SANTHOSH A M

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OBJECTIVE

Aspiring Embedded Systems Engineer with strong knowledge in C programming, Embedded Linux, Data Structures, and PIC18F4580 microcontrollers. Familiar with communication protocols such as UART, SPI, I2C, and CAN. I have practical experience in embedded systems projects, Linux networking, and microcontroller programming through Embedded Systems training. Seeking an opportunity to apply hardware-software integration and problem-solving skills in a challenging embedded systems environment.

EDUCATION

BE - ELECTRICAL AND ELECTRONICS ENGINEERING

	SNS College of Engineering, Coimbatore	CGPA - 7.8/10	2021-2025
HSC	Komarasamy Gounder Matric Higher Secondary School, Erode	Percentage - 83%	April-2021
SSLC	Komarasamy Gounder Matric Higher Secondary School, Erode	Percentage - 84%	June-2019

PROFESSIONAL TRAINING

Embedded Systems Training - Emertxe Information Technologies, Bangalore June 2025 - April 2026

- Studied Embedded C programming and developed firmware programs using PIC microcontrollers with register level programming.
- Worked with peripherals such as GPIO, ADC, PWM, Timers, UART, SPI, I2C, and CAN communication protocols during practical sessions and lab exercises.
- Performed debugging and testing using serial debugging tools, logic analyzers, Proteus, and MPLAB X IDE.
- Learned Embedded Linux concepts including process management, IPC, signals, pipes, and basic device driver concepts.

TECHNICAL SKILLS

Programming Languages	Advanced C, Embedded C, C++ (Basics), Java (Basic).
Microcontrollers & Peripherals	PIC18F4580, Register-Level Programming, GPIO, ADC, PWM, Timers, Interrupt Handling, EEPROM Interfacing, Bit Manipulation.
Interfaces & Protocols	UART, SPI, I2C, CAN; concepts: IoT & Automation interface concepts.
Embedded Systems & Linux	Embedded Linux (fork(), exec(), pipes, signals, IPC), RTOS Fundamentals, Device Driver Fundamentals.
Software Tools	MPLAB X IDE,XC8 Compiler,GCC,Git,Proteus,Arduino IDE,Serial Debugger,Logic Analyzer
Core Concepts	Data Structures, Memory Management, Real-Time Systems, Hardware-Software Integration, Problem Solving.

PROJECT EXPERIENCE

CAN Automotive Control System | Embedded C | PIC18F4580 | CAN Protocol | ADC | Timers | Interrupts

- Developed a 3-node automotive ECU communication system using PIC18F4580 ECAN module for real-time transmission of speed, gear, RPM, and indicator data over CAN bus.
- Implemented modular embedded firmware integrating ADC, matrix keypad, CLCD, seven-segment display, and CAN message handling for distributed vehicle monitoring.

Car Black Box System | Embedded C | PIC18F4580 | EEPROM | I2C | UART | ADC

- Developed a real-time automotive black box system using PIC18F4580 for monitoring vehicle speed, gear position, and event logging with EEPROM-based persistent storage.
- Implemented modular embedded drivers for ADC, DS1307 RTC (I2C), UART, matrix keypad, and CLCD display for real-time dashboard monitoring and event management.

TFTP Client-Server Application | C | UDP Socket Programming | Linux System Calls

- Developed a TFTP-based client-server application using UDP socket programming for reliable file upload and download communication over Linux systems.
- Implemented RRQ/WRQ packet handling, ACK-based retransmission, timeout management, and multiple transfer modes including OCTET, DEFAULT, and NETASCII for reliable data transfer.

Mini Shell | C | Linux System Programming | Process Management | Signals

- Developed a custom Linux mini shell supporting internal/external commands, process creation, piping, and environment handling using fork(), execvp(), waitpid(), and pipe().
- Implemented signal handling, job control (fg/bg), command parsing, and process management using POSIX APIs and Linux system calls.

TECHNICAL EXPERTISE

• Embedded C Programming • PIC Microcontrollers • Peripheral Interfacing • UART / SPI / I2C / CAN Protocols
• RTOS & Embedded Linux Basics • Debugging & Troubleshooting • Hardware Interfacing • Data Structures
• Memory Management • IoT Fundamentals • Device Driver Concepts • Firmware Testing & Validation