SANMUGAVEL B
AIoT & Embedded Systems Developer

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About Me

B.E. ECE student at Madras Institute of Technology, Anna University with a strong passion for AIoT and Embedded Systems. Hands-on experience in C/C++, Python, MATLAB, and DSA, with practical exposure to robotics, sensor integration, and FPGA-based projects. Motivated to build impactful hardware–software solutions for real-world challenges.

Skills Summary

Programming: Python, C, C++, MATLAB

Tools: Git, Arduino IDE, STM32CubeIDE, Vivado, Fusion 360, JLCPCB

Domains: Embedded Systems, IoT, Robotics, AIoT, Signal Processing, FPGA

Soft: Leadership, Project Management, Creativity, Critical Thinking

Achievements

- **2nd Prize** – CODEQUEST, AETHORA'25
- **2nd Prize** – Code Noobies, ChakraVyuha'25
- **Finalist** – Kurukshetra'25 Underwater Robotics
- **Finalist** – PERI Project Expo'25 (National Level)
- **Finalist** – Sprintathon'25 National Hackathon

Projects

Underwater Welding Robot – Kurukshetra'25, CEG 📅 Jan 2025
Overview: Developed a basic underwater robot integrating multiple sensors and IMU for stability and navigation.
Tech Stack: Arduino C, MPU6050 IMU, Ultrasonic sensors, CAD design.

Underwater Submarine – PERI Project Expo'25 (National Level) 📅 Feb 2025
Overview: Extended the welding-bot concept into an underwater submarine with IMU and sensor fusion; finalist at national expo.
Tech Stack: IMU fusion, pressure sensor, Arduino C, mechanical modelling.

Gunshot Detection Using FPGA – Sprintathon'25 📅 Mar 2025
Overview: Implemented gunshot detection using multiple INMP441 microphones with FPGA-based DSP for event detection.
Tech Stack: INMP441 microphone array, Verilog, FIR/Bandpass filters, FPGA processing pipeline.

SquadSync – Smart Sharing Companion Web App 📅 Nov 2025
Overview: Web app developed during a technical event to help friends coordinate tasks and plan activities.
Tech Stack: HTML, CSS, JavaScript, JSON-based backend.

Education

B.E. Electronics and Communication Engineering 📅 2024–2028
Madras Institute of Technology, Anna University, Chennai

Higher Secondary Education – Sri Ahobila Math Oriental Higher Secondary School 📅 2022–2024
Chennai, Tamil Nadu

Certifications

Programming, Data Structures and Algorithms Using Python – NPTEL Course

Activities

- NSS Volunteer – Madras Institute of Technology
- Event Management Team – PDA (Personality Development Association), MIT
- Outreach & Engagement Team – AUSEC (Anna University Student Entrepreneurship Club), MIT

Languages

English (Professional)   Hindi (Basic)