

REAL TIME AI POWERED IMPLEMENTATION PROJECTS

JDNET TECHNOLOGIES CUDDALORE



9159395080



6369929654

FINAL YEAR PROJECTS

BE

**ELECTRONICS AND
COMMUNICATION ENGINEERING**

**100 %
PLACEMENT
ASSISTANCE**

**NO:31, SUBBURAYA CHETTY STREET, THIRUPAPULIYUR, CUDDALORE-2
(OPP DARLING ELECTRONICS)**

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REAL TIME AI POWERED IMPLEMENTATION PROJECTS

ANTENNA

1. Design of a Compact Dual-Band Microstrip Patch Antenna for 5G and WiFi Applications
2. Development of a Wearable Textile Antenna Integrated into Smart Clothing for Health Monitoring
3. Metamaterial-Enhanced Microstrip Antenna for Ultra-Wideband (UWB) Operation
4. Reconfigurable Beam-Steering Antenna Array Using PIN Diodes for mmWave Communication
5. Miniaturized Circularly Polarized Patch Antenna for CubeSat Satellite-Communication
6. RF Energy Harvesting Circuit with Embedded Antenna for IoT Sensor Devices
7. Smart Antenna System for Adaptive Nulling and Direction-of-Arrival Estimation in Urban Environments
8. Design of a Low-Profile Antenna for Vehicle-to-Vehicle (V2V) Communication in the 77 GHz Band
9. Multi-Band Fractal Antenna for Simultaneous LTE, WiMAX and GPS Applications
10. Antenna Array for 5G Base Station with Mutual Coupling Reduction Techniques

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11. mmWave Antenna Design and Simulation for 6G Terahertz Communications
12. Flexible Printed Antenna on Polymer Substrate for Wearable Biomedical Devices
13. Dielectric Resonator Antenna (DRA) with Enhanced Bandwidth Using Metasurface for Radar Applications
14. RFID Antenna Design for Automotive Inventory Tracking with Spatial Diversity
15. Simulation and Experimental Validation of Spiral Antenna for Wideband Satellite Communication
16. Conformal Antenna System for Unmanned Aerial Vehicle (UAV) with Low Radar Cross Section
17. Hybrid Optical-RF Antenna System for Visible Light Communication (VLC) and RF Integration
18. Design of a Multi-Functional Antenna with Simultaneous Transmit/Receive Capability for MIMO Systems
19. Smart Reflectarray Antenna for Beam Focus and Reconfiguration in Smart Cities Deployment
20. Investigation of Antenna Performance Over 3D Printed Dielectric Substrate for Rapid Prototyping
21. Compact Tri-band Microstrip Patch Antenna for LTE/5G/WiFi Applications
22. Frequency-Reconfigurable Planar Antenna using MEMS Switches for IoT Devices

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23. Design of a Circularly Polarized MIMO Antenna Array for Satellite Internet
24. Metasurface-Based Antenna for Broadband and Ultra-Wideband Applications
25. Folded Dipole Antenna with Integrated RF Energy Harvesting for Wireless Sensor Nodes
26. Adaptive Smart Antenna System with Null Steering for Urban Wireless Environments
27. Antenna Printed on Flexible Substrate for Wearable Health Monitoring and Telemetry
28. Multi-port Antenna Design for 5G Small Cell Backhaul Links
29. High Gain Antenna Array for Millimetre-Wave (mmWave) 6G Communications
30. Miniaturised Dielectric Resonator Antenna (DRA) for Radar Applications
31. Conformal Antenna Integrated into UAV (Unmanned Aerial Vehicle) Body for Drone Communications
32. Hybrid Optical-RF Antenna System for Visible Light Communication (VLC) and RF Hybrid Networks
33. RFID Tag Antenna Design Optimised for Wood & Non-metallic Surfaces
34. Multi-functional Antenna with Simultaneous Transmit and Receive (Full-Duplex) Capability
35. Beam-forming Reflectarray Antenna for Smart City 5G Deployment

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36. Design of a 60 GHz Band Patch Antenna for Vehicle-to-Vehicle (V2V) and Vehicle-to-Infrastructure (V2I) Communications
37. Wearable Textile Antenna Array for Health Monitoring with Low Profile and Comfort
38. Ultra-Wideband (UWB) Antenna with Notch Filtering for Co-existence with WLAN & WiMAX
39. Planar Inverted-F Antenna (PIFA) for Smartphone 5G mmWave with Reduced SAR
40. Metamaterial Insertion in Patch Antenna to Enhance Bandwidth and Miniaturisation
41. Printed Monopole Antenna with Ground Slot for Bandwidth Enhancement and MIMO Use
42. Reconfigurable Antenna Using PIN Diodes for Cognitive Radio Applications
43. Investigating 3D-Printed Dielectric Substrates for Rapid Prototyping of Antennas
44. Low Profile Antenna for RF Front-End in IoT Sensor Nodes with Energy Harvesting
45. Phase Array Antenna for Satellite Broadband Terminal with Tracking Capability
46. Dual-Polarised Antenna for Base Station in 5G Massive MIMO Systems
47. Antenna Design for Through-Wall Imaging Systems using Ultra-Wideband Signals

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VLSI & EMBEDDED SYSTEMS

1. Low-Power ALU Design in 45 nm CMOS with Clock Gating Techniques
2. FPGA Implementation of Real-Time Image Edge Detection Using Verilog HDL
3. IoT-Based Smart Agriculture System using ARM Cortex-M Microcontroller and Wireless Sensor Network
4. Home Automation System using Raspberry Pi, MQTT and Voice Recognition
5. Heartbeat and Temperature Monitoring System using Wearable Embedded Platform and GSM Notification
6. FPGA-Based Neural Network Accelerator for Edge AI Applications
7. Design of ASIC SRAM Memory with Leakage Power Reduction using MTCMOS Technique
8. Embedded System for Smart Energy Meter with GSM/GPRS Communication and Prepaid Billing
9. Real-Time Traffic Light Controller on FPGA with Vehicle Density Detection using Ultrasonic Sensors
10. Low-Power Memory Design: 6T SRAM Cell Array in Deep-Submicron Technology
11. Smart Wheelchair Control via Voice Commands and Obstacle Avoidance using Embedded System
12. Environmental Monitoring System using LoRaWAN and Embedded Sensor Nodes
13. FPGA Implementation of AES Encryption Engine for Secure IoT Devices

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14. Embedded Healthcare Monitoring System: ECG + SpO₂ + Bluetooth LE Integration
15. Design and Implementation of a Home Surveillance Robot with Embedded Vision and Wireless Control
16. IoT-Enabled Smart Parking System with Embedded Microcontroller and Cloud Analytics
17. FPGA-Based Image Edge Detection and Object Tracking System for Smart Surveillance
18. Low-Power Design Techniques for Embedded Wearable Devices under Battery Constraints
19. Embedded System for Autonomous Drone Navigation with Sensor Fusion (IMU + Camera)
20. Smart Agriculture Irrigation System Using Soil Moisture Sensor, Solar Power and Embedded Controller
21. Design of a Hybrid Embedded System for Real-Time Water Quality Monitoring with IoT Connectivity
22. Embedded Controller for Automated Factory Motor Speed Control and Monitoring via WiFi
23. FPGA-Based Digital Filter Implementation for Audio Processing Applications
24. IoT-Based Vehicle Tracking System using GPS, GSM and Embedded Hardware Platform

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25. Design of an Embedded System for Smart Home Energy Management with Android App Interface
26. Embedded System for Wildfire Detection and Alert System Using Gas & Smoke Sensors with Solar Backup
27. FPGA-Based Real-Time Speech Recognition System for Smart Assistants
28. Embedded Platform for Smart Helmet: Impact Detection, GPS Tracking and Emergency Alert
29. Low-Power Multi-Sensor Fusion Embedded Node for Smart City Air Quality Monitoring
30. Design of a Wearable Embedded Device for Real-Time Fall Detection and Emergency Alert for Elderly
31. Embedded System Using CAN/LIN Protocol for Automotive Diagnostics and Telemetry
32. FPGA Implementation of Real-Time Object Detection using YOLO Tiny for Edge Devices
33. Design of a Smart Embedded Cooling System for Data Centers using Temperature/Humidity Sensors
34. IoT-Based Smart Waste Management System using Embedded Nodes and Cloud Dashboard

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35. Embedded System for Smart Retail: RFID + Embedded Controller + Cloud Analytics
for Inventory Tracking
36. FPGA Based Real-Time Video Compression System using H.264/HEVC Encoder
Module
37. Design of an Embedded Smart Mirror with Voice and Gesture Control Interface
38. Low Power Embedded System for Wildlife Tracking and Monitoring using GPS and
LoRa
39. Embedded Biometric Access Control System using Fingerprint + Face Recognition on
Microcontroller
40. FPGA Implementation of a Real-Time ECG Signal Processing System with QRS
Detection
41. IoT-Enabled Smart Light Control System based on Ambient Light and Presence
Detection using Embedded Controller
42. Embedded System for Automated Drone Delivery with Path Planning and Obstacle
Avoidance
43. Embedded Platform for Smart Fishing Net Monitoring: Sensor + LoRa + Cloud
Analytics
44. Design of an Embedded Smart Grid Node: Real-Time Grid Monitoring, Demand
Response & Cloud Integration

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WIRELESS & COMMUNICATION SYSTEMS

1. Li-Fi Based High-Speed Data Transmission System for Indoor Environments
2. 5G mmWave Beamforming Simulation Using MATLAB for Urban Microcells
3. Smart Traffic Signal Control using Image Processing & AI for Dynamic Vehicle Flow
4. Adaptive Antenna Arrays for Smart City Wireless Networks
5. Design and Analysis of RF Energy Harvesting Circuits for Wireless Sensor Devices
6. IoT-Based Vehicle Tracking System using GPS, GSM and Real-Time Wireless Communication
7. Wireless Sensor Network for Environmental Monitoring with Low-Power Protocols
8. Smart Parking System using LoRa Technology and Cloud Connectivity
9. ZigBee Based Industrial Automation Network with Multi-Node Coordination
10. Secure Data Transmission Using AES over Wireless Channel in IoT Applications
11. Real-Time Air Quality Monitoring via IoT and Wireless Mesh Networks
12. Wireless Mesh Network for Emergency Response and Disaster Management
13. Vehicle-to-Vehicle (V2V) Communication System for Collision Avoidance using Dedicated Short-Range Communications (DSRC)
14. Visible Light Communication (VLC) System for Indoor Positioning and Data Transfer
15. MIMO-OFDM System Design for 5G Wireless Communication Applications
16. Underwater Acoustic Wireless Communication System Simulation and Implementation

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17. Drone Communication System Using RF Modules and Real-Time Telemetry
18. Smart Agriculture Wireless Network: Sensors + Cloud + Remote Monitoring
19. LTE/5G Small Cell Backhaul Wireless Link Optimization for Dense Urban Deployment
20. Wireless Health Monitoring System Using Body Area Network (BAN) and Wireless Communication
21. Cognitive Radio System Design for Dynamic Spectrum Access in 5G/6G
22. Hybrid Wireless/Optical Communication System for High-Speed Indoor Networks
23. Millimetre-Wave (mmWave) Wireless Link Design for High Data-Rate Communications
24. Narrow-band IoT (NB-IoT) Communication System for Smart Metering Applications
25. UAV Based Wireless Communication Relay Network for Remote Areas
26. Wireless Sensor Network for Smart Grid Monitoring and Fault Prediction
27. 6G Terahertz Wireless Communication System Simulation and Feasibility Study
28. Wireless Body Area Network (WBAN) for Real-Time Health Telemetry with Low Latency
29. Smart City Wireless Infrastructure: Deployment Strategies & Performance Analysis
30. Real-Time Multimedia Streaming Over Wireless Mesh Networks for Smart Homes
31. Energy-Efficient MAC Protocol Design for Wireless Sensor Networks in Industrial IoT

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32. Secure Wireless Ad-hoc Network for Military Communication with Jamming Resistance
33. LoRaWAN Based Smart Water Management System with Wireless Monitoring and Control
34. Wireless Communication for Autonomous Vehicles: V2X, V2I, V2P Integration
35. Satellite IoT Communication System for Asset Tracking in Remote Regions
36. Wireless Transceiver Design for Biomedical Implants with Ultra-Low Power Consumption
37. Multi-Hop Wireless Network for Agricultural Regions using Solar-Powered Sensor Nodes
38. Designing Wireless Backhaul Network using Millimetre-Wave for 5G Base Stations
39. Wireless Localization System using RSSI and Time-of-Flight for Indoor Navigation
40. WiFi 6E Based Wireless Network Performance Analysis in Dense Urban Apartment Complex
41. Secure Wireless Communication Protocol for Smart Homes with Blockchain Integration
42. Wireless Sensor Network for Avalanche and Landslide Early Warning System
43. Hybrid RF/Acoustic Wireless Link for Undersea Sensor Networks
44. Wireless Communication System for Smart Railways: Track Monitoring + Maintenance Alerts

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SIGNAL & IMAGE PROCESSING

1. Adaptive Noise Cancellation using the LMS Algorithm for Real-Time Audio Processing
2. Image Compression using Discrete Cosine Transform for Efficient Storage
3. Speech Recognition System using MFCC Features and Deep Learning
4. Hand Gesture Recognition using CNN for Human-Computer Interaction
5. Medical Image Segmentation using U-Net for Automated Disease Detection
6. Real-Time Video Super-Resolution using Deep Learning on Embedded Hardware
7. Underwater Image Enhancement using Wavelet Transforms and Deep Networks
8. Audio Fingerprinting and Watermarking for Copyright Protection
9. Face Recognition System using Multi-Modal Biometrics (Face + Voice)
10. Real-Time Emotion Detection from Video Streams using LSTM Networks
11. Image Texture Classification using Gabor Filters and SVM for Surface Defect Detection
12. Biomedical Signal Processing: ECG QRS Detection and Anomaly Classification
13. Real-Time Traffic Sign Recognition for Autonomous Vehicles using CNNs
14. Smart Surveillance System: Person Re-Identification across Cameras using Feature Embedding
15. Remote Sensing Image Classification using Deep Learning for Land-Use Mapping

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16. Real-Time Lane Detection and Vehicle Tracking using Hough Transform and Kalman Filter
17. Blind Source Separation of Mixed Audio Signals using ICA for Smart Homes
18. Real-Time Audio Classification for Smart Assistants using Edge Processors
19. Image Based Plant Disease Detection using Deep Learning for Agriculture
20. Video Stabilization and Enhancement for Handheld Drone Footage using Optical Flow
21. Wearable EEG Signal Processing for Brain-Computer Interface Applications
22. Real-Time Sign Language Recognition using Computer Vision and Deep Learning
23. Hyperspectral Image Analysis for Mineral Detection using Band Selection and Clustering
24. Real-Time Object Detection and Tracking using YOLO on Embedded Systems
25. Radar Signal Processing for Target Detection and Tracking in Automotive Radar
26. Real-Time Speech Enhancement in Noisy Environments using Deep Neural Networks
27. Fractal Image Compression Techniques for Mobile Devices
28. Image Forgery Detection using Deep Learning and Feature-Based Methods
29. Time-Frequency Analysis of Biomedical Signals using Wavelet Packet Decomposition
30. Real-Time Background Subtraction and Object Tracking for Smart Cities Surveillance

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31. Real-Time Emotion Recognition from EEG Signals using Convolutional Neural Networks
32. Image Stitching and Panorama Creation for Smartphone Cameras in Real time
33. Audio Source Localization and Tracking using Microphone Array and Beamforming
34. Automated Visual Inspection System using Image Processing for Manufacturing Defects
35. Real-Time Image Super-Resolution on FPGA using Verilog HDL
36. Speech Synthesis using Deep Learning for Assistive Technologies
37. Face Mask Detection and Alert System using Mobile Camera and Deep Learning
38. Real-Time Depth Map Generation from Stereo Vision for Robotics Navigation
39. Image Based OCR (Optical Character Recognition) for Rural Language Scripts
40. Real-Time Enhancement of Low-Light Images using GANs (Generative Adversarial Networks)
41. Sign Language to Text Conversion System using Computer Vision and Machine Learning
42. Real-Time Crowd Counting using CCTV Footage and Deep Learning
43. Image-based Traffic Flow Analysis and Congestion Prediction using LSTM Networks
44. Real-Time Visual Odometry for Mobile Robots using Feature Matching and SLAM
45. Biomedical Image Classification: MRI Brain Tumour Detection using Transfer Learning

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CONTROL SYSTEMS & ROBOTICS

1. Self-Balancing Robot using PID and Fuzzy Logic Controllers
2. Autonomous Line Follower Robot with Dynamic Path Re-planning
3. Drone Stabilization and Altitude Control using PID and Sensor Fusion
4. Smart Robotic Arm Controlled via Vision and Gesture Recognition
5. Adaptive Cruise Control System for Autonomous Electric Vehicles
6. IoT-Based Industrial Motor Speed Control using PID over MQTT
7. Autonomous Ground Vehicle using LIDAR and SLAM Navigation
8. Fuzzy Logic Controller for Temperature Regulation in Smart HVAC
9. Ball and Plate System using PID and State Space Control
10. PLC-Based Conveyor Belt Automation with Fault Detection
11. Self-Tuning PID Controller for Quadcopter Dynamics
12. Vision-Based Obstacle Avoidance for Mobile Robot
13. Real-Time Robotic Arm Inverse Kinematics using MATLAB Simulink
14. Hybrid Fuzzy-PID Control for Smart Irrigation Systems
15. Drone Swarm Coordination using Distributed Control Algorithm
16. Model Predictive Control (MPC) of a Two-Tank Liquid System
17. SCADA System Design for Remote Industrial Plant Monitoring
18. Adaptive Cruise Control using Ultrasonic and Radar Sensors
19. Robot Path Planning using A* and Genetic Algorithm

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20. Gesture Controlled Drone using IMU and Image Processing
21. Smart Wheelchair using Voice and Eye-Tracking Control
22. Teleoperated Robotic Arm for Hazardous Environments
23. AI-Driven Pick-and-Place Robot with Camera Feedback
24. Quadcopter Formation Flight Control using Consensus Algorithm
25. Self-Learning Robot Navigation using Reinforcement Learning
26. Automatic Railway Gate Control System using Sensors and PLC
27. DC Motor Speed Control using Fuzzy Logic and IoT Dashboard
28. Line Follower Robot using PID and Color Detection
29. Real-Time Object Following Robot using Camera and Ultrasonic Sensors
30. Voice-Controlled Home Cleaning Robot with Autonomous Mode
31. Smart Drone Delivery System using GPS and Edge AI
32. PID-Based Servo Motor Controller for CNC Applications
33. Collision Avoidance System for Autonomous Car Prototype
34. Humanoid Robot with Balance and Gesture Control System
35. IoT-Integrated Industrial Robot Arm for Remote Operation
36. Sensor Fusion-Based Motion Estimation for Robotic Systems
37. Model Reference Adaptive Control for Inverted Pendulum
38. Mobile Robot for Warehouse Inventory Automation
39. IoT-Enabled Greenhouse Control System using Actuators and Sensors

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POWER ELECTRONICS & ENERGY SYSTEMS

1. Solar-Powered Smart Grid with IoT-Based Monitoring
2. Design of a Bidirectional DC-DC Converter for Electric Vehicles
3. MPPT Algorithm Implementation for Solar PV Systems using Arduino
4. Wireless Power Transfer System for EV Charging
5. Smart Energy Meter with Blockchain-Based Billing
6. Hybrid Renewable Energy System: Solar + Wind with Load Management
7. Battery Management System for Lithium-Ion Packs using BMS ICs
8. IoT-Based Home Energy Automation using Smart Plugs
9. Power Quality Improvement using Active Power Filter
10. Design of a Solar Micro-Inverter using MATLAB/Simulink
11. Smart Grid Fault Detection and Isolation using IoT
12. Grid-Connected PV System with Harmonic Reduction using D-STATCOM
13. Wireless Power Transfer using Resonant Inductive Coupling
14. Dynamic Load Balancing for Renewable Energy Sources
15. Electric Vehicle Fast Charger using Bidirectional Converter
16. Solar-Based Induction Motor Drive for Agricultural Pumps
17. IoT-Based Energy Auditing and Analytics for Smart Buildings
18. Modular Multilevel Converter (MMC) Simulation for HVDC Systems
19. AI-Enabled Power Demand Forecasting using Smart Meter Data

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20. Automatic Street Light Control using LDR and IoT
21. Power Factor Correction using Boost Converter
22. Fault Detection in Power Transmission Lines using GSM
23. Energy Storage Optimization in Microgrids using AI
24. Design of a DC Microgrid for Smart Campus Application
25. Wireless Monitoring of Transformer Health Parameters
26. EV Battery Charger with Regenerative Braking Energy Capture
27. Hybrid Power System with MPPT for Off-Grid Applications
28. Design and Simulation of a Solar Fed BLDC Motor Drive
29. Real-Time Energy Management System using IoT Dashboard
30. Voltage Regulation in Microgrid using STATCOM
31. Solar Street Light with Smart Motion Sensing and IoT
32. Solid-State Transformer for Renewable Integration
33. Design of an Efficient Inverter for Grid-Tied PV Systems
34. Automatic Power Factor Correction using Embedded System
35. AI-Driven Energy Load Prediction using Neural Networks
36. Inductive Power Transfer for Medical Implants
37. IoT-Based Monitoring of Wind Turbine Performance
38. Renewable Energy Forecasting using ML Algorithms
39. Smart Plug System for Real-Time Power Monitoring and Control

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Connect With Us

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