VEDANT PATHRABE

Embedded Engineer

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PROFESSIONAL SUMMARY

Embedded Engineer with a strong foundation in low-power, performance-optimized firmware development across diverse hardware platforms. Experienced in developing device drivers, working with RTOS, and integrating sensors and wireless modules for real-time IoT systems. Skilled in Arduino, NodeMCU (ESP8266), and the Arduino IDE to prototype applications, implement sensor-based automation, and enable Wi-Fi-based data communication using protocols like MQTT and HTTP. Proficient in PCB design with EasyEDA, embedded C/C++, and building end-to-end embedded products for robotics and industrial automation.

EDUCATION

B.Tech in Electronics and Telecommunication Engineering **2022 – 2026**
Priyadarshini Bhagwati Collage of Engineering

WORK EXPERIENCE

Embedded Systems Intern
PECSA Robotics Nagpur, Maharashtra **June 2025 – Present**

- Designed and simulated circuits using Tinker CAD and developed PCB layouts in EasyEDA for robotics hardware projects.
- Assisted in embedded system development with microcontrollers (Arduino, ESP8266), sensor integration, and hardware testing.

SKILLS

Programming & Development: Embedded C/C++, Arduino Programming, NodeMCU (ESP8266).
IoT & Communication: Wi-Fi (ESP8266), MQTT, HTTP, Blynk, Real-time Data Monitoring.
Sensor Integration: DHT11/DHT22, Ultrasonic, IR, PIR, Gas, LDR, ADC, PWM, Digital/Analog Interfacing.
PCB & Circuit Design: PCB Layout (EasyEDA), Circuit Simulation, Soldering & Prototyping.
Tools & Platforms: Arduino IDE, Proteus, Serial Monitor, Git (basic), Github.
Soft Skills: Problem Solving, Debugging, Team Collaboration, Documentation, Communication, Critical Thinking.

PROJECT

1. Solar Tracking System Using Arduino
Designed a dual-axis solar tracking system using Arduino UNO, LDR sensors, and servo motors for automatic sunlight alignment.
Developed logic using Arduino IDE for real-time panel positioning to maximize solar energy capture.

2. Cell Phone Detector with Custom PCB Design
Built a mobile phone detection circuit by designing and fabricating a custom PCB on copper plate.
Integrated RF detection and alert system using op-amp and buzzer/LED indicators for active mobile presence.

3. Temperature & Humidity Monitoring using NodeMCU (ESP8266)
Developed a real-time environmental monitoring system using DHT22 sensor and NodeMCU with Wi-Fi connectivity.
Created a web-based interface to display live temperature and humidity data using Arduino IDE and HTML.

CERTIFICATION

- *IoT Fundamentals – Cisco (Coursera) | August 2025*