SANJAY K

Electronics and Communication Engineering Student | AI & Robotics Enthusiast

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CONTACT INFORMATION

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- **GitHub:** github.com/SANZZDREAM/Sanjay.K
- **Location:** Chennai, Tamil Nadu, India

CAREER OBJECTIVE

Motivated and dedicated Electronics and Communication Engineering undergraduate with a strong academic foundation and hands-on experience in Embedded Systems, Artificial Intelligence, and IoT technologies. Seeking opportunities to leverage technical expertise in developing intelligent robotic systems and embedded AI solutions. Committed to driving innovation in smart automation and connected devices while contributing to cutting-edge research and development initiatives in the fields of robotics, machine learning, and intelligent systems design.

EDUCATION

Bachelor of Engineering in Electronics and Communication Engineering
R.M.D. Engineering College, Chennai
Duration: July 2024 – May 2028 (Expected)
CGPA: 8.57/10.0

Relevant Coursework:

- Digital Electronics and Microprocessors
- Embedded Systems Design
- Signal Processing and Communication Systems
- Data Structures and Algorithms
- Internet of Things (IoT) Architecture

TECHNICAL SKILLS

Programming Languages

- **Proficient:** Python, Java, Embedded C
- **Familiar:** C++, MATLAB

Frameworks & Development Tools

- **AI/ML Frameworks:** TensorFlow, Keras, Roboflow
- **Embedded Platforms:** Arduino IDE, ESP-IDF, PlatformIO
- **Microcontrollers:** ESP32, Arduino Uno/Mega, Raspberry Pi
- **Version Control:** Git, GitHub

Technical Domains

- **Embedded Systems:** Microcontroller programming, sensor integration, real-time systems
- **Internet of Things (IoT):** Device connectivity, MQTT protocol, cloud integration
- **Artificial Intelligence:** Image classification, computer vision, machine learning model deployment
- **Robotics:** Autonomous systems, sensor fusion, actuator control

Tools & Technologies

- PCB Design and Prototyping
- IoT Cloud Platforms (ThingSpeak, Blynk)
- Serial Communication Protocols (UART, I2C, SPI)
- Basic CAD/Simulation Software

PROJECTS

DriveGuardian – IoT-Enabled AI-Powered Vehicle Maintenance System

Technologies Used: ESP32, Python, TensorFlow, Roboflow, IoT Protocols
Duration: September 2025 – October 2025

Designed and implemented an intelligent vehicle monitoring system that automatically detects and classifies dust accumulation on car surfaces using advanced computer vision techniques.

Key Contributions:

- Developed and trained a custom image classification model using Roboflow with over 500+ labeled images, achieving 92% accuracy in dust detection

- Engineered embedded firmware for ESP32 microcontroller to capture images, preprocess data, and interface with AI models
- Implemented real-time IoT connectivity enabling remote monitoring and automated alerts via mobile application
- Integrated sensor feedback mechanisms to optimize image capture under varying lighting conditions
- Created user-friendly dashboard for visualization of vehicle cleanliness metrics and maintenance scheduling

Impact: Demonstrated practical application of edge AI in automotive maintenance, reducing manual inspection time by 70% and enabling proactive vehicle care.

CERTIFICATIONS

Soft Skills Development
National Programme on Technology Enhanced Learning (NPTEL)

- Completed comprehensive course covering communication skills, teamwork, leadership, and professional development
- Earned certification with Elite grade

PROFESSIONAL AFFILIATIONS & ACTIVITIES

Center of Excellence in Robotics (COE Robotics)

Active Member | R.M.D. Engineering College
Duration: September 2025 – Present

- Collaborate with interdisciplinary teams on robotics projects involving autonomous navigation and intelligent control systems
- Participate in technical workshops, seminars, and hands-on training sessions on emerging robotics technologies
- Engage in research discussions on Robot Operating System (ROS), sensor integration, and AI-driven automation
- Contributing to institutional robotics competitions and innovation challenges

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AREAS OF INTEREST

- Embedded Artificial Intelligence and Edge Computing

- Autonomous Robotics and Intelligent Systems
- Computer Vision and Image Processing
- IoT-Based Smart Automation
- Human-Robot Interaction
- Sensor Networks and Distributed Systems

SOFT SKILLS

- Strong analytical and problem-solving abilities
- Effective team collaboration and communication
- Quick learner with adaptability to new technologies
- Project management and time organization
- Technical documentation and presentation skills

LANGUAGES

- **English:** Fluent (Reading, Writing, Speaking)
- **Tamil:** Native proficiency