HARISH BILLUR

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About Me

Aspiring Embedded Engineer

I am an aspiring Embedded Engineer with a strong passion for AI and Embedded Systems. With expertise in C, C++, Python, and Data Structures and Algorithms, I enjoy solving complex problems and optimizing systems for efficiency. My experience includes microcontroller programming with PIC18F4580, and I am always eager to expand my knowledge in embedded development and real-time system design.

Education

SSSDJVK Chikkamangaluru *Sept 2013 – May 2018*
High school
- Grade: 79/100

Vidyaniketan PU College Hubli(PUC) *Sept 2018 – May 2020*
- Grade: 94/100

Bangalore Institute of Technology(B.E) *Mar 2020 – May 2024*
- CGPA : 8.7/10

Experience

HAL (Hindustan Aeronautics Limited) *Sept 2023 – Oct 2023*
- HAL is one of the leading aerospace and defense manufacturers in India, specializing in aircraft production and avionics systems.
- Worked on the implementation of the ARINC-717 protocol, gaining hands-on experience in avionics data communication.
- Designed and tested circuits for ARINC-717 data acquisition, focusing on signal integrity and reliability.
- Conducted analysis and troubleshooting to ensure proper protocol implementation and data transmission.

EMERTXE *June 2024 – Present*
- Gaining in-depth knowledge of Embedded Systems programming using C and C++ with a focus on system optimization.
- Learning advanced concepts of Data Structures and Algorithms to improve problem-solving skills.
- Working on microcontroller programming using PIC18F4580, exploring peripheral interfacing, interrupts, and real-time applications.
- Developing and debugging embedded applications, enhancing skills in firmware development and low-level programming.

Projects

IoT-Based Gas Leakage Detection System *2023*
- Designed a gas leakage detection system to enhance household safety by detecting and preventing gas leaks.
- Integrated MQ-2 gas sensor with GSM module for real-time alert notifications via SMS.
- Implemented an automatic buzzer alarm and LED indicator for instant local alerts.
- Developed a user-friendly LCD interface to display gas concentration levels in real time.
- Enabled remote monitoring by sending gas leakage alerts to a cloud platform for centralized tracking.
- This project plays major role in realworld application.
- **Tools Used:** MQ-2 sensor, GSM module, Buzzer, LCD display, LED, Arduino.

IoT-Based Alcohol Detection System *2023*

- Developed an alcohol sensing device that detects alcohol levels and displays results on an LCD screen.
- Implemented GSM module for sending alerts and notifications upon alcohol detection.
- Enhanced safety applications by integrating the system into vehicle ignition control.
- **Tools Used:** Microcontroller, Arduino IDE, MQ-3 sensor, GSM module, LCD display.

Address Book

- Developed an address book application with functionalities to add, edit, delete, and print contact details.
- Implemented efficient file handling for persistent data storage.
- **Tools Used:** C language, VS Code.

Steganography

- Implemented an image steganography system for encoding and decoding secret messages within BMP images.
- Utilized bitwise operations for data hiding while preserving image quality.
- **Tools Used:** C language.

Car Black Box

- Designed a Car Black Box system using microcontroller programming for real-time vehicle data logging.
- Implemented functionalities including view log, clear log, set time using RTC, and download log.
- Enhanced accident analysis by recording critical vehicle parameters.
- **Tools Used:** C language, Microcontroller (PIC18F4580).

Arithmetic Precision Calculator (APC)

- Developed an Arithmetic Precision Calculator (APC) in C for handling high-precision mathematical computations.
- Implemented addition, subtraction, multiplication, and division operations on large numbers beyond standard data types.
- Utilized dynamic memory allocation and string manipulation techniques to manage high-precision arithmetic.
- **Tools Used:** C language.

Inverted Search

- Designed an Inverted Search algorithm to optimize data retrieval performance.
- Implemented dynamic memory allocation and efficient indexing techniques for query optimization.
- **Tools Used:** C language.

Technical Skills

Programming Languages: C, C++, Python (Basic)

Data Structures and Algorithms: Proficient in designing and implementing complex algorithms.

Microcontroller Programming: Experience with embedded systems.

Project Management: Capable of managing end-to-end development of technical projects.

Hardware Interfaces: UART, SPI, I2C.

Linux Internals: Knowledge of system calls, process management, and memory management in Linux.

Languages

- Kannada (Native)
- English (Proficient)
- Hindi (Proficient)