Ministry of Micro, Small and Medium Enterprises, Government of India
MSME MICRO, SMALL & MEDIUM ENTERPRISES

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ACADEMIC LIVE PROJECTS

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ELECTRONICS

- Embedded Systems

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S. No	TITLE	DOMAIN
1.	**IoT-Enhanced Transport and Monitoring of Medicine Using Sensors, MQTT, and Secure Short Message Service** The main objective of this project is to enhance the transport and monitoring of medicine using IoT sensors, MQTT protocol for data transmission, and a secure Short Message Service (SMS) for real-time alerts and updates.	IOT
2.	**IoT Based Electrical Vehicle Battery Management System with Charge Monitor and Fire Protection** The objective of this project is to develop an IoT-based Electrical Vehicle Battery Management System (EVBMS) with integrated charge monitoring and fire protection capabilities. This system aims to enhance battery safety, extend lifespan, and optimize charging efficiency through real-time monitoring and preemptive fire safety measures.	IOT
3.	**Advancing Workplace Safety with IoT-Enabled Industrial Monitoring** The objective of this project is to advance workplace safety by deploying IoT-enabled industrial monitoring systems. Through the integration of IoT sensors and data analytics, the system will enable enhanced real-time monitoring of environmental conditions and machinery operations. This initiative aims to mitigate accidents and elevate safety standards across industrial workplaces.	IOT
4.	**Sewage Water Monitoring and Filtering using Raspberry Pi** The main objective of this project is to develop a sewage water monitoring and filtering system using Raspberry Pi. This system aims to continuously monitor water quality parameters, detect contaminants, and automate filtration processes to improve sewage treatment efficiency and environmental sustainability.	WSN
5.	**Smart Water Flow and Pipeline Leakage Detection using IoT** The main objective of this project is to implement a smart water flow monitoring system using IoT to detect and alert pipeline leakages, thereby optimizing water management and reducing wastage.	IOT
6.	**Drivers Real time Drowsiness, Attention Detection and Alarm System using Eye Aspect Ratio(EAR) Analysis** The main objective of this project is to develop a real-time drowsiness and attention detection system for drivers using Eye Aspect Ratio (EAR) analysis, aiming to enhance road safety through timely alerts and interventions.	Machine learning

7.	**An Evaluation of LoRaWAN and WLAN for IoT-based Photovoltaic Microgrid Monitoring** The main objective of this project is to assess LoRaWAN and WLAN technologies for monitoring IoT-based solar microgrids, focusing on their reliability, coverage, and energy efficiency.	WSN
8.	**IoT and Machine Learning-Based Smart Soil Irrigation Farming Systems** The main objective of this project is to design and implement IoT and machine learning-driven systems for precision soil irrigation in agriculture. This aims to enhance water efficiency, monitor soil conditions, and maximize crop productivity through automated decision-making.	Machine learning
9.	**Smart Helmet for Riders to Avoid Accidents Using IoT** The main objective of this project is to develop a smart helmet integrated with IoT technology to enhance rider safety by providing real-time hazard detection and accident prevention alerts, thereby reducing the risk of accidents on the road.	IOT
10.	**Design and Implementation of RF Based War Spying Robot with Wireless Night Vision Camera** The main objective of this project is to design and implement a war spying robot equipped with RF communication and a wireless night vision camera system. This aims to enable remote surveillance in challenging environments, enhancing situational awareness and operational capabilities in military or security applications.	Robotics
11.	**IoT-Enabled Advanced Water Quality Monitoring System for Pond Management and Environmental Conservation** The main objective of this project is to develop a system for analyzing the water quality of ponds to detect hazardous substances and pollutants, and then upload this data to an IoT platform. This integration aims to enable real-time monitoring and remote management, facilitating prompt responses to water quality issues for environmental conservation and public health protection.	IOT
12.	**IoT-enabled Moving Wheelchair with Obstacle Detection and Continuous Health Monitoring** The main objective of this project is to design an IoT-enabled wheelchair equipped with obstacle detection for safe navigation and continuous health monitoring capabilities. Additionally, integrating control via Google Assistant	Biomedical

	aims to provide enhanced accessibility and autonomy for users with mobility challenges.	
13.	**LPG Transport Tracking and Leakage Detection with Accident Prevention Alert System** The main objective of this project is to create a system for tracking LPG transport, detecting leaks, and issuing accident prevention alerts through buzzer and message notifications. This ensures immediate response to potential hazards, improving safety in LPG transportation and distribution operations.	Embedded Applications
14.	**Remote Monitoring of Hazardous Environment at Mining Sites Using LoRa Network** The main objective of this project is to implement a LoRa-based system for remote monitoring of hazardous conditions at mining sites. It includes continuous detection of dangers and sending real-time alert messages, while also uploading data to ThingSpeak for centralized monitoring and analysis.	WSN
15.	**An IoT based Real Time Forest Fire Detection & Alerting System Using LoRa Communication** The main objective of this project is to implement an IoT-based real-time forest fire detection and alerting system using LoRa communication. This involves transmitting fire data via a LoRa transmitter for reception by a LoRa receiver, enabling immediate actions to be taken to prevent and manage forest fires effectively.	WSN
16.	**LoRa - Powered Smart Agriculture System for Monitoring and Controlling** The main objective of this project is to deploy a LoRa-powered smart agriculture system for monitoring and controlling farms. This includes detecting soil moisture levels and transmitting data from a transmitter to a receiver, enabling automated actions such as activating pumps for efficient irrigation management.	WSN
17.	**Tracking and Monitoring Cattle's Health using Wireless Sensor Networks** The main objective of this project is to implement a wireless sensor network for tracking and monitoring the health of cattle. Sensor data will continuously monitor health indicators, enabling prompt action in case of anomalies, and notifying authorities via GSM messages for immediate intervention and care.	Biomedical
18.	**Smart Aquaponics and Hydroponics Monitoring Using IoT** The main objective of this project is to develop an IoT-based system for smart monitoring of aquaponics and hydroponics. This includes automating water transfer between pond and land based on need, activating pumps as required, and uploading real-time data to ThingSpeak for comprehensive monitoring and management of water resources in agricultural settings.	IOT

19.	**Intelligent Control Shed Poultry Farm System Incorporating With Machine Learning** The main objective of this project is to create an intelligent control system for poultry farms integrating machine learning. Gas sensors will monitor poultry conditions, and machine learning algorithms will analyze sensor data in real-time. If abnormal conditions are detected, the system will trigger alerts via a buzzer or GSM message, ensuring prompt action to maintain poultry health and welfare.	Machine learning
20.	**Automatic Licence Plate Detection and Recognition System using Image Processing Techniques** The main objective of this project is to develop an automatic license plate detection and recognition system using image processing techniques. This system will use cameras to detect license plates, verify their correctness, and grant entry based on valid plate recognition, enhancing security and efficiency in access control scenarios.	OpenCV
21.	**Air Quality Prediction and Analysis using Machine Learning** The main objective of this project is to predict and analyze air quality using machine learning. Sensors such as MQ6, MQ2, and PMS will detect air quality parameters, and machine learning algorithms will process the data. If the processed data indicates poor air quality, the system will issue alerts, enabling timely responses to potential environmental hazards and ensuring public health safety.	Machine learning
22.	**Implementation of a Wireless Human Hand Gesture Controlled Robotic Arm** The main objective of this project is to implement a wireless human hand gesture-controlled robotic arm using flex sensors. Movements detected by the flex sensors on the human hand will be replicated by the robotic arm, enabling intuitive and precise control for various applications such as prosthetics or industrial manipulation tasks.	Robotics
23.	**Car Black Box System for Accident Analysis using IoT** The main objective of this project is to create a car black box system using IoT for accident analysis. In case of an accident, the system will send a message through GSM and upload relevant data to ThingSpeak. This aims to provide immediate alerting and comprehensive data collection for accident reconstruction and analysis.	IOT
24.	**Virtual Eye: Object Recognition for Blind** The main objective of this project is to develop "Virtual Eye," an object recognition system for the blind using a webcam. The system will utilize the webcam to detect objects, and a speaker will verbally announce the names of detected objects in real-time, enhancing accessibility and independence for visually impaired individuals.	OpenCV
25.	**Development of a Sign Language Translator Based on Gestures-To-Words Using IoT** The main objective of this project is to develop a sign language translator using IoT based on gestures-to-words. Each finger will have flex sensors to interpret	IOT

	gestures, allowing translation between English and regional languages such as Telugu and Tamil. The translated words will be spoken aloud by a speaker, facilitating communication for individuals using sign language and promoting inclusivity.	
26.	**A Hybrid IoT and Machine Learning Approach for Crop Recommendation Using a Voting Ensemble Model** The main objective is to utilize IoT sensors to measure essential crop parameters, process this data through machine learning algorithms like a Voting Ensemble Model, and provide real-time recommendations on whether the conditions are suitable ("good") or unsuitable ("bad") for optimal crop growth, ensuring timely alerts for necessary actions.	Machine Learning
27.	**IoT-Based Smart Kitchen with Enhanced and Automated Safety Measures** The main objective is to implement an IoT-based smart kitchen with automated safety measures, including monitoring cylinder weight and detecting fires, with data uploaded to ThingSpeak for real-time analysis and actionable alerts, ensuring enhanced safety and efficiency in kitchen operations.	IOT
28.	**SDIoTPark : A Data Analytics Framework for Smart Parking Using SDN-Based IoT** The main objective is to develop SDIoTPark, a data analytics framework for smart parking using SDN-based IoT, where vehicles can efficiently find parking spaces by checking real-time availability on ThingSpeak. This system aims to optimize parking management, reduce congestion, and enhance user convenience through IoT integration and data-driven decision-making.	IOT
29.	**A Smart Bin with Real-Time Monitoring and Garbage Level Tracking Using IoT** The main objective is to create a smart bin system that utilizes IoT for real-time monitoring and garbage level tracking. By measuring dust percentage using ultrasonic and IR sensors, detecting debris, and using a servo mechanism to sort waste into wet or dry bins, the system aims to optimize waste management efficiency. Data from the smart bin will be uploaded to ThingSpeak for continuous monitoring and analysis, facilitating timely waste collection and resource allocation.	IOT
30.	**Over-Crowd Avoiding In Transportation With Face Detection Using Raspberry pi** The main objective is to implement a system for overcrowd avoidance in transportation using Raspberry Pi and face detection technology. When the camera detects overcrowding through face detection, it triggers a GSM module to send real-time alerts to authorities, ensuring prompt action to manage crowd levels effectively and enhance passenger safety.	OpenCV
31.	**An AI-Based Ventilation KPI Using Embedded IoT Devices** The objective of this project is to develop an AI-based ventilation KPI system using embedded IoT devices, which integrates temperature, humidity, and air	IOT

	quality sensors to continuously monitor and analyze indoor air conditions. The system leverages machine learning algorithms to optimize ventilation performance and provide actionable insights for improving indoor air quality.	
32.	**Anomaly Detection in Industrial Air Conditioners in Hangars With Aircraft Spare Parts** The objective of this project is to implement an anomaly detection system for industrial air conditioners in aircraft hangars by using temperature, humidity, and vibration sensors to monitor system performance. The system applies machine learning algorithms to analyze sensor data and identify deviations, ensuring timely maintenance and preventing potential failures.	Embedded Applications
33.	**Emphasize The Health Benefits Of Improved Air Quality With Mini Ozone Generator In Trains** The objective of this project is to enhance air quality in trains using a mini ozone generator, combined with air quality sensors to monitor and control ozone levels and particulate matter. This system aims to improve passenger health by reducing airborne contaminants asnd maintaining a cleaner, healthier environment within train compartments.	Embedded Applications
34.	**Digital Twin for Smart Building Management System** The objective of this project is to create a digital twin for smart building management using DHT11 sensors for temperature and humidity, IR sensors for human detection, and current and voltage sensors for monitoring energy consumption from a 12V battery. This system aims to optimize building operations and enhance energy efficiency by providing real-time insights and control.	Machine learning
35.	**FertiForecast: Identification of Fertilizer Based on NPK Levels using Machine Learning Algorithms** The objective of the FertiForecast project is to optimize fertilizer application using machine learning algorithms to analyze NPK sensor data and soil moisture levels. The system processes this data to recommend the precise type and amount of fertilizer required and automatically activates the water pump as needed, ensuring optimal soil conditions. This approach enhances crop growth and resource efficiency by customizing fertilization and irrigation practices based on real-time soil data and predictive analytics.	Machine Learning
36.	**Machine Learning based Assessment of Mental Stress using Wearable Sensors**	Machine Learning

	The main objective of the project is to assess mental stress levels using wearable sensors, such as heart rate monitors and galvanic skin response (GSR) sensors. By applying machine learning algorithms to the data collected from these wearable sensors, the project aims to accurately evaluate mental stress and provide actionable insights to help manage and reduce stress.	
37.	**VanyaRakshak: Intelligent System Approach to Intrusion Detection in Rainforest** The objective of the VanyaRakshak project is to develop an intelligent intrusion detection system for rainforests using PIR sensors for motion detection and a USB webcam for real-time monitoring. The Raspberry Pi processes the data, and if motion is detected or unauthorized activity is identified, the system sends alerts via a GSM module.	openCV
38.	**A Lightweight Wearable Fall Detection System using Gait Analysis for Elderly** The main objective of the project is to create a lightweight wearable fall detection system for the elderly using gait analysis. By utilizing sensors such as the ADXL345 accelerometer, the system aims to detect falls accurately and promptly send a message with the GPS location to a designated phone number, ensuring timely assistance and improving the safety of elderly individuals.	Arduino
39.	**A Novel Embedded System for Real-Time Fault Diagnosis of Photovoltaic Modules** The objective of the project is to develop an embedded system for real-time fault diagnosis of photovoltaic modules using temperature sensors, voltage sensors, and current sensors. The system processes sensor data to identify and diagnose faults in photovoltaic modules, ensuring efficient operation and timely maintenance.	Embedded Applications
40.	**IoT-Enabled Horticultural Lighting for Optimizing Plant Growth and Agriculture Operations** The objective of the IoT-Enabled Horticultural Lighting project is to enhance plant growth and agricultural efficiency by using sensors to monitor soil moisture, fire risks, and light conditions. The system automates irrigation, detects fire hazards, and adjusts lighting based on sensor inputs, with all data uploaded to ThingSpeak and critical alerts sent via GSM. This integration ensures responsive and optimal management of horticultural operations.	IOT
41.	**Exploring Vulnerabilities: Analyzing Malfunctions and security Breaches in Electronic Vot Machines**	openCV

	The main objective of the project is to identify and analyze vulnerabilities, malfunctions, and security breaches in electronic voting machines. This will be achieved using a Raspberry Pi for real-time monitoring with cameras and sensors like temperature, vibration, and tamper detection. If unauthorized access is detected, a message will be sent through a GSM module to alert security personnel.	
42.	**Lifi based real time under water board casting from optimal data rates and lower Power consumption** The objective of the LiFi-based underwater broadcasting project is to enable real-time data transmission in aquatic environments with optimal data rates and low power consumption. By using different LEDs to indicate various types of data being sent and activating a buzzer at the receiver side to signal data reception, the system ensures clear and efficient underwater communication.	WSN
43.	**Research on Self-Powered Rainfall Sensor Suitable for Landslide Monitoring Based on Triboelectric Nanogenerator** The main objective of the research is to design and implement a self-powered rainfall sensor for landslide monitoring, using a triboelectric nanogenerator (TENG) to power the sensor and measure rainfall intensity. This sensor will continuously provide critical data on precipitation levels to improve early warning systems for landslide risk assessment.	Arduino
44.	**Networked MEMS pressure sensor design to detect pore water pressure for landslide monitoring** The objective of the project is to design a networked MEMS pressure sensor system to monitor pore water pressure and soil moisture for landslide detection. This system uses MEMS pressure sensors to measure pore water pressure and soil moisture levels. The collected data is transmitted wirelessly to a central unit for real-time analysis. If the system detects conditions indicative of a landslide, it sends an alert via a GSM module and activates a buzzer to provide immediate warning and facilitate timely mitigation efforts.	Embedded Applications
45.	**Battery Health Management Based on Digital Twin Technology** The objective of the project is to develop a battery health management system using digital twin technology, incorporating sensors such as temperature sensors, voltage sensors, and current sensors to monitor battery performance. The digital twin model processes this data to simulate and analyze battery health in real time, enabling predictive maintenance and optimization of battery lifespan.	Machine learning
46.	**AI and Digital Twins Transforming Healthcare IoT**	IOT

	The objective of the project is to use AI and digital twin technology to transform healthcare IoT by integrating Dallas temperature sensors, heartbeat sensors, and BMP180 sensors to monitor vital signs and environmental conditions. The system analyzes this data in real-time, sends alerts via a GSM module if any abnormalities are detected, and transmits the values to an IoT platform for comprehensive health monitoring and management.	
47.	**AQUATWIN: A Digital Twin Framework for Early Detection of Water Contamination** The objective of the AQUATWIN project is to create a digital twin framework for early detection of water contamination by integrating pH sensors, turbidity sensors, and TDS sensors to monitor water quality. The system processes sensor data using machine learning algorithms to predict contamination, and sends alerts via a GSM module if any problematic values are detected.	Machine Learning
48.	**AI-Driven Driver Behaviour Assessment Through Vehicle and Health Monitoring** The main objective of the project is to enhance driver safety by assessing behavior and health through real-time monitoring, utilizing heartbeat and temperature sensors, a drowsiness-detecting camera, and emergency push button integration, with alerts sent via GSM and buzzer activation for abnormalities.	OpenCV
49.	**Optimizing Structural Health Monitoring Systems Through Integrated Fog and Cloud Computing Within IoT Framework** The main objective of this project is to optimize structural health monitoring systems by integrating fog and cloud computing within an IoT framework, using heartbeat and Dallas temperature sensors alongside RFID cards to upload individual health details to the ThingSpeak IoT webserver. The system will trigger alerts via GSM messaging if any health metrics exceed predefined thresholds.	IOT
50.	**Outdoor VOCs' Concentration Monitoring Due to Traffic Emission** The main objective of the project is to monitor outdoor VOCs' concentrations due to traffic emissions by continuously measuring air quality, gas, and smoke levels with specialized sensors. Data is sent to ThingSpeak for ongoing	WSN

	monitoring, and alerts are issued via GSM if thresholds are exceeded, with information transmitted from a Zigbee transmitter to a receiver for traffic police.	
51.	**Flood Management System Using Cloud Computing and Internet-of Things** The Flood Management System utilizing IoT and cloud computing aims to enhance early flood detection and monitoring by integrating IoT sensors to collect environmental data and performing predictive analytics. It provides timely alerts to authorities and the public, improving preparedness and response to minimize flood risks.	**IOT**
52.	**IoT-Based Smart Biofloc Monitoring System for Fish Farming Using Machine Learning** The IoT-Based Smart Biofloc Monitoring System aims to optimize fish farming by monitoring key water parameters like pH, dissolved oxygen, and temperature. Using IoT sensors and machine learning, it provides real-time analysis, predicts water quality trends, and alerts farmers to potential risks, enhancing productivity and reducing manual labor.	**Machine Learning**
53.	**Sensor-Driven Student Counting for Efficient Classroom Energy Management** The Sensor-Driven Student Counting system optimizes classroom energy usage by using IoT sensors to monitor real-time student occupancy. It adjusts lighting, heating, and cooling based on actual occupancy, reducing energy waste, lowering costs, and promoting sustainability while maintaining student comfort.	**IOT**
54.	**Awake Guard: An Arduino-Based Real-Time System for Enhancing Driver Safety Through Drowsiness Detection** The Awake Guard system, an Arduino-based solution, enhances driver safety by detecting drowsiness through sensors that monitor eyelid movement and head position. It provides real-time alerts to prevent accidents, aiming to improve road safety, reduce fatigue-related risks, and offer a cost-effective, user-friendly solution for widespread adoption.	**Embedded Applications**
55.	**Design of Solar Powered Grid for Application in Electric Vehicle Charging Station**	**Embedded Applications**

	The design of a Solar Powered Grid for EV Charging Stations aims to create a sustainable solution by integrating solar energy with grid management for efficient vehicle charging. It focuses on optimizing energy production, storage, and distribution while assessing the economic and environmental benefits of renewable energy in transportation infrastructure.	
56.	**Wireless Power Transfer Electric Vehicle Charger Using Solar Energy** The Wireless Power Transfer Electric Vehicle Charger aims to develop a solar-powered, contactless charging system for electric vehicles, enhancing sustainability and convenience. It focuses on integrating wireless power transfer with solar energy, assessing efficiency, reliability, and scalability for green transportation infrastructure.	**WSN**
57.	**IoT ML Driven Holistic Health Monitoring and Fitness Assessment Empowering Proactive Wellbeing Management** The IoT and Machine Learning-driven Holistic Health Monitoring system provides real-time monitoring of vital health metrics through IoT sensors and analyzes data using ML algorithms. It delivers personalized insights for proactive health and fitness management, empowering users to make informed decisions and promoting preventative care.	**Machine Learning**
58.	**Smart Jacket for Health Monitoring of Climbers Using LoRaWAN Technology** The Smart Jacket for Health Monitoring of Climbers is a wearable system that tracks vital health metrics in real time during climbs using LoRaWAN technology for long-range communication. It enhances climber safety by providing early warnings of health issues and enabling monitoring by medical teams or emergency responders in remote areas..	**WSN**
59.	**Intelligent Design and Application of Health Monitoring and Early Warning System for Rural Empty Nesters**	**WSN**

	The Intelligent Health Monitoring and Early Warning System uses smart sensors and wireless communication to provide real-time health tracking for elderly individuals in rural areas. It detects early signs of health deterioration and issues timely alerts to family and healthcare providers, enhancing overall well-being and healthcare access for rural empty nesters.	
60.	**Digital Health and Machine Learning Technologies for Blood Glucose Monitoring and Management of Gestational Diabetes** The Digital Health and Machine Learning Technologies for Blood Glucose Monitoring create a real-time system for tracking blood glucose levels in pregnant women with gestational diabetes. Utilizing machine learning for data analysis, it provides tailored recommendations and timely interventions to enhance health outcomes for both mother and baby.	**Machine Learning**
61.	**Ecoaquatics: Feed Efficient Fish Health Monitoring System** The Ecoaquatics Feed Efficient Fish Health Monitoring System optimizes fish feeding by real-time monitoring of fish health and water quality. It aims to reduce feed waste, enhance fish growth, and promote sustainability in aquaculture through efficient resource use and improved farm productivity.	**Embedded Applications**
62.	**Healthcare Monitoring Revolution through Face Detection Using BP and SpO2** The Healthcare Monitoring Revolution through Face Detection develops a non-invasive system that uses facial recognition technology to monitor vital health metrics like blood pressure (BP) and oxygen saturation (SpO2). It offers real-time assessments without physical contact, enhancing patient monitoring and enabling early detection of health issues for improved care.	**OpenCV**
63.	**Advancing Healthcare Monitoring: Integrating Machine Learning With Innovative Wearable and Wireless Systems for Comprehensive Patient Care** The project aims to enhance healthcare monitoring by integrating machine learning with advanced wearables to continuously track vital health data. It provides personalized insights and predictive outcomes, improving	**Machine Learning**

	remote monitoring and proactive health management for better patient care.	
64.	**Communication in black spot using lora technology** The Communication in Black Spot Using LoRa Technology project aims to create a reliable communication system for data transmission in areas with limited or no network connectivity. By leveraging LoRa technology's long-range, low-power capabilities, it seeks to support emergency services and remote monitoring, enhancing community resilience and safety in critical situations where traditional networks fail.	**WSN**
65.	**Analysis of Optimal Machine Learning Approach for Battery Life Estimation of Li-Ion Cell** The study aims to identify effective machine learning algorithms for predicting the lifespan and performance of lithium-ion batteries by analyzing factors influencing degradation. It seeks to enhance prediction accuracy and provide insights for optimizing battery management systems, ultimately improving battery efficiency and longevity.	**Machine Learning**
66.	**MQTT Protocol and Implementation of Equipment Management System for Industrial Internet of Things** The project aims to create a communication framework using the MQTT protocol for efficient data exchange between industrial equipment and monitoring systems. It focuses on implementing a real-time equipment management system to enhance operational efficiency and decision-making through insights into equipment performance and health.	IOT
67.	**Smart Home Security: An Efficient Multi-Factor Authentication Protocol** The project focuses on creating a multi-factor authentication system to improve smart home device security through methods like biometric recognition and mobile verification. It aims to assess the system's effectiveness and user experience, ensuring a balance between security and convenience while preventing unauthorized access.	**WSN**
68.	**smart Wearable Device with Multi-Sensor Integration for Search and Rescue Operations**	**Embedded+IOT**

	This project develops a smart wearable device with multi-sensor integration for real-time monitoring, GPS tracking, data sharing, safety alerts, and extended power efficiency to enhance search and rescue coordination in critical environments.	
69.	**Real-Time Parking System with Navigation** This project aims to create a real-time parking system that detects available spaces and provides navigation, reducing search times and enhancing user convenience through live updates and guidance.	**IOT**
70.	**Unveiling the Future: Design and Development of an Intelligent Raspberry PI based Smart Mirror Design using Internet of Things Assistance** This project designs an intelligent smart mirror powered by Raspberry Pi that integrates IoT features for real-time updates and voice recognition, enhancing daily routines and creating a seamless smart home experience.	**IOT**
71.	**Color based Product Sorting Machine using Raspberry Pi** This project develops a color-based product sorting machine using Raspberry Pi and color detection technology to automate sorting, enhancing efficiency and accuracy in manufacturing and logistics.	**Embedded**
72.	**Mo-SSeS: A Motorcycle Smart Security System Using Raspberry Pi Based on the Internet of Things** This project develops Mo-SSeS, a smart motorcycle security system using Raspberry Pi and IoT technology for real-time tracking, remote monitoring, and alerts to enhance security and deter theft.	**IOT**
73.	**Real-Time Object Recognition with Voice Feedback for Visually Impaired Based on Raspberry Pi** This project creates a Raspberry Pi-based object recognition system that helps visually impaired individuals by providing voice feedback, using machine learning and cameras to enhance accessibility and improve quality of life.	**Embedded**
74.	**Safeguarding Journeys: Raspberry pi's Intelligent Driver Monitoring** This project develops an intelligent driver monitoring system using Raspberry Pi to enhance road safety by tracking driver behavior and detecting fatigue or distraction, offering real-time alerts to promote safer driving.	**Embedded**
75.	**Vision Voice: A Raspberry Pi-Based Text-to-Audio Converter for the Visually Impaired** The "Vision Voice" project develops a Raspberry Pi-based text-to-audio converter that assists visually impaired individuals by converting written text into audible speech, using optical character recognition (OCR) and speech synthesis to improve access to information.	
76.	**Facial Recognition Authentication in Electoral Processes using Raspberry Pi** This project implements facial recognition authentication for electoral processes using Raspberry Pi to enhance voting security and integrity by verifying voter identities and reducing fraud.	**Machine learning**
77.	**LoRa-Enabled NodeMCU Nodes for Efficient Agricultural Monitoring in IoT: Integration with Raspberry Pi Web Application**	**WSN**

	This project creates LoRa-enabled NodeMCU nodes for agricultural monitoring, integrated with a Raspberry Pi web application for real-time data analysis, to improve decision-making and support sustainable farming practices.	
78.	**Design and Implementation of a Disinfecting Mobile Robot Based on a Raspberry Pi** This project develops a Raspberry Pi-powered disinfecting mobile robot that uses sensors and automated spraying to enhance sanitation and reduce pathogen spread.	**Robotics**
79.	**Enhancing Night time Highway Drive Safety with a Raspberry Pi-Enabled Collision Alert System** This project aims to enhance nighttime highway safety with a Raspberry Pi-enabled collision alert system that detects hazards and alerts drivers in real time to reduce accident risks.	**Embedded**
80.	**Reimagining Health Tracking: Raspberry Pi Innovations for Holistic Wellness** This project develops Raspberry Pi-based health tracking solutions to promote holistic wellness by integrating various health metrics, enabling users to gain insights and make better lifestyle choices	**Embedded**
81.	**Gas Detection and Environmental Monitoring Using Raspberry Pi Pico** This project develops a gas detection and environmental monitoring system using Raspberry Pi Pico to detect harmful gases and monitor air quality in real time, enhancing safety in various environments.	**Embedded**
82.	**Hands-Free PC Control Using Eye Movements and Blink Sensor with Raspberry Pi** This project develops a hands-free PC control system using eye movements and a blink sensor with Raspberry Pi, enabling users to interact with their computers through eye gestures for improved accessibility.	**Machine learning**
83.	**Microcontroller Home-Based Security Reporting System using GPS-enabled Technology** The objective of this project is to design a home-based security reporting system that utilizes a microcontroller and GPS-enabled technology to track and report security events in real-time. The system aims to enhance home security by providing location-based alerts and notifications.	**embedded**
84.	**Long Short Term Memory (LSTM)-based Cuffless Continuous Blood Pressure Monitoring** The objective of this study is to develop a non-invasive, continuous blood pressure monitoring device using IMU sensors and an LSTM-based machine learning model for accurate BP estimation. The system aims to	**Machine Learning**

	enhance personalization through individualized model training and achieve reliable real-time BP measurements.	
85.	**Design of a Multi-Sensors Wearable System for Continuous Home Monitoring of People With Parkinson's** The objective of this study is to design a wearable multi-sensor system for continuous home monitoring of individuals with Parkinson's disease. The system aims to track and analyze physiological and movement data to support early detection and personalized disease management.	**IOT**
86.	**Continuous Patient-Independent Estimation of Respiratory Rate and Blood Pressure Using Robust Spectro-Temporal Features Derived From Photoplethysmogram Only** This study presents a method for continuous, patient-independent estimation of respiratory rate and blood pressure using spectro-temporal features derived from photoplethysmogram (PPG) signals, aiming to improve non-invasive monitoring accuracy and reliability.	**IOT**
87.	**Personalized Blood Pressure Control by Machine Learning for Remote Patient Monitoring** This study focuses on developing a machine learning-based system for personalized blood pressure control, enabling effective remote patient monitoring and tailored management to improve patient outcomes.	**Machine Learning**
88.	**IoT-Enabled Smart E-Healthcare System with Predictive Prescription Algorithm for Automatic Patient Monitoring and Treatment** This study develops an IoT-enabled smart e-healthcare system with a predictive prescription algorithm for automatic patient monitoring and treatment, aiming to improve healthcare efficiency and provide personalized care.	**IOT**
89.	**Pulse2AI: An Adaptive Framework to Standardize and Process Pulsatile Wearable Sensor Data for Clinical Applications** This study introduces Pulse2AI, an adaptive framework for standardizing and processing pulsatile wearable sensor data, aiming to improve the accuracy and applicability of wearable data in clinical applications.	**Machine Learning**

90.	**TOMATO PLANT DISEASES DETECTION SYSTEM USING IMAGE PROCESSING** This study develops a tomato plant disease detection system using image processing techniques to accurately identify and classify diseases, helping with early intervention and improved crop yield.	**Deep Learning**
91.	**FL-ToLeD: An Improved Lightweight Attention Convolutional Neural Network Model for Tomato Leaf Diseases Classification for Low-End Devices** This study introduces FL-ToLeD, a lightweight attention convolutional neural network model designed for efficient classification of tomato leaf diseases, optimized for use on low-end devices.	**Machine Learning**
92.	**Human-Centered AI in Smart Farming: Toward Agriculture 5.0** This study explores the role of human-centered AI in smart farming, aiming to drive the transition to Agriculture 5.0 by enhancing efficiency, sustainability, and decision-making in agricultural practices.	**Machine Learning**
93.	**Hybrid Digital Twin Model for Greenhouse and Underground Environments** This study develops a hybrid digital twin model to monitor and manage greenhouse and underground environments, aiming to optimize conditions and enhance decision-making through real-time data integration and simulation.	**IOT**
94.	**Forecasting and Performance Analysis of Energy Production in Solar Power Plants Using Long Short-Term Memory (LSTM) and Random Forest Models** This study uses Long Short-Term Memory (LSTM) and Random Forest models to forecast and analyze the performance of energy production in solar power plants, aiming to enhance prediction accuracy and optimize energy management.	**Machine Learning**
95.	**A LoRa-enabled Personal Dust Sampler for Opencast Mine Workers**	**WSN**

	This study develops a LoRa-enabled personal dust sampler for opencast mine workers, aiming to provide real-time, remote monitoring of air quality and dust exposure to enhance worker safety.	
96.	**IoT Based Real-time Environment Monitoring and Safety for Factory Workplace** This study introduces an IoT-based system for real-time environmental monitoring in factory workplaces, focusing on improving safety by tracking conditions and detecting hazards.	**IOT**
97.	**Crop Classification and Yield Prediction Using Robust Machine Learning Models for Agricultural Sustainability** This study develops robust machine learning models for crop classification and yield prediction, aiming to enhance agricultural sustainability by improving crop management and resource utilization.	**Machine Learning**
98.	**AI-Based IoT System for Temperature Forecasting** This study develops an AI-based IoT system for accurate temperature forecasting, aiming to improve predictive capabilities through real-time data integration and AI algorithms.	**Machine Learning**
99.	**Neural Network-Based Active Cooling System With IoT Monitoring and Control for LCPV Silicon Solar Cells** This study develops a neural network-based active cooling system for LCPV silicon solar cells, integrating IoT monitoring and control to optimize temperature management and improve solar cell efficiency.	**IOT**
100.	**Monitoring the Power Consumption of Home Appliances Using an IoT-Based SCADA System** This study develops an IoT-based SCADA system to monitor the power consumption of home appliances, aiming to optimize energy usage and improve household energy efficiency.	**IOT**

101.	**Advancing Healthcare Monitoring: Integrating Machine Learning With Innovative Wearable and Wireless Systems for Comprehensive Patient Care** To develop an advanced healthcare monitoring system integrating machine learning with wearable and wireless technologies for real-time patient data analysis. The system aims to enhance patient care through predictive analytics and continuous health monitoring.	**Machine Learning**
102.	**IoT-Based Allergy Detection and Alert System** To create an IoT-based allergy detection system that identifies potential allergens in the environment using advanced sensors. The system provides real-time alerts to users via mobile notifications, enabling timely preventive actions	**IOT**
103.	**SpectroGLY: A Low-Cost IoT-Based Ecosystem for the Detection of Glyphosate Residues in Waters.** To develop SpectroGLY, an affordable IoT-based system for detecting glyphosate residues in water using spectral analysis and advanced sensors. The system aims to enable real-time monitoring and promote safe water quality management	**Machine Learning**
104.	**Smart Inventory system for Expiry Date tracking System** To design a smart inventory system for tracking the expiry dates of products using IoT and automation. The system aims to provide real-time notifications and alerts, ensuring efficient inventory management and reducing waste	**IOT**
105.	**AI-Powered Agricultural Safety and Soil Moisture Monitoring System using Raspberry Pi** To develop an AI-powered system for agricultural safety and soil moisture monitoring using Raspberry Pi and advanced sensors. The system aims to optimize irrigation and enhance farm safety through real-time data analysis and predictive alerts.	**Machine Learning**
106.	**Automatic Glucose Bottle Empty Alert & Baby Fall Down Prevention From Bed Alert System For Nurse On Medical Treatment** To create an automated alert system for monitoring glucose bottle levels and detecting baby fall incidents using sensors. The system notifies nurses in real time, ensuring prompt response and enhanced patient safety during medical treatment	**Biomedical**

107.	**IoT Implementation for Environmental, Safety, and Production Monitoring in Underground Mines** To develop an IoT-based system for real-time monitoring of environmental conditions, safety parameters, and production metrics in underground mines. The system aims to enhance worker safety, optimize resource use, and improve operational efficiency	**IOT**
108.	**Deep Learning Based Animal Detection With SMS And IOT Notification** To develop a deep learning-based system for detecting animals in agricultural fields and sending real-time SMS and IoT alerts. The system aims to protect crops from damage and ensure efficient field management.	**Deep Learning**
109.	**Iot Vehicle Parameter Monitoring System** The objective of the IoT-based vehicle parameter monitoring system is to continuously track critical vehicle metrics such as CO emission, fuel level, and engine temperature in real-time. This system aims to enhance vehicle performance, ensure efficiency, and provide early detection of potential issues for timely maintenance	**IOT**
110.	**Weapon Detection Using Deep Learning For Security Applications using Raspberrypi** The objective of the weapon detection system using deep learning on Raspberry Pi is to accurately identify potential weapons in real-time for enhanced security. This system aims to provide automated surveillance and alert authorities for immediate intervention in high-risk areas.	**Deep Learning**
111.	**Traffic Sign Recognition Systems With Hardware Implementation** The objective of the **Traffic Sign Recognition System with Hardware Implementation** is to detect and classify traffic signs using raspberrypi, enhancing driver assistance and road safety. The system processes real-time images from a camera, identifies traffic signs, and provides alerts through visual or audio outputs	**Deep Learning**

112.	**Wildfire Risk Assessment and Detection for Remote Terrain** The objective of the **Wildfire Risk Assessment and Detection for Remote Terrain** is to monitor environmental conditions using IoT and AI to predict and detect wildfire risks in real time. The system analyzes temperature, humidity, wind patterns, and smoke levels to provide early warnings and improve disaster response	**Machine Learning**
113.	**Fingerprint and Face Detection with Self Banking Biometric and GSM Technology** The objective of the **Fingerprint and Face Detection with Self-Banking Biometric and GSM Technology** is to enhance security and accessibility in banking transactions using biometric authentication. The system verifies users through fingerprint and face recognition, enabling secure self-banking services while providing transaction alerts via GSM	**Embedded Applications**
114.	**Automated Greenhouse for Optimal Crop Selection and Growth** The objective of the is to monitor and control environmental conditions using IoT and AI for maximizing crop yield. The system adjusts temperature, humidity, and irrigation based on real-time data, ensuring ideal growth conditions for selected crops	**Machine Learning**
115.	**Alcohol Sensing with Engine Locking System and Communication Using GPS GSM Technology** The objective of the concept is to enhance road safety by preventing drunk driving. The system detects alcohol levels in the driver's breath, automatically locks the vehicle engine if intoxication is detected, and sends alerts with the vehicle's location via GPS and GSM to emergency contacts or authorities.	**WSN**
116.	**Securing Vehicles with Arduino: Implementing Geo-Fencing Technology for Theft Prevention** The Objective is to enhance vehicle security by creating virtual boundaries around the vehicle. The system uses GPS and Arduino to track the vehicle's location, sending alerts via GSM if the vehicle moves beyond the predefined geo-fenced area, thus preventing theft and unauthorized movement.	**WSN**
117.	**Anti Theft Power Smart Metering System** The objective of the **Anti-Theft Power Smart Metering System** is to detect and prevent electricity theft by monitoring power consumption in	**WSN**

	real-time. The system uses smart meters integrated with sensors and communication technologies to detect irregularities, alert authorities, and automatically disable power supply in case of theft attempts	
118.	**IoT Based Epilepsy Monitoring Device for Children** The objective of the **IoT-Based Epilepsy Monitoring Device for Children** is to provide real-time monitoring of children with epilepsy by detecting seizure activities using sensors. The device sends alerts via IoT technology to caregivers or medical personnel, ensuring timely intervention and enhancing the safety of children prone to seizures	**IOT**
119.	**Design and Implementation of Arduino Controlled Mecanum Wheel Robot** The objective of the **Design and Implementation of Arduino Controlled Mecanum Wheel Robot** is to develop a robot with omnidirectional movement capabilities using mecanum wheels, controlled by an Arduino system. The robot will be capable of moving in any direction with precise control, making it suitable for tasks like material handling, surveillance, and navigation in confined spaces	**Robotics**
120.	**Implementation of Farmguard with Automated Animal Detection and Monitoring System using IoT** The objective of this projects is to enhance farm security and animal management by detecting and monitoring animals in real-time. The system uses IoT sensors and cameras to track animal movements, detect intrusions, and send alerts, ensuring better control and protection of farm .	**IOT**

PROJECT SUPPORTS FOR STUDENTS:

- PROJECT ABSTRACT
- PROJECT IEEE BASE PAPER/ REFERENCE PAPER
- PROJECT PRESENTATION IN PPT FORMAT
- PROJECT REVIEW ASSISTANCE FOR VIVA
- PROJECT DIAGRAMS
- PROJECT SOURCE CODE
- PROJECT REPORT
- PROJECT SCREEN SHOTS
- PROJECT DEMO
- PROJECT EXPLANATION
- PLAGARISM DOCUMENTATION
- INTERNATIONAL JOURNAL/CONFERENCE PUBLISHING
- PROJECT ACCEPTANCE LETTER
- PROJECT COMPLETION CERTIFICATE

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LATEST MATLAB ACADEMIC LIVE PROJECTS 2024-2025

S. No	Project Code	Title	Domain
1	**TMMAAI321**	**Tomato Quality Classification Based on Transfer Learning Feature Extraction and Machine Learning Algorithm Classifiers** ***Objective**: The study introduces a CNN-SVM hybrid model for tomato quality grading, achieving 97.50% accuracy in binary and 97.54% in multiclass classifications.*	Image Processing/Artificial Intelligence
2	**TMMAIP438**	**Single Underwater Image Restoration Using Variational Framework Guided by Imaging Model with Noise** ***Objective**: The objective is to enhance underwater image quality by integrating an improved imaging model with noise and variational frameworks for superior contrast, color correction, and noise suppression.*	Image Processing
3	**TMMASP197**	**Lightweight and High Accurate RR Interval Compensation for Signals from Wearable ECG Sensors** ***Objective**: The objective is to develop a lightweight, high-accuracy RRI compensation method for wearable ECG sensors, balancing power consumption and resolution.*	Signal Processing
4	**TMMASP194**	**A Novel ECG Signal Quality Index Method Based on Skewness-MODWT Analysis.** ***Objective**: Develop a novel Signal Quality Index (SQI) method to classify and optimize ECG signals for wearable devices, enhancing accuracy and efficiency.*	Signal Processing
5	**TMMASP201**	**A Morphology-Preserving Algorithm for Denoising of EMG-Contaminated ECG Signals** ***Objective**: Develop a novel iterative regeneration method to efficiently suppress EMG noise in ECG signals, preserving diagnostic information.*	Signal Processing
6	**TMMAIP440**	**Online Low-Light Sand-Dust Video Enhancement Using Adaptive Dynamic Brightness Correction and a Rolling Guidance Filter** ***Objective**: To enhance low-light sand-dust videos, an adaptive dynamic brightness correction and rolling guidance filter improve contrast, illumination, and noise reduction.*	Image Processing, Image Enhancement
7	**TMMAIP441**	**Online Low-Light Sand-Dust Video Enhancement Using Adaptive Dynamic Brightness Correction and a Rolling Guidance Filter** ***Objective**: To enhance low-light sand-dust videos, an adaptive dynamic brightness correction and rolling guidance filter improve contrast, illumination, and noise reduction.*	Image Processing, Image Denoising
7	**TMMAAI332**	**Lumbar Disease Classification Using an Involutional Neural Based VGG Nets (INVGG)** ***Objective**: The objective is to classify lumbar diseases accurately using an advanced INVGG network that combines involutional layers with a modified VGG structure, enhancing diagnostic precision in medical imaging.*	Image Processing/Artificial Intelligence
8	**TMMAWS94**	**Wireless Sensor Network (WSN) Model Targeting Energy Efficient Wireless Sensor Networks Node Coverage** ***Objective**: Designing and improving energy-efficient coverage methods for wireless sensor networks using the improved gray wolf algorithm to optimize node deployment.*	Communication

9	**TMMACO138**	**Millimeter-Wave Massive MU-MIMO Performance Analysis for Private Underground Mine Communications** ***10Objective**: This article evaluates mmWave massive MU-MIMO channel characteristics in an underground mine, emphasizing path loss, time dispersion, and spectral efficiency.*	Communication
10	**TMMAAI341**	**A Novel Transfer Learning Approach for Detection of Pomegranates Growth Stages** ***Objective**: The objective is to develop an efficient approach for early detection of pomegranate growth stages using transfer learning and machine learning techniques, achieving 98% accuracy.*	Image Processing/Artificial Intelligence
11	**TMMAAI343**	**A Novel Framework for Vehicle Detection and Tracking in Night Ware Surveillance Systems** ***Objective**: To enhance nighttime vehicle detection and tracking, our model employs MIRNet for image enhancement and YOLO with SIFT for accurate tracking.*	Image Processing/Artificial Intelligence
12	**TMMAAI344**	**Convolutional Neural Network Image Classification Based on Different Color Spaces** ***Objective:** The objective of this project is to explore the impact of different color spaces on the performance of Convolutional Neural Networks (CNN) for image classification tasks. By converting images into various color spaces such as RGB, HSV, and YUV, the model will be trained to evaluate how color representation affects classification accuracy. The results will offer insights into optimizing CNN-based image classification using diverse color space transformations.*	Image Processing/Artificial Intelligence
13	**TMMAAI345**	**Classification of Oral Cancer Into Pre-Cancerous Stages From White Light Images Using LightGBM Algorithm** ***Objective**: The objective of this project is to classify oral cancer into pre-cancerous stages using white light images. Advanced image processing techniques will be applied to extract relevant features, and the LightGBM algorithm will be employed for efficient classification. The model's performance will be evaluated using accuracy metrics to enhance early detection of pre-cancerous conditions.*	Image Processing/Artificial Intelligence
14	**TMMAAI346**	**Artificial Intelligence Techniques for Landslides Prediction Using Satellite Imagery** ***Objective**: The objective of this project is to develop an AI-based model for landslide prediction using satellite imagery. By employing deep learning techniques and image analysis, the model aims to detect and forecast potential landslide-prone areas. The goal is to improve early warning systems, enhance disaster management, and mitigate risks in vulnerable regions.*	Image Processing/Artificial Intelligence
15	**TMMAAI347**	**Optimized Brain Tumor Detection: A Dual-Module Approach for MRI Image Enhancement and Tumor Classification** ***Objective**: The objective of this project is to develop an optimized dual-module system for brain tumor detection using MRI images. The first module focuses on image enhancement, utilizing advanced techniques for improving MRI clarity, while the second module classifies tumor types through a deep learning-based model. The aim is to enhance diagnostic accuracy and efficiency in brain tumor detection.*	Image Processing/Artificial Intelligence
16	**TMMAAI348**	**Automated Tool Support for Glaucoma Identification with Explainability Using Fundus Images**	Image Processing/Artificial Intelligence

		***Objective**: The objective of this project is to develop an automated tool for the identification of glaucoma using fundus images, integrating deep learning algorithms to classify the condition. The system will include explainability features to provide clear insights into the decision-making process. This will aid clinicians in understanding and trusting the model's results for better diagnosis.*	
17	**TMMAAI338**	**Pipelined Structure in the Classification of Skin Lesions Based on Alexnet CNN and SVM Model With Bi-Sectional Texture Features** ***Objective**: The objective of this project is to develop a pipelined structure for the classification of skin lesions by leveraging AlexNet CNN for feature extraction and SVM for classification. Bi-sectional texture features will be incorporated to enhance the model's ability to differentiate between lesion types. The pipeline aims to improve accuracy and reliability in skin lesion classification for medical diagnosis.*	Image Processing/Artificial Intelligence
18	**TMMAAI340**	**A Transfer Learning-Based Approach for Brain Tumor Classification** ***Objective**: To classify brain tumors using deep learning with the Inception v3 network, leveraging pre-processing techniques for accurate identification of glioma, meningioma, pituitary tumor, and non-tumorous conditions.*	Image Processing/Artificial Intelligence
19	**TMMAAI361**	**Artificial Intelligence Techniques for Landslides Prediction Using Satellite Imagery.** ***Objective**: The objective of this study is to develop an AI-driven framework leveraging satellite imagery and the ResNet101 deep learning model for accurate landslide prediction, enabling effective disaster risk mitigation and land management.*	Image Processing/Artificial Intelligence
20	**TMMAAI367**	**Optimized Brain Tumor Detection: A Dual-Module Approach for MRI Image Enhancement and Tumor Classification** ***Objective**: The proposed method enhances brain tumor detection by applying adaptive Wiener filtering for noise reduction, RBF neural networks for feature extraction, and SVM for classification, improving tumor diagnosis and treatment planning.*	Image Processing/Artificial Intelligence

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TRENDY MATLAB ACADEMIC LIVE PROJECTS

S. No	Project Code	Title	Domain
1	TMMAAI323	**Multi-Class Classification of Plant Leaf Diseases Using Feature Fusion of Deep Convolutional Neural Network and Local Binary Pattern** ***Objective**: This study develops a dual-stage classification system combining CNN and LBP feature fusion to accurately identify plant species and diseases.*	Image Processing/ Artificial Intelligence
2	TMMAAI324	**Skin Disease Detection System Using Convolutional Neural Network.** ***Objective**: The objective is to develop a CNN-based system to accurately classify skin diseases, enhancing diagnosis through advanced image processing and model training techniques.*	Image Processing/ Artificial Intelligence
3	TMMAAI330	**Genetic Algorithm based Feature Selection to Enhance Breast Cancer Classification.** ***Objective**: This Objective utilizes genetic algorithms for image clustering, followed by feature extraction and classification using Random Forest to achieve efficient image processing and prediction.*	Image Processing/ Artificial Intelligence
4	TMMAAI331	**Diagnosis of skin diseases using Convolutional Neural Networks** ***Objective**: Develop an automated skin disease diagnosis system using CNNs for accurate, consistent classification and treatment recommendations, reducing dependency on practitioner experience and expediting dermatological care.*	Image Processing/ Artificial Intelligence
5	TMMAAI334	**GAUSSIAN WEIGHTED DEEP CNN WITH LSTM FOR BRAIN TUMOR DETECTION** ***Objective**: To enhance brain tumor detection accuracy, we propose GWDeepCNN-LSTM, combining advanced image preprocessing, segmentation, feature extraction, and LSTM-based classification.*	Image Processing/ Artificial Intelligence
6	TMMACO87	**A HYBRID FAULT-TOLERANT ROUTING BASED ON GAUSSIAN NETWORK FOR WIRELESS SENSOR NETWORK** ***Objective**: The Primary goal is to design a robust and efficient routing protocol that enhance the fault tolerance capabilities of WSNs.*	Communication
7	TMMAAI335	**DIABETIC RETINOPATHY STAGE CLASSIFICATION USING CONVOLUTIONAL NEURAL NETWORKS** ***Objective**: To accurately classify Diabetic Retinopathy stages using deep learning, specifically Convolutional Neural Networks, to enhance the diagnosis and management of diabetes-related retinal damage by categorizing images into five stages.*	Image Processing/ Artificial Intelligence
8	TMMACO136	**SWEEPER: Secure Waterfall Energy-Efficient Protocol-Enabled Routing in FANET** ***Objective**: To develop a secure and energy-efficient routing protocol for FANETs using the SWEEPER framework, focusing on trust-based node selection, cryptographic key management, and reducing packet loss for improved performance.*	Communication

9	**TMMAAI326**	**Neural Network-Based Image Processing for Vitamin Deficiency Detection Using CNN** ***Objective**: This project uses CNNs to detect vitamin deficiencies through image analysis of body parts, enabling early diagnosis and accurate intervention.*	Image Processing/ Artificial Intelligence
10	**TMMASP199**	**Improving SNR, MSE and Denoising of EMG-Contaminated ECG Signals using EMD** ***Objective**: This study aims to enhance ECG clarity by using Empirical Mode Decomposition (EMD) to effectively suppress EMG noise without significant signal distortion.*	Signal Processing
11	**TMMACO137**	**Performance Analysis of Millimeter-Wave Massive MU-MIMO with 128 Base-Station Antennas for Private Underground Mine Communications** ***Objective**: To assess MU-MIMO mmWave channel performance in underground mines, focusing on path loss, delay spreads, coherence bandwidth, and capacity at 28 GHz.*	Communication
12	**TMMAAI351**	**CLASSIFICATION OF FRUITS RIPENESS USING CNN WITH MULTIVARIATE ANALYSIS BY SGD** ***Objective**: This study aims to develop an automated system for fruit ripeness classification using a CNN with VGG16 architecture optimized by Stochastic Gradient Descent. The model accurately categorizes ripe and rotten fruit images across bananas, papayas, and oranges.*	Image Processing
13	**TMMAAI352**	**Digital Forensics for Skulls Classification in Physical Anthropology Collection Management** ***Objective** This study aims to develop an efficient, high-accuracy system for classifying human skulls based on the presence of a mandible, utilizing advanced image processing techniques and machine learning for improved collection management.*	Image Processing
14	**TMMACO140**	**Robust WHT-GFDM for the Next Generation of Wireless Networks** ***Objective** This study aims to develop a robust, low-latency communication system for 5G networks by combining Walsh-Hadamard Transform (WHT) and Generalized Frequency Division Multiplexing (GFDM), optimizing performance in frequency-selective channels.*	Communication
15	**TMMACO141**	**Efficient Resource Allocation with Dynamic Traffic Arrivals on D2D Communication for Beyond 5G Networks** ***Objective** This paper proposes a novel optimization approach for device-to-device (D2D) communication in B5G networks, enhancing spectral efficiency and minimizing latency through power control and resource allocation algorithms.*	Communication
16	**TMMAAI355**	**Fish Disease Detection Using Image Based Machine Learning Technique in Aquaculture** ***Objective** This study proposes a machine learning-based fish disease detection system using image processing techniques. It employs pre-processing and SVM classification to distinguish between fresh and infected fish, providing early, accurate disease identification for sustainable aquaculture.*	Image Processing/ Artificial Intelligence
17	**TMMAAI359**	**Advanced Drone Classification Using Light CNN and Image Processing for DJI Models** ***Objective** To develop a robust classification system for small drones, this study utilizes radar-captured images and applies advanced image processing and Light CNN techniques to accurately identify DJI drone models, enhancing security and surveillance.*	Image Processing/ Artificial Intelligence

18	**TMMASP204**	**Extracting Fetal ECG Signals Through a Hybrid Technique Utilizing Two Wavelet-Based Denoising Algorithms** ***Objective*** *The objective of this study is to develop hybrid algorithms combining Stationary Wavelet Transform (SWT) and Recursive Least Squares (RLS) for precise fetal ECG extraction, improving signal clarity and diagnostic accuracy.*	Signal Processing
19	**TMMAWS141**	**AN ENERGY-EFFICIENT HYBRID CLUSTERING TECHNIQUE (EEHCT) FOR IOT-BASED MULTILEVEL HETEROGENEOUS WIRELESS SENSOR NETWORKS** ***Objective*** *The objective of this research is to develop an Energy-Efficient Hybrid Clustering Technique (EEHCT) for IoT-based Heterogeneous Wireless Sensor Networks (HWSN) to minimize energy consumption, balance network load, and enhance network lifetime through a mixed static and dynamic clustering approach.*	Communication
20	**TMMACO142**	**WiRa: Enabling Cross-Technology Communication from WiFi to LoRa with IEEE 802.11ax** ***Objective*** *The objective of this study is to propose the WiRa protocol, enabling efficient Cross-Technology Communication (CTC) between WiFi (IEEE 802.11ax) and LoRa by simulating LoRa waveforms using 802.11ax's OFDMA, improving data transfer efficiency.*	Communication
21	**TMMAAI362**	**Automated detection of diabetic retinopathy using convolutional neural networks on a small dataset** ***Objective*** *This study presents an automated diabetic retinopathy detection approach using DenseNet-121 CNN, with preprocessing, segmentation, and data augmentation to classify images into four categories, ensuring accurate screening and early detection.*	Image Processing/ Artificial Intelligence
22	**TMMAIP442**	**Enhancement of CCTV Low-Quality Images using A Modified Singular Value Decomposition (MSVD) Approach.** ***Objective*** *The objective of this study is to enhance low-quality CCTV video frames using Modified Singular Value Decomposition (MSVD), improving visual clarity and performance metrics for surveillance systems through MATLAB-based image processing techniques.*	Image Processing
23	**TMMASP207**	**One-Dimensional Shallow Neural Network Using Non-Fiducial Based Segmented Electrocardiogram for User Identification System** ***Objective*** *The objective is to develop a user identification system using ECG signals, incorporating non-fiducial segmentation, preprocessing, 1D-CNN for feature extraction, and SVM for classification to ensure accurate and secure authentication.*	Signal Processing
24	**TMMAAI366**	**Wafer defect localization and classification using deep learning techniques** ***Objective*** *The objective is to develop a deep learning-based YOLOv2 model for precise wafer defect localization and classification, enhancing semiconductor manufacturing by automating defect detection, improving efficiency, and ensuring product quality.*	Image Processing/ Artificial Intelligence

APPLICATION / STANDARD MATLAB ACADEMIC LIVE PROJECTS

S. No	Project Code	Title	Domain
1	**TMMAAI325**	**UPI FRAUD DETECTION USING MACHINE LEARNING** ***Objective**: To enhance UPI transaction security, our model uses Random Forest to detect fraud by analyzing transaction details and improving accuracy.*	Image Processing/ Artificial Intelligence
2	**TMMASP200**	**Classification of Heart Diseases Based on Cardiovascular Signals using Deep Learning** ***Objective**: Develop an integrated CNN and ResNet-based system enhanced by Osprey Optimization Algorithm for accurate heart disease classification.*	Signal Processing
3	**TMMAAI336**	**Leaf disease detection using Matlab and deep learning** ***Objective**: Develop an automated system for detecting and classifying leaf diseases using advanced image processing and deep learning techniques, providing real-time diagnostics and treatment recommendations for improved agricultural management.*	Image Processing/ Artificial Intelligence
4	**TMMAAI337**	**AI-Powered Prostate Cancer Detection using image processing & deep learning.** ***Objective**: To develop an AI-powered prostate cancer detection system that utilizes advanced image processing and deep learning to enhance diagnostic accuracy, facilitate early detection, and improve treatment planning for better patient outcomes.*	Image Processing/ Artificial Intelligence
5	**TMMASP202**	**ENHANCING SPEECH QUALITY IN NOISY ENVIRONMENTS USING FILTERING TECHNIQUES** ***Objective**: To improve speech signal quality by reducing background noise using techniques like Spectral Subtraction and Wiener filtering, focusing on enhancing Mean Square Error (MSE) and Signal-to-Noise Ratio (SNR).*	Signal Processing
6	**TMMACO139**	**A Fuzzy Congestion Control in Wireless Sensor Networks based on Spider** ***Objective**: The objective of this research is to develop a Fuzzy Congestion Control method for Wireless Sensor Networks using the Spider Monkey Optimization Algorithm to improve data transmission efficiency and reduce packet loss.*	Communication
7	**TMMAWS96**	**Optimized Fuzzy Clustering using Moth Flame Optimization Algorithm in Wireless Sensor Networks** ***Objective**: The objective of this paper is to propose a fuzzy clustering and congestion control scheme using Fuzzy Logic Controllers and*	Communication

		Moth-Flame Optimization to minimize energy consumption and enhance WSN lifespan.	
8	**TMMAWS140**	**Cluster Head Selection Strategy of WSN Based on Binary Multi-Objective Adaptive Fish Migration Optimization Algorithm** ***Objective**: The objective of this research is to optimize cluster head selection in wireless sensor networks (WSNs) using the Binary Multi-Objective Adaptive Fish Migration Optimization (BMAFMO) algorithm to enhance energy efficiency and performance.*	Communication
9	**TMMAAI349**	**Internet of Things and Deep Learning Enabled Diabetic Retinopathy Diagnosis Using Retinal Fundus Images** ***Objective**: The objective of this system is to enhance early detection and classification of diabetic retinopathy and macular edema using advanced image processing and deep learning, enabling accurate diagnosis and personalized treatment recommendations for effective patient management.*	Image Processing/ Artificial Intelligence
10	**TMMAAI350**	**Detection of Various Lung Diseases Including Covid-19 Using A Lightweight CNN Architecture.** ***Objective**: The objective of this study is to develop a lightweight CNN model for efficient, accurate classification of lung diseases like COVID-19 and pneumonia from chest X-rays, optimizing real-time diagnosis capability.*	Image Processing/ Artificial Intelligence
11	**TMMAAI353**	**EARLY DETECTION OF FUNGAL DISEASES IN CROPS** ***Objective:** Develop a deep learning-based system for early detection of fungal diseases in crop leaves, enhancing diagnostic accuracy and supporting sustainable agriculture through efficient, user-friendly, and non-invasive disease monitoring.*	Image Processing/ Artificial Intelligence
12	**TMMASP203**	**Infant Cry Classification Through Audio Signal** ***Objective:** The objective is to classify infant cries into categories like hunger, pain, or anger, using an Artificial Neural Network (ANN) with spectrogram features extracted via Short Time Fourier Transform (STFT) and optimized using PCA to enhance accuracy.*	Signal Processing
13	**TMMAAI354**	**Bio degradable and non-bio degradable home Waste segregation and recycling** ***Objective:** The project aims to segregate home waste into biodegradable and non-biodegradable categories using a deep learning approach. By employing a CNN, the system classifies waste images, ensuring efficient recycling and promoting environmental sustainability.*	Image Processing/ Artificial Intelligence
14	**TMMAAI356**	**Smart Aquaponics and Hydroponics Monitoring Using IoT** ***Objective:** The objective of this project is to develop an automated disease detection system for hydroponic plants and aquatic fish using CNN-based deep learning, ensuring accurate classification and real-time intervention capabilities.*	Image Processing/ Artificial Intelligence
15	**TMMAAI357**	**AMD diagnosis using OCT images and Diabetic diagnosis using Fundus Images in Matlab** ***Objective:** The objective of this study is to develop a deep learning-based diagnostic framework for accurately detecting and classifying Diabetic Retinopathy (DR) and Age-Related Macular Degeneration (AMD) stages using medical imaging.*	Image Processing/ Artificial Intelligence
16	**TMMAAI358**	**Developing Audio Narratives from Visual images for the Visually Impaired** ***Objective:** The objective of this study is to develop a deep learning-based diagnostic framework for accurately detecting and classifying Diabetic Retinopathy (DR) and Age-Related Macular Degeneration (AMD) stages using medical imaging.*	Image Processing/ Artificial Intelligence

17	**TMMAAI360**	**Multistage Classification of Eye Diseases Using MATLAB: Diagnosis, Staging, and Real-Time Visualization via ThingSpeak** ***Objective:*** *The objective of this research is to develop a MATLAB-based automated system using DenseNet and CNNs for precise classification, staging, and real-time monitoring of multiple eye diseases, enhancing early diagnosis and treatment.*	Image Processing/ Artificial Intelligence
18	**TMMASP205**	**Compensating for Respiratory Artifacts in Blood Pressure Waveforms Using MATLAB** ***Objective:*** *The objective of this project is to analyze online blood pressure and respiratory signal datasets to calculate breathing rates, extract features like Respiratory Sinus Arrhythmia (RSA), and classify health status using an SVM classifier, ensuring high accuracy.*	Signal Processing
19	**TMMACO143**	**Cellular Network Signal Strength Analyser in Real Time Monitoring System** ***Objective:*** *The objective is to evaluate the cellular network signal's robustness by testing its performance in various environments (kitchen, hall, bedroom, bathroom, terrace, and remote locations) to ensure steady data rates and throughput.*	Communication
20	**TMMASP206**	**Real-Time Speech Signal Denoising Using Wavelet Transform Techniques** ***Objective:*** *The objective of this study is to enhance voice signal denoising by improving the Wavelet Threshold method in combination with a Moving Average Filter (MAF), effectively reducing noise in non-stationary random speech signals through multi-resolution analysis and wavelet reconstruction.*	Signal Processing
21	**TMMAAI363**	**Credit card fraud detection** ***Objective:*** *Develop a credit card fraud detection system using a Random Forest algorithm to analyze transaction data, identify anomalies, and classify fraudulent activities, ensuring real-time prevention and enhanced security.*	Image Processing/ Artificial Intelligence
22	**TMMAAI364**	**Automated Left Ventricle Segmentation in MRI Using UNet Architecture in MATLAB** ***Objective:*** *Develop an automated left ventricle (LV) segmentation method in cardiac MRI using UNet architecture, achieving precise and efficient results through MATLAB's image processing tools and PSNR-based evaluation.*	Image Processing/ Artificial Intelligence
23	**TMMAAI365**	**Poultry disease detection method using deep learning technology for different breads** ***Objective:*** *The objective is to develop a MATLAB-based system using deep learning techniques, including CNNs, for early poultry disease detection via vocal, dropping, and behavioural classification to aid timely diagnosis.*	Image Processing/ Artificial Intelligence
24	**TMMACO144**	**Design and Implementation of DS-CDMA Modem Using BPSK** ***Objective:*** *The objective is to simulate and implement DS-CDMA signal transfer using BPSK modulation, leveraging MATLAB for efficient data communication.*	Communication
25	**TMMACO145**	**BER ANALYSIS OF CHANNEL CODING TECHNIQUES FOR 5G NETWORKS** ***Objective:*** *The objective is to analyze and evaluate low-complexity error correction coding techniques, focusing on LDPC and convolutional codes, for enhancing Bit Error Rate (BER) performance in next-generation 5G wireless communication systems.*	Communication

26	**TMMAIP443**	**Automated Segmentation of Retinal Blood Vessels using Optimized Gabor Filter with Local Entropy Thresholding** ***Objective:*** *The objective of this paper is to propose an automated method for segmenting retinal blood vessels using an optimized Gabor filter and local entropy thresholding, enhancing diagnosis of eye-related diseases.*	Image Processing
27	**TMMAAI368**	**Attention to Lesion: Lesion-Aware Convolutional Neural Network for Retinal Optical Coherence Tomography Image Classification** ***Objective:*** *This paper proposes a lesion-aware convolutional neural network (LACNN) for retinal OCT image classification, enhancing accuracy by focusing on lesion regions for early diagnosis of retinal abnormalities like drusen, CNV, and DME.*	Image Processing/ Artificial Intelligence
28	**TMMAAI369**	**Semantic Segmentation in Autonomous Vehicles** ***Objective:*** *The objective is to implement a vehicle and person detection system using YOLOv2 in MATLAB 2020a, focusing on accurate object identification and localization within a controlled dataset for effective real-time detection.*	Image Processing/ Artificial Intelligence
29	**TMMAAI370**	**Bone Fracture Detection using CNN** ***Objective:*** *The objective of this project is to develop a deep learning-based system using Convolutional Neural Networks (CNNs) for accurate bone fracture detection and classification into Mild, Moderate, and Severe categories through an intuitive GUI interface.*	Image Processing/ Artificial Intelligence

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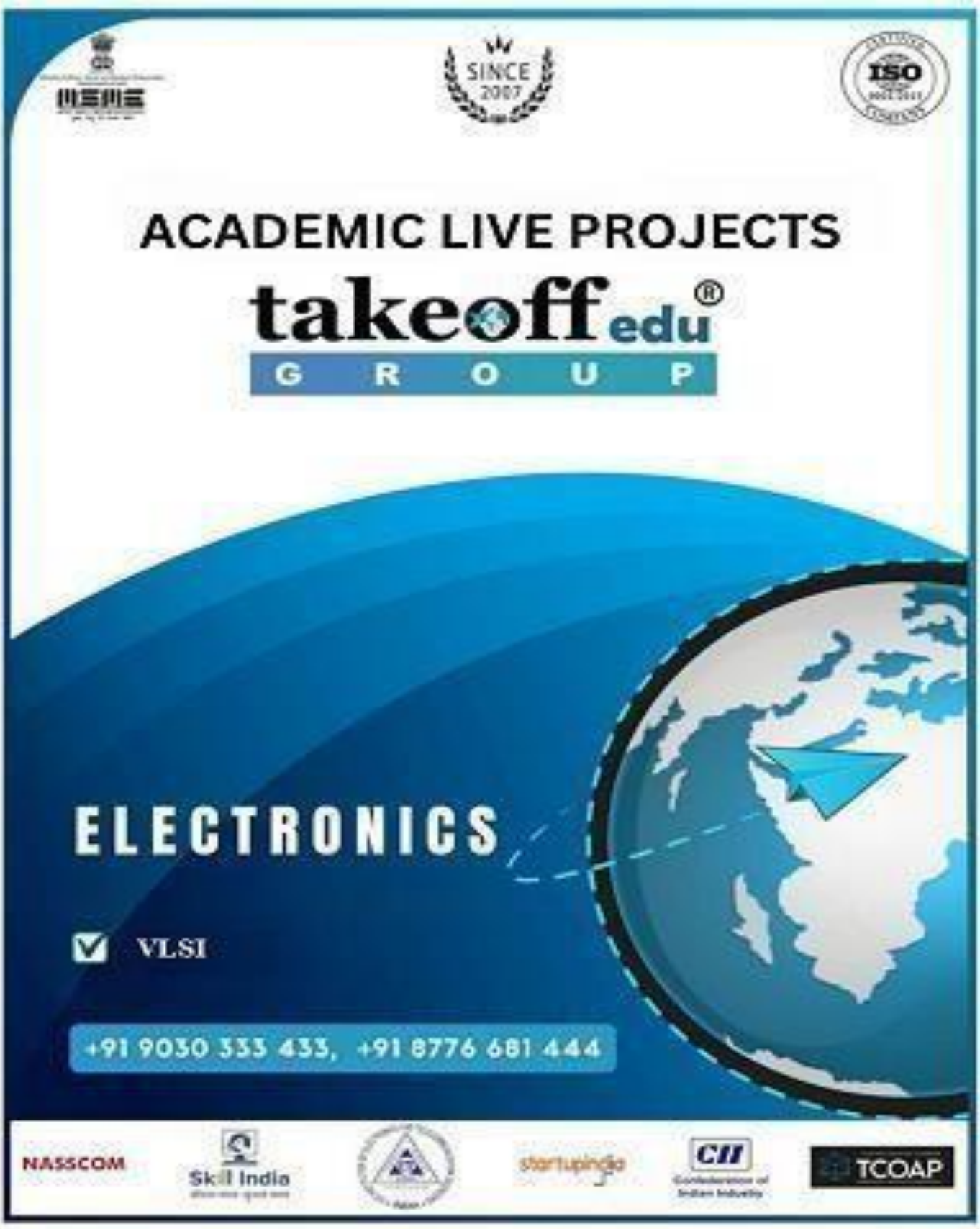

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S.No	Project Code	Project Name	Domain
1	TVMABE252	**Title:** A Single Ring-Oscillator-Based Test Structure for Timing Characterization of Dynamic Circuit ***Objective:*** this approach aims to simplify the testing process while maintaining accuracy.	BackEnd Domains / Transistor Logic
2	TVMABE251	**Title:** 16-Bit Carry Look-Ahead Adder: Design and Layout with Cadence Tools Top of Form ***Objective:*** The primary goal is to create a 16-bit carry look-ahead adder, which is a type of high-speed digital adder architecture. This design aims to achieve fast addition operations.	(BackEnd Domains / Transistor Logic
3	TVPGOT07	**Title:** A Lightweight Image Encryption Algorithm Based on Secure Key Generation ***Objective:*** This is crucial for applications running on devices with limited processing power or memory. Secure Key Generation The research focuses on developing a robust method for generating secure keys. This is essential for maintaining the security of the encrypted images over time	Others / Matlab Interfacing
4	TVMAFE615	**Title:** Decoder Reduction Approximation Scheme for Booth Multipliers ***Objective:*** Decoder Reduction The core idea is to reduce the complexity of the decoder stage in Booth multipliers.	Front End Domains / Testing
5	TVPGFE338	**Title:** Analysis of an Efficient Fault Tolerant Linear Feedback Shift Register for Low PowerApplications ***Objective:*** designing an efficient fault-tolerant LFSR that is suitable for low-power applications. This involves addressing both fault tolerance and power efficiency simultaneously.	Front End Domains / Arithmetic Core
6	TVPGFE339	**Title:** Analysis of an Efficient Fault Tolerant Linear Feedback Shift Register for Low PowerApplications ***Objective:*** designing an efficient fault-tolerant LFSR that is suitable for low-power applications. This involves addressing both fault tolerance and power efficiency simultaneously.	Front End Domains / Communications and Crypto Core
7	TVMAFE609	**Title:** A New Input Grouping and Sharing Method to Design Low Complexity FFT Implementation ***Objective:*** performance benchmarks, and potential applications such as digital signal processing, image processing, or wireless communication systems where FFT algorithms are commonly used.	Front End Domains / Finite State Machines
8	TVMAFE610	**Title:** A New Input Grouping and Sharing Method to Design Low Complexity FFT Implementation ***Objective:*** performance benchmarks, and potential applications such as digital signal processing, image processing, or wireless communication systems where FFT algorithms are commonly used.	Front End Domains / FPGA

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9	TVMAFE611	**Title:** A New Input Grouping and Sharing Method to Design Low Complexity FFT Implementation ***Objective:*** performance benchmarks, and potential applications such as digital signal processing, image processing, or wireless communication systems where FFT algorithms are commonly used.	Front End Domains / DSP Core
10	TVMAFE612	**Title:** A New Input Grouping and Sharing Method to Design Low Complexity FFT Implementation ***Objective:*** performance benchmarks, and potential applications such as digital signal processing, image processing, or wireless communication systems where FFT algorithms are commonly used.	Front End Domains / Arithmetic Core
11	TVMAFE613	**Title:** A New Input Grouping and Sharing Method to Design Low Complexity FFT Implementation ***Objective:*** performance benchmarks, and potential applications such as digital signal processing, image processing, or wireless communication systems where FFT algorithms are commonly used.	Front End Domains / Testing
12	TVPGOT06	**Title:** A Low Cost FPGA Implementation of Retinex Based Low-Light Image EnhancementAlgorithm ***Objective:*** discuss potential applications such as surveillance systems, mobile phone cameras, or medical imaging equipment where low-light image enhancement is crucial.	Others / Matlab Interfacing
13	TVMAFE608	**Title:** Analysis of an Efficient Fault Tolerant Linear Feedback Shift Register for Low PowerApplications ***Objective:*** The main goal seems to be designing an efficient fault-tolerant LFSR that is suitable for low-power applications. This involves addressing both fault tolerance and power efficiency simultaneously.	Front End Domains / FPGA
14	TVPGBE169	**Title:** The hybrid full adder following circuit XOR gate and 2:1 multiplexer using pass transistoralong with PFAL adiabatic logic style and 32-bit adders ***Objective:*** The primary objective of this hybrid full adder circuit using XOR, multiplexer, pass transistor logic, and PFAL is to create a low-power, high-speed, and area-efficient arithmetic unit that can be extended to build 32-bit adders, suitable for modern digital circuits with strict power and performance requirements.	Back End Domains / Transistor Logic
15	TVMABE246	**Title:** design and analysis of low-power and area efficientmaster-slave flip-flop ***Objective:*** To create a low-power master-slave flip-flop design that minimizes power consumption while maintaining acceptable performance characteristics**.**	Back End Domains / Transistor Logic
16	TVMABE241	**Title:** A Benchmark of Cryo CMOS Embedded SRAM DRAMs in 40 nm CMOS ***Objective:*** This work compares eight different dynamic and static memory cell designs, embedded in identical memory architectures in a nanometer CMOS process typically adopted for QC cryo-CMOS interfaces	Back End Domains / Core Memories

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17	TVMAFE614	**Title:** Decoder Reduction Approximation Scheme for Booth Multipliers ***Objective:*** Decoder Reduction The core idea is to reduce the complexity of the decoder stage in Booth multipliers. This is typically the most computationally intensive part of the multiplier, responsible for determining the sign and magnitude of each partial product.	FrontEnd Domains / FPGA
18	TVMABE249	**Title:** 16-Bit Carry Look-Ahead Adder: Design and Layout with Cadence Tools Top of Form ***Objective:*** The primary goal is to create a 16-bit carry look-ahead adder, which is a type of high-speed digital adder architecture. This design aims to achieve fast addition operations.	BackEnd Domains / Cadence EDA
19	TVMABE250	**Title:** 16-Bit Carry Look-Ahead Adder: Design and Layout with Cadence Tools Top of Form ***Objective:*** The primary goal is to create a 16-bit carry look-ahead adder, which is a type of high-speed digital adder architecture. This design aims to achieve fast addition operations.	BackEnd Domains / Low Power VLSI
20	TVMABE255	**Title:** Design and Study the Performance of a CMOS-Based Ring Oscillator Architecture for 5GMobile Communication ***Objective:*** CMOS-Based Ring Oscillator Design The primary goal is to design a ring oscillator architecture using complementary metal-oxide-semiconductor (CMOS) technology. This choice of technology is crucial for 5G applications due to its scalability and low power consumption.	Back End Domains / Transistor Logic
21	TVMABE253	**Title:** Design and Study the Performance of a CMOS-Based Ring Oscillator Architecture for 5GMobile Communication ***Objective:*** CMOS-Based Ring Oscillator Design The primary goal is to design a ring oscillator architecture using complementary metal-oxide-semiconductor (CMOS) technology. This choice of technology is crucial for 5G applications due to its scalability and low power consumption.	Back End Domains / Cadence EDA
22	TVMABE254	**Title:** Design and Study the Performance of a CMOS-Based Ring Oscillator Architecture for 5GMobile Communication ***Objective:*** CMOS-Based Ring Oscillator Design The primary goal is to design a ring oscillator architecture using complementary metal-oxide-semiconductor (CMOS) technology. This choice of technology is crucial for 5G applications due to its scalability and low power consumption.	Back End Domains / Low Power VLSI
23	TVMABE256	**Title:** hybrid full adder circuit utilizing pass transistor and pfal Adiabatic logic style ***Objective:*** allows for energy-efficient operation. • Adiabatic logic is designed to minimize power dissipation by gradually changing signal levels over time. • This approach helps reduce switching losses and overall power consumption.	Back End Domains / Low Power VLSI
24	TVMABE260	**Title:** Realization of Complete Boolean Logic and Combinational Logic Functionalities on aMemristor-Based Universal Logic Circuit	Back End Domains / Low Power VLSI

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		Objective: more flexible, energy-efficient, and compact digital systems in various fields of electronics and computing.	
25	TVMAFE618	**Title:** Energy Efficient Compact Approximate Multiplier for Error-Resilient Applications ***Objective:*** The main objective appears to be designing an energy-efficient, compact approximate multiplier suitable for error-resilient applications	Front End Domains / FPGA
26	TVMAFE627	**Title:** 32-bit fpga based alu employing reversible logic ***Objective:*** Power efficiency: Reversible logic can help reduce power consumption by allowing for easier energy recovery	Front End Domains / FPGA
27	TVMAFE630	**Title:** Artificial intelligence techniques for encrypt images based on the chaotic system implemented on field-programmable gate array ***Objective:*** The main objective appears to be developing a novel method for image encryption and decryption using artificial neural network (ANN)-based chua chaotic system (CCS) implemented on field-programmable gate arrays (FPGAs)	Front End Domains / FPGA
28	TVMAFE631	**Title:** Design and Verification of a High-Performance RISC-V SOC with SPI Protocol at IP-Level for Deep Learning in Medical Imaging ***Objective:*** The main objective appears to be designing and verifying a high-performance RISC-V System-on-Chip (SoC) with a Serial Peripheral Interface (SPI) protocol implemented at the IP level, specifically for deep learning applications in medical imaging	Arithmetic Core
29	TVMAFE632	**Title:** Low Power Crypto-chip design for IoT applications ***Objective:*** The main objective appears to be designing and implementing a low-power cryptographic chip for Internet of Things (IoT) applications. Specifically, the focus is on creating a low-power RISC-V processor with integrated cryptographic acceleration for IoT devices.	Communications
30	TVMAFE633	**Title:** Risc processer with Fft are architecture ***Objective:*** The main objective appears to be designing a RISC (Reduced Instruction Set Computing) microprocessor CPU that incorporates Fast Fourier Transform (FFT) capabilities. This design aims to address the specific needs of digital signal processing applications.	Front End Domains / FPGA
31	TVMABE266	**Title:** Design and Verification of 8X8 Wallace Tree Multiplier ***Objective:*** The primary objective of this design is to create an efficient digital circuit that performs multiplication operations on two 8-bit binary numbers using the Wallace Tree algorithm 5. This multiplier is designed to be faster and more area-efficient compared to traditional methods of multiplication.	Low Power VLSI
32	TVMABE267	**Title:** Design and performance analysis of 4-bit ALU for Nano-Processor design for low area, Low power and minimum delay using 32nm CMOS technology ***Objective:*** Operates efficiently with low power consumption	Low power VLSI
33	TVMABE268	**Title:** Design and performance analysis of 8-bit ALU for Nano-Processor design for low area, Low power and minimum delay using 32nm CMOS technology ***Objective:*** Operates efficiently with low power consumption	Low power VLSI

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34	TVMABE273	**Title:** A low-power 8 bit 1MSper s single-ended SAR ADC in 130-nm CMOS for medical devices ***Objective:*** Operates at 1 MS/s sampling rate Achieves low power consumption Utilizes 130-nm CMOS technology Is suitable for medical device applications	Back End Domai ns\ Low power VLSI
35	TVMAFE634	**Title:** Exploring the Usage of Fast Carry Chains to Implement Multistage Ring Oscillators on FPGAs: Design and Characterization ***Objective:*** Explore the usage of fast carry chains for implementing multistage ring oscillators on FPGAs Design and characterize these oscillators	Front End Domai ns\ Comm unicati ons
36	TVMAFE641	**Title:** Verilog-Based Automatic Bus Ticketing System **Objective:** The project is to design and implement an automated bus ticketing system using Verilog for hardware description. The system will handle ticket issuance, fare calculation, and user interaction through a digital interface.	Front End Domains / Finite State Machines
37	TVMAFE640	**Title:** Toward Designing High-Speed Cost-Efficient Quantum Reversible Carry Select Adders **Objective:** The project is to develop a quantum reversible carry select adder that achieves high-speed operation while minimizing cost. The project aims to explore quantum computing principles to enhance the performance of digital adders in terms of speed and efficiency.	Front End Domains / Arthimeti c core
38	TVMAFE639	**Title:** Implementation Of I2C Protocol With Adaptive Baud Rate Using Verilog **Objective:** The project is to design an I2C communication protocol that dynamically adjusts its baud rate based on system conditions. Using Verilog, the project aims to implement a flexible and efficient I2C interface for reliable data transfer.	Front End Domai ns\ Comm unicati ons
39	TVMAFE638	**Title:** High-Speed Energy-Efficient Fixed-Point Signed Multipliers for FPGA-Based DSP Applications **Objective:** The project is to design and optimize fixed-point signed multipliers for use in digital signal processing (DSP) on FPGA platforms. The focus will be on achieving high-speed operation while minimizing energy consumption.	Front End Domains / Arthimeti c core
40	TVMAFE637	**Title:** High-Speed Energy-Efficient Fixed-Point Signed Multipliers for FPGA-Based DSP Applications **Objective:** FPGA – Controlled Automated Coffee Maker using Verilog	Front End Domains / Arthimeti c core

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41	TVMAFE636	**Title:** Design and Analysis of Multi-Protocol Conversion Unit for SPI, I2C and UART **Objective:** This project is to design and develop a multi-protocol conversion unit that can seamlessly convert data between three widely used communication protocols: Serial Peripheral Interface (SPI), Inter-Integrated Circuit (I2C), and Universal Asynchronous Receiver-Transmitter (UART).	Front End Domai ns\ Comm unicati ons
42	TVMAFE642	**Title:** A 32-Bit Ripple-Ling Hybrid Carry Adder **OBJECTIVE:** To design and implement a high-performance adder that combines the efficiency of ripple carry and carry look-ahead techniques to optimize speed and power consumption. The hybrid approach aims to reduce propagation delay while maintaining simplicity and scalability.	Comm unicati ons\D SP
43	TVMABE276	**Title:** A 32-Bit Ripple-Ling Hybrid Carry Adder **Objective:** To design and implement a high-performance adder that combines the efficiency of ripple carry and carry look-ahead techniques to optimize speed and power consumption. The hybrid approach aims to reduce propagation delay while maintaining simplicity and scalability.	CADEN C E\LOW POWER
44	TVMAFE635	**Title:** Enhancing Security in FPGA-Based RISC-V Implementations Using Boolean Masking Techniques **Objective:** The primary goal seems to be enhancing the security of FPGA-based RISC-V implementations against various types of attacks, particularly side-channel attacks.	FPGA
45	TVMABE285	**Title:** Charge-sensitive amplifier design for high-speed interface readout front-end ASICs **Objective:** developing advanced circuit designs for amplifying small electrical charges quickly and efficiently in integrated circuits (ASICs) used in high-speed interfaces	CADEN C E\LOW POWER
46	TVMAFE640	**Title:** Toward Designing High-Speed Cost-Efficient Quantum Reversible Carry Select Adders **Objective:** The project is to develop a quantum reversible carry select adder that achieves high-speed operation while minimizing cost. The project aims to explore quantum computing principles to enhance the performance of digital adders in terms of speed and efficiency.	Front end/arith metic core

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47	TVMABE292	**Title:** A Two-Step Time-to-Digital Converter With 5.6-ps Resolution and 1–4255-?s Measurement Range **Objective:** Optimize power and area efficiency – The implementation is designed to be power-efficient and compact, making it practical for integration in modern electronic systems.	Cadence
48	TVMABE287	**Title:** A Physical-Based Artificial Neural Networks Compact Modeling Framework for Emerging FETs **Objective:** to develop a compact and efficient modeling framework that leverages artificial neural networks (ANNs) to accurately predict the electrical characteristics of emerging CMOS technologies. The framework aims to combine physical principles with machine learning techniques to improve modeling accuracy, reduce computational complexity, and support advanced semiconductor device design and circuit simulation in modern electronic	Transistor logic
49	TVMAFE647	**Title:** A Low-Cost FPGA Implementation of Retinex Based Low Light Image Enhancement Algorithm **Objective:** The project is to design and implement a cost-efficient hardware architecture for real-time image enhancement in low-light conditions using the Retinex algorithm. The focus is on leveraging FPGA technology to achieve high processing speed, low hardware resource utilization, and improved visual quality for practical applications in surveillance, automotive vision, and consumer electronics.	Front end/Finite state machines
50	TVMA01	**Title:** Compressor based Approximate Multipliers for Neural Network Accelerators **Objective:** to design and develop efficient approximate multipliers using compressor-based architectures to optimize the performance of neural network accelerators. The focus is on reducing power consumption, hardware complexity, and computation latency while maintaining acceptable accuracy, thereby enhancing the overall efficiency of machine learning applications in edge and embedded systems.	Front end/arithmetic core
51	TVMABE289	**Title:** A Wideband Input Buffer Based on Cascade Complementary Source Follower **Objective:** The project is Wideband Operation – Designing an input buffer that can handle a broad frequency range with minimal signal distortion	Transistor logic
52	TVMAFE646	**Title:** Area-Efficient LFSR Based Stochastic Number Generators With Minimum Correlation **Objective:** Minimizing Correlation – Reducing the correlation in generated stochastic bitstreams, which is a common issue in LFSR-based SNGs, ensuring better randomness and accuracy in stochastic computing applications.	Front end/arithmetic core

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53	TVMABE290	**Title:** Towards Silicon Carbide Monolithic Active Pixel Radiation Sensors **Objective:** These sensors are intended for applications in high-energy physics, space exploration, and medical imaging, where conventional silicon-based detectors may have limitations due to radiation damage and high-temperature conditions.	Cadence virtuoso
54	TVMABE291	**Title:** A 521pW, 0.016 V Line Sensitivity Self-Biased CMOS Voltage Reference With DIBL Effect Compensation Using Adaptive VGS Control **Objective:** The design operates at just 521 pW, making it suitable for energy-constrained applications such as IoT devices and biomedical implants. Minimizing line sensitivity – The voltage reference achieves a line sensitivity of 0.016%/V, ensuring stable operation despite fluctuations in the power supply. Compensating for the Drain-Induced Barrier Lowering (DIBL) effect – A novel adaptive gate-source voltage control technique is introduced to counteract variations caused by the DIBL effect, which is critical in deep-submicron CMOS technologies.	Cadence virtuoso

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