

Vikram Kumar

Phone: 7053779874 | Email: Vikkusingh868@gmail.com | Location: Faridabad, Haryana

LinkedIn: linkedin.com/in/vikram-kumar-a7316b315 | GitHub: github.com/Vikkusingh2002

Objective

Passionate and detail-oriented Embedded Hardware & Firmware Engineer with hands-on experience in ESP32-based system development, sensor and actuator interfacing, firmware development, and hardware debugging. Strong understanding of communication protocols including MQTT, TCP/IP, HTTP, and UDP for real-time data transmission and IoT applications. Dedicated to designing, developing, and optimizing reliable, efficient, and scalable embedded systems, with a continuous drive to enhance technical skills and contribute effectively to innovative engineering solutions.

Education

B.Tech in Electronics Engineering (Specialization in IOT) | JC Bose University Of Science and Technology, YMCA | 2022 – 2025 | CGPA: 7.11

D.VOC in Automobiles | JC Bose University Of Science and Technology, YMCA | 2021 – 2022 | CGPA: 8.45

Experience

Robotex India | Technical Engineer

Engineered ESP32-based embedded solutions with real-time data transmission using MQTT and TCP/IP stack. Implemented peripheral interfacing using UART, SPI, and I2C protocols for efficient hardware communication. Designed and validated PCB layouts and circuits using KiCad, ensuring proper signal flow and connectivity. Developed IoT systems with HTTP APIs and wireless communication for cloud integration. Conducted system-level debugging and performance optimization for embedded applications.

Robosiddhi Pvt. Ltd | Robotics and Automation Intern

Designed and implemented ESP32-based systems with real-time communication using MQTT and TCP/IP stack. Developed firmware for sensor interfacing using UART, SPI, and I2C protocols. Assisted in PCB design, circuit validation, and hardware debugging using KiCad. Built IoT solutions with HTTP APIs and cloud data integration. Conducted system testing and performance validation for embedded applications

Projects

IoT Smart Attendance | ESP32, MQTT:

Built IoT-based attendance system using ESP32 and RFID. Implemented MQTT over TCP/IP for real-time data communication and integrated HTTP APIs for alerts and data handling.

Gesture Robocar | ESP32, OpenCV:

Developed a gesture-controlled robotic car using ESP32 and OpenCV for real-time motion control. Designed motor driver interface for directional movement based on gestures.

Class D Amplifier Design:

Designed a high-efficiency Class D amplifier using PWM switching. Simulated circuit performance in KiCad to evaluate switching losses and optimized layout for reduced noise.

Sun-Seeking Solar Tracker:

Developed a solar tracking system using LDR sensors and Arduino. Implemented real-time control logic for automatic panel rotation to maximize energy efficiency.

Fire Fighting Robocar: Developed an autonomous fire-fighting robot using flame sensors for real-time detection. Integrated a water pump system and navigation logic for obstacle handling.

Technical Skills

Languages: Embedded C, C++, Python

Microcontrollers: ESP32, Arduino

Communication Protocols: UART, SPI, I2C, MQTT, HTTP, TCP/IP, UDP

Tools: Arduino IDE, MATLAB, KiCad, LTSpice

Hardware Skills: Circuit Design, PCB Design (KiCad), Sensor Interfacing, Hardware Debugging

Software Skills: Embedded Programming, IoT System Development, Communication Handling

Certifications --- IoT and Embedded Workshop | Soft Skills | Public Speaking | Basic Automobile