SAROJANI MUTNALE

Embedded Software Engineer

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SUMMARY

I am an Embedded Systems trainee with hands-on experience in microcontrollers, Embedded C, and real-time project development. I am skilled in 8051 and ARM-based boards, as well as IoT systems. Currently, I am enhancing my low-level programming and debugging skills through Emertxe's Embedded Systems course, aiming to create efficient and robust embedded solutions

SKILLS

Embedded C	Assembly	ARM	IoT	C/C++	Basic C++	Python	STM32	Bluetooth	UART	SPI	I2C

ESP8266	Arduino	Keil	Proteus	MPLAB	MATLAB	Visual Studio Code	Linux	Ubuntu	Data Structures

Embedded Linux	MQTT	Verilog	8085	FPGA	Windows	Debugging	Shell	PIC	NI Instruments

EXPERIENCE

Intern

Emertxe Information Technologies

📅 09/2025 📍 Bangalore, India

- Gaining hands-on experience in Linux systems, including shell commands and file system navigation
- Strengthening C programming and data structures for efficient, industry-grade embedded software development
- Working with microcontroller programming and peripheral interfacing, covering GPIO, timers, interrupts, UART, SPI, I2C
- Learning embedded Linux fundamentals, including cross-compilation and application development on embedded boards

Intern

AICTE

📅 07/2024 - 09/2024 📍 Remote

- Worked on core embedded fundamentals, including 8051 architecture, registers, timers, interrupts, and peripheral interfacing
- Practiced embedded C programming for real-time applications using Keil and simulation tools
- Built and tested small embedded circuits, strengthening debugging and hardware−software integration skills
- Gained exposure to industry-aligned embedded development workflows through AICTE Eduskills virtual labs

PROJECTS

Smart Battery Management System

- Created an IoT-based BMS for monitoring battery voltage and temperature using NodeMCU and sensors
- Implemented automatic cooling and alert mechanisms with fan, buzzer, and LEDs based on threshold detection
- Enabled remote monitoring through MQTT and real-time dashboard visualization on a mobile device

Bluetooth-Based Home Automation System

- Developed a Bluetooth-controlled system to operate up to 10 household appliances using an 8051 microcontroller
- Implemented real-time command processing via serial communication for seamless device switching
- Enhanced usability by reducing manual effort and enabling wireless control through a mobile interface

Traffic Signal Controller

- Designed a digital traffic signal control system using Verilog HDL with multi-phase timing logic
- Simulated and validated the design using ModelSim/ISE tools to ensure timing accuracy
- Deployed the controller on an FPGA board for real-time hardware verification

EDUCATION

Bachelor's in Electronics And Telecommunication

Shivaji University

📅 08/2021 - 07/2025 📍 India

GPA
7.5 / 10

TRAINING / COURSES

NPTEL Certification
NPTEL Certification − Analog Circuits

Embedded Systems
Embedded Systems − Pantech.ai

KEY ACHIEVEMENTS

🪄 **Department Secretary**
Elected and served as Department Secretary for 2 years

🧠 **Code Quest Runner-up**
Runner-up in a National-Level Code Quest competition