improvements could include the integration of more sophisticated machine learning models, multilingual support and compatibility with additional communication platforms, further strengthening its effectiveness. Through proactive analysis and real-time alerts, Chitthajna plays a vital role in promoting the safety and overall well-being of children in the digital age.

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9	CSE	Prof. Mohan A R	4VP21CS011 4VP21CS022 4VP21CS024 4VP21CS039	SMART DETECTION SYSTEM FOR TREE FALL AND ALERT MECHANISM IN GHAT REGIONS	Functional	The "Smart Detection System for Tree Fall and Alert Mechanisms in Ghat Regions" aims to enhance road safety by automating the detection of fallen trees in remote, Ghat regions. By utilizing a high-resolution webcam, real-time video processing, and the YOLOv8 object detection model, the system continuously monitors vulnerable ghat roads to identify tree falls instantly. Once a fallen tree is detected, alerts are rapidly sent through a Flutter-based mobile application integrated with Firebase, ensuring timely notifications to users. This real-time approach significantly reduces the risk of accidents and traffic congestion caused by unexpected road

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						blockages, offering a practical and scalable solution to a critical environmental challenge. The project integrates advanced deep learning techniques, cloud-based real-time databases, and cross-platform mobile development to create an efficient and reliable surveillance framework. With features like real-time monitoring, automated classification, instant alert generation, and a user-friendly mobile interface, the system ensures 24/7 vigilance without the need for manual supervision. It represents a modern, smart infrastructure solution that enhances road safety and supports proactive disaster management in ecologically sensitive and high-risk ghat regions.

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10	CSE	Prof. Deepthi M B	4VP21CS017 4VP21CS064 4VP21CS065 4VP21CS067	NATYA NIRMITI	Functional	Natya Nirmiti presents an AI-powered pipeline that recognizes Bharatanatyam dance poses from video input and generates my thologically inspired poetic stories based on the detected movements. By combining computer vision, deep learning, semantic search, and large language models, the system bridges traditional Indian classical dance with modern artificial intelligence. Using a trained ResNet-50 model and Media Pipe Pose, the system identifies unique Bharatanatyam poses from extracted video frames. These poses are semantically matched to context-rich passages from Indian epics like the Ramayana, Mahabharata, and the Natya Shastra using FAISS and Sentence Transformers. Finally, Google's Gemini model is prompted with the retrieved mythological context and pose sequence to generate a coherent, poetic narrative. The system is deployed via a simple Gradio-based interface, allowing users to upload dance videos and receive expressive storytelling outputs in real time. This work highlights the potential of AI to preserve, interpret, and extend cultural heritage through intelligent automation.

NehruNagar,Puttur-574203,DK,KarnatakaState–INDIA.
Phone:+91-8251-235955,234555Fax:+91-8251–236444,Web:www.vivekanandaedu.org,E-Mail:vcet_puttur@yahoo.co.in

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11	CSE	Prof. Bharathi K	4VP21CS018 4VP21CS026 4VP21CS033 4VP21CS055	INTELLIGENT OBJECT RECOGNITION GLOVES FOR VISUALLY IMPAIRED	Functional	Visually impaired individuals face daily challenges in identifying objects around them. This project aims to develop Intelligent Object Recognition Gloves that can help users recognize objects using modern technologies such as computer vision and machine learning. The system is designed to provide real-time feedback to users through audio output, enabling them to interact more confidently with their surroundings. The project involves key steps such as collecting object data, preprocessing the images, and training a machine learning model to recognize common household or outdoor items. A camera module integrated into the glove captures images, and the recognition model processes them to detect the object. Once recognized, the object name is conveyed to the user through a voice output system like a speaker or headphone. The system is tested across various lighting and environmental conditions to ensure accurate recognition. By combining hardware and intelligent software, this project aims to create a wearable, user-friendly solution that improves the independence and quality of life for visually impaired individuals.

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12	CSE	Prof. Guruprasanna J K	4VP21CS020 4VP21CS036 4VP21CS038 4VP21CS063	NILAYASUTRAM: AN ADVANCED APPROACH FOR GRUHA VASTU	Functional	Nilayasutram is an AI-driven web application that bridges the ancient science of Vastu Shastra with modern advancements in image processing, optical character recognition (OCR), and machine learning. Designed to assist architects, designers, and homeowners, the system enables users to upload architectural floor plan images and automatically evaluates their Vastu compliance without requiring manual inspection or domain expertise.Using OpenCV, the uploaded image undergoes preprocessing to enhance clarity and extract relevant textual regions. Tesseract OCR is then used to detect room labels, which are further refined using custom autocomplete and filtering logic to handle partial or incorrect text recognition. To assess compliance, Nilayasutram utilizes a Random Forest classifier trained on synthetically generated data derived from traditional Vastu rules. Based on this evaluation, the system provides actionable recommendations and corrections for better alignment with Vastu principles.The application features a Flaskbased backend for image processing, inference, and logic handling, while the frontend is built using React, delivering a smooth, interactive user experience. By integrating classical architectural wisdom with modern AI technologies, Nilayasutram represents a forward-thinking approach to design validation — making Vastu-based planning more accessible, automated, and accurate for today's digital architecture landscape.
13	CSE	Prof. Swapnalaxmi K	4VP21CS032 4VP21CS048 4VP21CS049 4VP21CS059	FINGERPRINT BASED BLOOD GROUP DETECTION	Functional	This project presents a novel approach for non-invasive blood group detection using fingerprint images, leveraging the power of deep learning and image processing techniques. The system captures fingerprint images through a biometric scanner and preprocesses them using computer vision methods to enhance ridge patterns. A convolutional neural network (CNN) model, trained on a labelled

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						dataset of fingerprint images associated with known blood groups, is used to predict the blood group of the individual. This technique aims to offer a rapid, cost-effective, and contactless method of determining blood group information, which could be especially beneficial in emergency medical situations, rural healthcare, and digital health records. The integration of biometric data with medical diagnostics highlights a significant step toward smart healthcare technologies

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14	CSE	Prof. Mohan K	4VP21CS037 4VP21CS050 4VP21CS054 4VP21CS061	HUMAN GAIT DETECTION	Functional	Human gait analysis plays a crucial role in detecting and diagnosing various neurological and musculoskeletal disorders. This project presents an automated gait assessment system utilizing computer vision and rule based techniques, specifically leveraging Media Pipe Pose for real-time human pose estimation. The system processes video input to extract key body landmarks, calculates joint angles, and evaluates movement patterns to identify gait abnormalities such as limping, circumduction, slouched posture, and reduced arm swing. By analyzing the angular deviations and positional dynamics of limbs and torso over multiple frames, the model offers reliable indicators of abnormal gait patterns. This approach provides a non-invasive, cost-effective, and efficient tool for clinical gait analysis, rehabilitation monitoring, and early detection of mobility impairments. The system's real-time feedback capability also makes it suitable for applications in physiotherapy and remote health monitoring.
15	CSE	Prof. Rashmi PC	4VP21CS040 4VP21CS042 4VP21CS056 4VP21CS062	PERFECT BLEND - CUSTOM FOUNDATION MATCHING FOR SOUTH INDIAN SKIN TONE	Functional	The project "Perfect Blend: Custom Foundation Matching for South Indian Skin tone" tackles the makeup industry's challenge of accurately matching foundation to individual skin tones. The project develops an innovative model that captures precise skin tones and generates corresponding color codes, focusing on the predominant color of the face while accounting for common discolorations like sun tans. By measuring facial dimensions and excluding areas such as the beard, eyebrows, and lips, the model determines the exact amount of foundation needed, optimizing product usage and minimizing waste. Future enhancements aim to enable the mixing of custom foundation shades, specifically addressing the unique skin tones of individuals in South India, which are often underrepresented in existing products. This approach ensures a more reliable and

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Phone:+91-8251-235955,234555Fax:+91-8251–236444,Web:www.vivekanandaedu.org,E-Mail:vcet_puttur@yahoo.co.in

						inclusive solution for foundation matching, catering to the diverse beauty needs of the region.

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16	CSE	Prof. Krishna Mohana A J	4VP21CS043 4VP21CS045 4VP21CS047 4VP21CS066	GENDER AND BEHAVIOR IDENTIFICATION USING HANDWRITING	Functional	This study investigates gender and behavioral traits estimation through handwriting with the use machine learning and deep learning models. The samples of handwriting were analyzed for certain features that include slant, size, pressure, and letter formation which tend to differ among individuals and often correspond to personality and physical attributes. Based on these features, gender and behavioral traits are estimated through three classification models: Convolutional Neural Network (CNN), Artificial Neural Network (ANN), and K-Nearest Neighbors (KNN). The CNN was used to identify spatial arrangements in raw images of handwriting, while ANN and KNN used extracted features. The comparative analysis of model performance shows that combining classification from images and features improves accuracy of the classification. The findings of the study suggest that there is considerable potential for identifying personal characteristics using handwriting features which indicates that systems based on handwriting recognition can be useful in forensic science, psychology, and even humancomputer interaction.

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17	CSE	Prof. Mohan A R	4VP21CS044 4VP21CS095 4VP21CS099 4VP21CS118	INTELLIGENT REAL TIME WASTE SEGREGATION SYSTEM	Functional	The Intelligent Real Time Waste Segregation System employs advanced image processing and deep learning technologies to efficiently classified and sort dry waste material. The System is designed to capture images of waste items using IP Web camera in Real time. This image processed by a convolutional neural network model that has been meticulously trained on an extensive data set of labeled dry waste images encompassing various categories such as plastic, paper. The CNN model ability to accurately identify and classify different type of dry waste allows for the automated sorting of material, significantly enhancing the efficiency of waste management process. In the real time functionality of the system ensures continuous operation, the System supports sustainability efforts by improving recycling rates and promoting proper waste management practices.

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18	CSE	Prof. Guruprasanna J K	4VP21CS068 4VP21CS071 4VP21CS077 4VP21CS091	POSTURE DETECTION AND MONITORING SYSTEM	Functional	With the rise of sedentary habits, especially among people who spend long hours at desks, poor posture has become a leading cause of musculoskeletal problems. The Posture Detection and Monitoring System offers an intelligent, AI-driven approach to tackling this issue by actively monitoring and correcting posture in real-time. Using Media Pipe's pose estimation along with Python, the system identifies crucial body points like the shoulders, spine and hips to evaluate posture accuracy. To improve reliability, it also incorporates sensors that collect additional physical data, allowing a more holistic analysis. When bad posture is detected, the system provides instant visual feedback through an easy-to-understand interface, highlighting both good and bad posture examples. If the user maintains poor posture beyond a certain time, an alert sound is triggered to prompt correction. This constant feedback loop motivates users to sit properly, ultimately helping prevent posture-related health issues. Built to be adaptable, the system can be used in offices, homes, or classrooms, offering a complete solution for promoting better sitting habits through AI and sensor integration.
19	CSE	Prof. Pradeep Kumar KG	4VP21CS069 4VP21CS079 4VP21CS081 4VP21CS117	ENHANCING SPEECH CLARITY FOR CEREBRAL PALSY INDIVIDUALS	Functional	Cerebral Palsy (CP) individuals often face challenges with speech articulation, making communication difficult. This project aims to enhance speech clarity for CP individuals by developing a hybrid speech recognition system. The system integrates fine-tuned Whisper models for transcription, a K-Nearest Neighbors (KNN) algorithm for speech correction, and Vosk for offline recognition, providing a reliable solution for real-time transcription and enhancement. The Whisper model, pre-trained for automatic speech recognition (ASR), is fine-tuned with a custom dataset of CP speech, improving its ability to accurately transcribe distorted speech. The KNN model corrects mispronunciations by comparing features from

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						distorted words to a labeled dataset of typical speech, enhancing word clarity. Vosk is used as a fallback system, ensuring transcription reliability when Whisper struggles with noise or clarity. The corrected text is converted into clear, intelligible speech using Google Text-to-Speech (gTTS), facilitating better communication. This hybrid approach enhances the user experience. It empowers CP individuals to communicate more independently and effectively.

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20	CSE	Dr. Uma Pare	4VP21CS070 4VP21CS104 4VP21CS122 4VP21CS123	REGIONAL POTHOLE DETECTION	Functional	Potholes are a major cause of road damage and vehicular accidents, especially in urban and semiurban areas. Traditional road inspection methods are often time-consuming, labor-intensive, and inefficient. This project presents a semi-automated pothole detection and reporting system that leverages computer vision, deep learning, and geolocation technologies to address these challenges. The system uses the YOLO (You Only Look Once) object detection algorithm, based on Convolutional Neural Networks (CNNs), to accurately identify potholes in images, videos, and live camera feeds. After detection, users can select the pothole's location using an interactive map interface, and the system stores relevant information including GPS coordinates, severity classification, timestamp, and source in a local database. Real-time alerts are sent via Telegram, and visual tools like heatmaps and route planners are integrated to assist in road maintenance planning. This project provides an efficient, scalable, and user-friendly solution for infrastructure monitoring and contributes to the development of safer and smarter transportation systems. The modular design of the system ensures ease of integration with existing municipal infrastructure, allowing authorities to visualize pothole-prone zones through dynamically generated heatmaps and make data-driven decisions for timely repairs. The inclusion of severity classification helps prioritize critical road damages, ensuring resources are allocated efficiently. The use of tiny or YOLOv4 variants enables real-time performance even on low-end hardware, making the solution accessible for regional and rural deployments without the need for costly equipment.

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21	CSE	Prof. Bharathi K	4VP21CS072 4VP21CS073 4VP21CS084 4VP21CS114	CONTACTLESS IoT DOORBELL AND SECURITY SYSTEM	Functional	With the increasing emphasis on hygiene, safety, and automation in daily life especially in the post-pandemic world the demand for contactless systems has surged across various sectors. This project introduces a Contactless Doorbell System, a smart, hygienic, and efficient solution that eliminates the need for physical touch in traditional doorbell operations. The system utilizes an ultrasonic sensor to detect the presence or motion of a visitor at the entrance, triggering an alert and simultaneously streaming a live video feed to the homeowner's mobile application in real-time. At the heart of the system is a Raspberry Pi, which acts as the central processor to ensure seamless integration between sensor input, video processing, and mobile communication. Unlike conventional systems that rely on physical pressing or image transmission, this system offers completely touch-free interaction while preserving privacy by avoiding data storage and providing only live visual monitoring. The use of Raspberry Pi also offers flexibility for future enhancements such as facial recognition, cloud integration, and scalability with minimal hardware changes. By adopting modern IoT principles and efficient resource utilization, the system delivers accurate, responsive, and low-latency performance. Overall, this project addresses critical hygiene and safety concerns while demonstrating a practical, scalable application of smart technology for residential, commercial, and institutional use, contributing to improved user experience, public health, and the advancement of smart infrastructure

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22	CSE	Prof. Manasa P	4VP21CS074 4VP21CS076 4VP21CS080 4VP21CS102	POSEFIT MONITOR	Functional	In recent years, the shift towards home-based fitness has highlighted the need for accessible and intelligent workout solutions. Maintaining correct posture during exercise is crucial for effectiveness and injury prevention, yet many individuals lack access to personal trainers or real-time feedback. PoseFit Monitor is a web-based application that employs artificial intelligence to monitor and evaluate users' postures during physical workouts in real time through webcam input. The system integrates the Move Net pose estimation model to identify key body joints. Using a custom-trained model, it classifies different exercises, detects incorrect postures, counts repetitions, and determines the number of calories required to maintain the user's current weight based on parameters such as age, weight, and height. Unlike conventional systems, PoseFit Monitor performs all computations locally in the browser, preserving user privacy and ensuring fast responsiveness without the need for cloud services or external hardware. Designed to be platform-independent and lightweight, this system offers a scalable and user-friendly approach to enhance personal fitness regimes through real-time, AI-powered guidance and tracking.

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23	CSE	Prof. Shrinidhi A	4VP21CS075 4VP21CS087 4VP21CS103 4VP21CS108	CODE MASTERY: DYNAMIC CODING PRACTICE PLATFORM	Functional	The Personalized Coding Practice Platform is a web-based application designed to provide an adaptive and individualized learning experience for programming students by aligning problem difficulty with user performance. Through the integration of a Python-based K-Means clustering algorithm, the system classifies users into skill tiers Beginner, Intermediate, or Expert based on metrics such as solve time, accuracy, and consistency, and dynamically recommends problems suited to their level. Built using React.js, TypeScript, Golang, and MongoDB, the platform also features a secure Python code execution engine and a performance analytics dashboard that tracks progress, rankings, and learning patterns. An admin dashboard further supports user management and problem moderation, ensuring smooth platform operation. In addition to adaptive learning, the platform emphasizes security, scalability, and maintainability, making it capable of supporting a growing user base without compromising performance. By delivering a data-driven, responsive coding environment, the project fulfils its goal of promoting efficient self-guided learning and continuous skill advancement in a personalized manner.

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Phone:+91-8251-235955,234555Fax:+91-8251–236444,Web:www.vivekanandaedu.org,E-Mail:vcet_puttur@yahoo.co.in

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Sl No	Dept	Guide	USNs	Title	Status	Abstract(100words)
24	CSE	Prof. Thapaswini P S	4VP21CS078 4VP21CS105 4VP21CS106 4VP22CS406	FACIAL ANALYSIS POWERED VIRTUAL HEALTHCARE	Functional	Mental health awareness is growing globally, yet many individuals suffering from conditions like depression remain undiagnosed due to stigma, lack of access, or hesitance to seek professional help. This project presents an AI-based system designed to assist counselors in providing more effective, real-time support to their clients. The application combines facial expression recognition, voice analysis, and intelligent chatbot communication to detect emotional states and possible signs of depression. Using deep learning models, particularly Convolutional Neural Networks (CNNs), the system analyzes facial expressions captured via camera to identify key emotional cues such as sadness, anger, or anxiety. In parallel, a voice assistant evaluates vocal tone, pitch, and response patterns to detect behavioral signs commonly associated with mental distress. Based on these multimodal inputs, the system generates emotional insights which are shared with the counselor to support accurate assessment and intervention. A built-in chatbot module also allows clients to engage in secure, empathetic conversations between counseling sessions. It provides mental health tips, responds to common queries, and encourages users to communicate their feelings, ensuring ongoing emotional engagement and early detection of critical signs. This tool is specifically developed for use by mental health professionals and counselors, enabling them to offer clients a hybrid model of support that combines in-person expertise with intelligent virtual assistance. The system not only enhances the counselor's ability to monitor emotional well-being over time but also empowers clients with accessible, non-intrusive mental health support. The overall goal is to create a bridge between traditional therapy and modern technology for more personalized and proactive mental health care.

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25	CSE	Dr. Jeevitha B K	4VP21CS082 4VP21CS084 4VP21CS089 4VP21CS090	ConnectEd - A COMPREHENSIVE SCHOOL MANAGEMENT PLATFORM	Functional	The integration of technology into education has significantly transformed traditional administrative processes leading to more efficient streamlined systems. The ConnectEd School Management System aims to modernize school management by providing a comprehensive role-based platform for Admins, Teachers, Students and Parents. Built using the MERN stack (MongoDB, Express.js, React.js, Node.js) the web-based system offers a user-friendly interface that facilitates various academic and administrative functions such as managing assignments timetables attendance notices academic progress. The system leverages React.js for the frontend to ensure an interactive responsive user experience while Node.js and Express.js handle the backend to manage user authentication data storage file uploads. The use of MongoDB ensures secure scalable data management supporting the storage of student records academic materials other essential information. The system's file management capabilities powered by Multer enable seamless upload retrieval of academic resources such as study materials timetables. Through rigorous testing including unit integration system tests the ConnectEd platform has been proven to meet functional non-functional requirements. The system not only streamlines school administration but also improves communication between students teachers parents creating a more transparent efficient educational environment.

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26	CSE	Prof. Pramod Kumar P M	4VP21CS085 4VP21CS094 4VP21CS098 4VP21CS111	DETECTION OF YELLOW LEAF DISEASE IN ARECA TREE	Functional	Arecanut plantations face severe yield declines due to Yellow Leaf Disease (YLD), causing significant financial losses for farmers. Traditional detection methods often identify the disease in advanced stages, limiting timely intervention. The proposed approach develops an automated YLD detection system using deep learning and IoT technologies. By leveraging both high-resolution image data and IoT sensor inputs such as temperature, humidity, soil moisture, and Nitrogen, Phosphorus, and Potassium (NPK) levels the system provides accurate predictions of plant health. The model is trained on a combined dataset of images and environmental parameters, enabling it to recognize the early symptoms of YLD. Users can input both an image and IoT values into the system for real time disease prediction. The deep learning model ensures cost effectiveness. An intuitive interface delivers actionable insights that enable farmers to make timely decisions. Designed for accuracy, affordability, and usability, the system addresses the practical needs of farmers. Field trials will validate its performance, ensuring continuous improvement. The proposed model aims to revolutionize the management of arecanut crops, mitigate the impact of YLD, and increase the productivity and profitability of farmers.

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27	CSE	Prof. Pramod Kumar P M	4VP21CS086 4VP21CS088 4VP21CS093 4VP21CS109	COCOA BEANS SEGREGATION	Functional	. The cocoa beans segregation system presents an innovative solution designed to transform the cocoa processing industry by automating the grading process using advanced image processing and deep learning techniques. By analyzing visual quality parameters such as size and shape, the system reduces manual effort, minimizes sorting time, and significantly improves consistency and accuracy compared to traditional grading methods. It integrates machine learning with realtime hardware control to enhance product quality and overall processing efficiency. Conventional grading methods often suffer from human error, inconsistent results, and slow procedures, leading to misclassification and reduced market value. This system addresses these issues by capturing high-resolution images of cocoa beans and utilizing a Convolutional Neural Network (CNN) to classify them into quality grades. The automation and intelligent decision-making capabilities ensure uniform grading, decrease labor dependency, and support scalable, costeffective, and smart agricultural practices in cocoa processing.

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28	CSE	Prof. Krishna Mohana A J	4VP21CS092 4VP21CS101 4VP21CS116 4VP21CS120	SMART ENERGY TRACKER	Functional	The proposed method for implementing an IoT-based solution involves leveraging interconnected sensors, microcontrollers, and a user interaction. Sensors embedded in physical devices will collect real-time data on parameters relevant to the application, such as voltage, current and power. This data will be transmitted to a microcontroller, the ESP32, for preliminary processing and communication via Bluetooth. The processed data will then be uploaded to mobile app, where advanced analytics and visualization tools will generate actionable insights for users. The user interface, accessible via a web or mobile application, will provide intuitive controls for monitoring, managing, and automating the connected devices. Additionally, the method incorporates features like threshold-based alerts, remote control, and integration.
29	CSE	Dr. Jeevitha B K	4VP21CS096 4VP21CS107 4VP21CS119 4VP21CS121	BODHIMENT:AI-POWERED MNEMONICS & SMART LEARNING HUB	Functional	In today's education system, students often struggle with retaining complex information due to traditional rote learning methods. This project introduces an innovative approach that simplifies learning through mnemonic techniques, story-based learning, and intelligent summarization, making difficult topics more understandable and memorable. By incorporating interactive elements such as flashcards, visual aids, and gamification, the system enhances engagement and reinforces learning in an effective and enjoyable manner. A structured database allows students to revisit and review previously learned material, ensuring long-term retention through systematic repetition. The project is designed to adapt to different subjects and learning styles, providing meaningful associations that improve comprehension and recall. The system includes a fine-tuned

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						mnemonic generation model in addition to API-based content generation, offering more personalized and accurate learning aids. The system also personalizes content to suit user preferences, making it a valuable tool for students seeking efficient ways to absorb information. Future enhancements will focus on refining content generation, expanding customization options, and integrating more interactive features to further enhance the learning experience. Ultimately, this project aims to transform the way students study by making learning more accessible, interactive, and engaging.
30	CSE	Prof. Swapnalaxmi K	4VP21CS097 4VP21CS100 4VP21CS110 4VP21CS113	COLLABVEDA - AN AI-POWERED COLLABORATIVE CODING PLATFORM	Functional	In today's rapidly evolving digital landscape, real-time and collaborative coding tools are becoming essential for modern software development and learning environments. CollabVeda is a browser-based, AI-assisted collaborative coding platform built to support developers, educators and students in writing, editing and executing code together in real time. The platform integrates a responsive code editor, real-time chat and an AI-powered assistant named Gemini to streamline coding sessions and enhance productivity. CollabVeda guarantees instant code synchronisation and smooth user collaboration across various devices by utilising WebSocket communication via Socket.IO. Instead of switching between tabs or using external tools, users can submit natural language prompts to the integrated Gemini chatbot and receive pertinent, usable code snippets right within the session. CollabVeda facilitates effective teamwork and interactive learning without the hassles of conventional development environments thanks to its user-friendly interface and lightweight design.

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31	CSE	Prof. Savitha M	4VP21CS112 4VP22CS401 4VP22CS407 4VP22CS408	IMAGE AND VIDEO DESCRIPTION	Functional	This project presents an Image and Video Description Generator, a Streamlit-based application designed to generate unique, detailed, and natural language descriptions for both images and videos, along with audio narration. The system integrates cutting-edge deep learning models, including the BLIP model for generating initial image description and GPT-2 for enhancing those captions into more context-rich, descriptive narratives. For videos, keyframes are extracted using basic scene change detection, and each frame is independently analyzed to provide a scene-by-scene breakdown. The generated captions are also converted to speech using gTTS (Google Text-to-Speech), enabling accessibility for visually im- paired users or providing an audio-based experience for users on the go. This multi-modal approach makes the application valuable in fields such as media accessibility, content summarization, digital storytelling, and intelligent media archiving.
32	CSE	Dr. Uma Pare	4VP21CS115 4VP21CS124 4VP22CS400	COMPREHENSIVE HAIR AND SCALP DIAGNOSIS USING DEEP LEARNING	Functional	The health of an individual can be impacted by common hair and scalp problems, including psoriasis, alopecia, head lice, and fungal infections. Conventional diagnostic techniques are often subjective and manual. To improve precision, efficiency, and scalability in clinical settings, we propose an automated approach for diagnosing hair and scalp diseases using deep learning techniques. Our system utilizes a large dataset of high-resolution RGB images, including various disease classes. The system is enhanced through preprocessing and augmentation to increase variability. A fine-tuned convolutional neural network is used to classify images based on patterns and textures associated with different conditions. Additionally, we are integrating a chatbot to assist users in interacting with the system, providing guidance and preliminary information based on the diagnostic results. Our project demonstrates the potential of deep learning for reliable, automated

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						detection of hair and scalp disorders, paving the way for future advancements in medical diagnostics
33	CSE	Prof. Savitha M	4VP22CS402 4VP22CS403 4VP22CS404 4VP22CS405	AI BASED TOURIST ADVISOR	Functional	As we live in a modern world which is driven by technology, users look out for faster, more sophisticated, and uniquely tailored ways to schedule a trip. This project focuses on developing an AI-based travel recommendation system aimed to improve the experience of the users by providing intelligent, data-backed information regarding suggested travel destinations. The system uses a combination of recommendation strategies such as collaborative filtering, content-based filtering, and popularitybased analysis to optimize travel recommendations based on individual user preferences, previous interactions, and actions patterns. The application is developed using Python, employing Flask as the web framework, and MySQL as the backend database. It tracks the clicks of the users, filters destinations according to their budget as well as climate preferences and employs machine learning models SVD, TF-IDF, to refine recommendations. To enhance the system further, Google's Gemini AI is used to create rich content for destinations while the Custom Search API makes available realtime images to improve location visualization. This project employs the combination of machine learning, AI-generated content, and input that changes with the user dynamically to create an interactive, user-friendly solution that simplifies travel planning and addresses the contemporary demands of tourism.

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