

YALLASIRI SRIHARSHA

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PROFESSIONAL SUMMARY

Entry-level Embedded Software Engineer and Emertxe Certified Embedded Professional (ECEP) with hands-on experience in C/C++, Embedded C, and Linux Internals. Proficient in firmware development, device driver development, communication protocols (CAN, UART, I2C, SPI), microcontroller programming on PIC18F4580 and STM32 platforms, RTOS concepts, ARM Cortex-M architecture, and low-level debugging using JTAG and GDB. Seeking a firmware development or embedded systems role in the automotive or IoT domain.

CERTIFICATIONS

Emertxe Certified Embedded Professional (ECEP)

2024 – 2025

Emertxe Information Technologies, Bangalore

- Intensive training in Advanced C, C++, Data Structures, Embedded C, Microcontrollers, and Linux Internals
- Developed real-world projects in CAN protocol, image steganography, Linux shell development, and arbitrary precision arithmetic

C & C++ Programming Certification

2021

Indian Institute of Embedded Systems (IIES), Bangalore

TECHNICAL SKILLS

Languages: C (Advanced), Embedded C, C++, Data Structures & Algorithms

Microcontrollers: PIC18F4580, STM32 (Cortex-M), ARM-based platforms

RTOS: FreeRTOS – task scheduling, semaphores, mutexes, queues

Communication Protocols: CAN (Controller Area Network), UART, I2C, SPI

Networking: TCP/IP, UDP

Operating Systems: Linux – Internals, System Calls, IPC, Signals, Device Drivers

Debugging Tools: JTAG, GDB, TinyBootloader, CH340

Dev Environments: MPLAB X IDE, STM32CubeIDE, VS Code, GCC/G++ Toolchain, GNU Make

Version Control: Git, GitHub

PROJECTS & TECHNICAL EXPERIENCE

CAN-Based Automotive Dashboard

Jun 2025

Emertxe Training Project | Tools: Embedded C, PIC18F4580, MPLAB X IDE, CAN, TinyBootloader, CH340

- Architected a real-time automotive dashboard on PIC18F4580 using CAN protocol for reliable inter-ECU communication, enabling live monitoring of speed, RPM, gear position, engine temperature, and turn indicators
- Implemented CAN communication improving data reliability and reducing latency in multi-node ECU setup
- Validated end-to-end transmission between multiple ECUs using TinyBootloader and CH340 for firmware flashing and debugging

MiniShell – Custom Linux Shell

May 2025

Emertxe Training Project | Tools: C, Linux System Calls (fork, exec, wait, dup), File Descriptors, Signals

- Developed a Unix-like shell using Linux system calls, handling process execution, IPC, and memory management
- Built a Unix-like shell in C from scratch, implementing command execution, inter-process piping, I/O redirection, and background process management using Linux system calls (fork, execvp, wait, dup2, pipe)
- Implemented multi-stage pipeline execution between processes using file descriptors, replicating behavior of production-grade Unix shells

Inverted Search Engine

Mar 2025

Emertxe Training Project | Tools: C, Trie Data Structure, Dynamic Memory Allocation, GCC

- Designed a command-line Inverted Index Search Engine in C using a Trie-based data structure, reducing search time complexity from $O(n)$ to $O(m)$ where m is the key length

- Engineered dynamic add, delete, and update operations for indexed files at runtime using advanced file handling and pointer manipulation

Arbitrary Precision Calculator (APC)

Feb 2025

Emertxe Training Project | Tools: C, Linked Lists, Dynamic Memory Allocation, GCC

- Implemented an Arbitrary Precision Calculator in C capable of performing arithmetic on numbers exceeding standard data type limits, using custom Linked List-based memory management

Image Steganography Using LSB

Jan 2025

Emertxe Training Project | Tools: C, Bitmap Images, Custom CLI, GCC

- Designed a secure data embedding system in C using Least Significant Bit (LSB) steganography, hiding secret data within bitmap images without perceptible quality loss
- Implemented a custom CLI for encoding and decoding using bitwise operators and file handling for precise pixel-level data injection and extraction

Address Book Application

Dec 2024

Emertxe Training Project | Tools: C, File Handling, Structures, Dynamic Memory Allocation

- Created a console-based Address Book application in C to add, search, update, and delete contacts
- Implemented file handling for persistent data storage across sessions
- Used structures and pointers for efficient data management and memory handling

EDUCATION

Bachelor of Technology (B.Tech) – Electronics and Communication Engineering 2019 – 2023

PBR VITS, Kavali, Andhra Pradesh

Percentage: 71%