SRIDHAR MADESHWARAN

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Professional Summary

- Embedded systems developer with hands-on experience in microcontroller-based design, starting from Arduino and progressing to **ESP32, Raspberry Pi, PIC, and STM32.**
- Trained in register-level programming and real-time data communication through practical coursework and applied projects.
- Focused on building reliable, low-latency embedded solutions using industry protocols like **MQTT, GSM, and LoRa.**
- Demonstrates initiative through self-led prototyping, hardware integration, and firmware optimization across multiple platforms.

Technical Skills

Languages : C, C++, Python

Controllers : Arduino , Pic , ESP32 & ESP8266 , STM32

Kernel : Linux

Iot protocols : Mqtt(mosquitto,shiftr) , GSM , LoRa

Communication protocol : UART, I2C,SPI, RS232

Tools

Software Tools : Mplab,Keil Vision.

Simulation Tools: LT Spice, Xlinix,EasyEDA,Proteus

Education

B.E. in Electronics and Communication Engineering (ECE)

Thanthai Periyar Government Institute of Technology, Vellore

Graduated: 2025 | CGPA: 7.6/10

Certifications

PIC Microcontroller Training – Argyn Technologies

Reverse Engineering Fundamentals – Udemy

Internships

1. **Firmware Trainee Intern**
   Blackfox Embedded Solutions, Erode | **May 2024 – Aug 2024**
   - Engineered **MQTT-based** modules with **GSM** integration, boosting data reliability by 40%.
   - Synchronized call/SMS functions via **GSM RI** pin using **BC547** transistor and external interrupt.
   - Reduced firmware latency by 25%, enhancing responsiveness in real-time systems.
2. **Embedded Engineer Intern**
   Entsein Robotics and Automation, Chennai | **Dec 2024 – Jan 2025**
   - Explored real-time robotics systems with motor driver integration.
   - Deployed **EtherCAT-based** control using **PySOEM** to command **EL7 AC** servo motors.

Projects

1. Landmine Detector Robot

- Developed and deployed a Bluetooth-controlled robot with metal detection using **Arduino Uno and Blynk**
- Achieved 85% detection accuracy with four BO motors and **HC-05** communication.

2. AI-Based Garbage Detection & Bin Monitoring

- Designed an AI-powered system for waste classification and bin level monitoring.
- Programmed **ESP32** for real-time web updates and servo-based segregation.

3. Material Positioning Using IR Sensors

- Calibrated **IR sensors** for precise object detection via **ESP32.**
- Boosted positioning accuracy by 30% with improved data transmission timing.

4. Gesture-Controlled Handshake Robot

- Developed a **Raspberry Pi robot** with manual/Bluetooth and autonomous navigation.
- Reached 95% gesture recognition accuracy and 25% faster object avoidance.
- Integrated **OLED display and speaker for live event interaction.**

5. Semi-Automated Flood Rescue Boat

- Designed a rescue boat with **GSM, MQTT, and LoRa** for long-range data transmission and remote operation in flood zones.
- Integrated **AI-based people counting** and **autonomous navigation** for efficient, real-time rescue missions.