CHILUKA RISHITH REDDY

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CAREER OBJECTIVE

Electronics and Instrumentation Engineering student focused on building reliable embedded solutions that connect sensors, electronics, and intelligent software. Seeking to apply my knowledge of C programming, microcontrollers, signal processing, and real-time data acquisition to contribute to embedded product development, testing, and system validation.

EDUCATION

B.Tech (Electronics & Instrumentation Engineering) 2023 – 2027
Vallurupalli Nageswara Rao Vignana Jyothi Institute of Engineering &Technology
(Pursuing 7th sem) CGPA:7.52

CERTIFICATIONS

- Coursera Certification in Google Data Analytics.
- NPTEL Certification in The Joy of Computing with Python with Elite, 2025.
- Presented a research paper titled "Hybrid Statistical Physics- Informed Graph Neural Network (SP-GNN) for Robust Fault Detection and Uncertainty Quantification in Distributed Sensor Systems" atICAMSTA-2025, Osmania University.

SKILLS

- **Programming:** C, Embedded C, Python
- **Embedded Systems:** STM32, Arduino, ESP32, Microcontrollers, GPIO, ADC
- **Sensors & Instrumentation:** Sensor Interfacing, Data Acquisition, Signal Conditioning, UWB, PPG Sensors
- **Signal Processing:** Digital Filtering, FFT/Fourier Transform, HR/HRV Analysis
- **Tools & Platforms:** STM32CubeIDE, Arduino IDE, MATLAB, LabVIEW

PROJECTS

PPG-Based AF Detection on STM32 — Inter-Patient Validation
Developing an STM32-based PPG signal acquisition and AF detection system incorporating preprocessing, HR/HRV analysis and lightweight classification, with patient-disjoint validation for evaluating generalization to unseen subjects.

Hybrid Statistical-Physics Informed Graph Neural Network for Robust Fault Detection and Uncertainty Quantification in Distributed Sensor Systems
Developed an unsupervised Hybrid Statistical–Physics Informed Graph Neural Network (SP-GNN) for fault detection using the IBRL dataset with 54 sensors and ~2.3M readings. Integrated physics-informed message passing, graph-Laplacian regularization and Monte-Carlo Dropout for uncertainty-aware anomaly detection, achieving a mean reconstruction error of 0.028 compared with 0.072 for GCN and 0.049 for Physics-GNN.

Embedded EV Monitoring System using Arduino
Developed an **Arduino-based embedded monitoring prototype** for real-time acquisition and monitoring of key EV parameters, including **battery level, vehicle speed, and temperature**. Implemented sensor interfacing and data acquisition with a software dashboard for real-time visualization and estimated driving-range monitoring.

ACHIEVEMENTS

- **1st Prize – Patent Summit Competition:** Passive Alcohol Detection System for Vehicle Safety, National Workshop on Patent Analytics and Filing Framework, VNRVJIET
- Participated in 24-Hour INNO-V ATHON 3.0 Hackathon organized by the Department of EIE,VNRVJIET, developing innovative hardware-software integrated solutions., VNR VJIET
- Participated in a **four-day hands-on Embedded Systems workshop at VNRVJIET**, gaining practical exposure to microcontrollers, sensor interfacing, embedded programming, and hardware–software integration.