Aayush Ankush Mhaisgawali

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SUMMARY

Third-year Electrical Engineering student experienced in embedded systems, IoT, web development, and mobile applications. Worked on modeling and analysis of memristor behavior. Developed ESP32-based monitoring systems and a workflow automation platform focused on performance optimization and system efficiency.

EDUCATION

Bachelor of Technology (B.Tech) in Electrical Engineering
JD College of Engineering and Management, Nagpur (2023 – Present)
CGPA: 9.05/10.00

HSC-(PCM)
Ira International School, CBSE, Buttibori, Nagpur (2021 – 2023)
Percentile: 74.4%

SKILLS

- **Embedded Systems & IoT:** ESP32, Raspberry Pi, Arduino; real-time data acquisition, edge computing, TCP/IP, HTTP/MQTT.
- **Programming:** C/C++, Python, JavaScript, TypeScript.
- **Simulation & Tools:** MATLAB, Multisim, LTspice, Git.
- **Frameworks & Databases:** Flask, Node.js, React.js, PostgreSQL.
- **Core Areas:** Embedded System Design, IoT Architecture, AI/ML.

EXPERIENCE

Visvesvaraya National Institute of Technology (VNIT), Nagpur - (Project Internship) (8 Dec 2025 – 15 April 2025)

- Developing a low-cost acoustic sensor array with edge processing for predictive maintenance.
- Designing real-time anomaly detection to identify degradation signatures such as bearing wear and electrical faults.
- Implementing lightweight ML models on ULP microcontrollers for on-device classification, reducing bandwidth and latency.

Visvesvaraya National Institute of Technology (VNIT), Nagpur - (Research Internship) (2 June 2025 – 15 July 2025)

- Researched a memristor-based full-bridge rectifier with LLC converter, focusing on nonlinear behavior and performance.
- Developed mathematical models and performed MATLAB simulations to study and optimize system characteristics.
- Co-authored a research paper based on this work.

Virtual Internship – Accenture (Job Simulation) (Self-paced – 24 August 2024)

- Completed a healthcare client simulation focused on mobile app improvement.
- Analyzed client requirements and data to support UX optimization and project prioritization.

PROJECTS

Acoustic & Thermal Anomaly Detection for Predictive Maintenance in 2-Wheeler islanded EV charging station (Ongoing)

- Developing a non-invasive acoustic and thermal monitoring system for predictive maintenance of EV charging infrastructure.
- Designing real-time edge algorithms to detect component degradation and electrical anomalies.
- Deploying lightweight ML models on microcontrollers for on-device classification, minimizing latency and communication overhead.

E-Bike Safety Speed Control System

- Designed a real-time speed regulation mechanism using sensor fusion and microcontroller-based control logic.
- Integrated speed and obstacle detection sensors to enable automated alerts and dynamic control actions.
- Developed embedded control algorithms to enhance rider safety and prevent over-speed conditions.

Task Scheduling AI Agent

- Developed a Python-based intelligent task management agent for prioritization and automated scheduling.
- Integrated API-based intelligence to dynamically organize tasks based on contextual inputs.
- Designed modular workflow logic to improve scalability and execution efficiency.