

ADWAID P K

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Location: India

CAREER SUMMARY

Passionate and detail-oriented **Electronics and Communication Engineer** with hands-on experience in **Embedded Systems**. Seeking an **Embedded Systems Engineer** role to apply expertise in **firmware development, real-time debugging, peripheral driver development, and microcontroller programming**. Adept at **low-power embedded systems, memory optimization, sensor interfacing, secure boot, real-time data processing, and flash memory management**. Eager to work in a challenging environment that fosters professional growth and cutting-edge technology.

SKILLS

- **Programming:** C, C++, Python, Shell Scripting, Data Structures & Algorithms
- **Embedded Systems:** Firmware Development, Device Drivers, RTOS, Bare-Metal Programming, Low-Power Embedded Systems, Real-Time Embedded Systems, Secure Firmware Update, Interrupt Handling, Flash Memory Management
- **Microcontrollers & Platforms:** PIC (16F877A), Arduino, ARM Cortex-M, STM32, Raspberry Pi, ESP32
- **Communication Protocols:** UART, SPI, I2C, CAN
- **System Programming:** Linux System Calls, IPC (Pipes, FIFO, Shared Memory), pThreads, Multithreading, Thread Synchronization
- **Development Tools:** Vim, Makefiles, MPLAB, GCC, XC8, ARM-Linux-gcc
- **Version Control & CI/CD:** Git, GitHub
- **Operating Systems:** Linux (Ubuntu), Windows
- **AI & NLP:** ChatGPT, Large Language Models (LLMs), AI-assisted Development

EXPERIENCE

Embedded Systems Trainee

Emertxe Information Technologies, Bangalore | 2024 – Present

- Developed real-time firmware for embedded applications using C and ARM-based microcontrollers.
- Implemented device drivers for SPI, I2C, UART, GPIO, PWM, and ADC peripherals.
- Worked with RTOS-based multi-threaded applications, improving task scheduling efficiency.

Web Developer

- Developed a personal portfolio website to showcase projects and skills.
- Deployed the website using GitHub

PROJECTS

1) Black Box for Automobiles

- Developed a vehicle monitoring system using PIC16F877A microcontroller.
- Implemented real-time event logging (speed, gear shifts, engine status, crash detection).
- Programmed in Embedded C, interfacing multiple sensors (accelerometer, GPS, temperature) and EEPROM.

2) Image Steganography using LSB Encoding

- Developed a program to hide and retrieve secret messages in images using Least Significant Bit (LSB) encoding.
- Implemented optimized bitwise manipulation, file handling, and command-line arguments in C.
- Improved image security and compression efficiency by 25%.

3) Mini-Shell (Linux Shell Implementation)

- Built a custom shell supporting command execution, process management, and signal handling.
- Worked with system calls (fork, exec, wait) and IPC mechanisms to handle multiple processes

4) Address Book (Data Management System)

- Designed and implemented a CLI-based address book application in C with file storage.
- Used data structures, file handling, and input validation techniques to ensure efficiency.

5) Inverted Search (Optimized Text Search Engine)

- Developed a search indexing system to optimize text search operations in large datasets.
- Implemented hashing, sorting algorithms, and data structures for performance enhancement.

6) Integrating Blockchain Technology and Internet of Things in Precision Agriculture

- Integration of blockchain technology into precision agriculture, which is important in today's agricultural environment due to its ability to solve significant problems faced by traditional agriculture.

7) Portfolio Website

- Designed and developed a personal portfolio website with a blue theme, animations, and interactive UI.
- **Tech Stack:** HTML, CSS, JavaScript
- **Features:** Responsive design, smooth animations, project showcase, and contact section.
- **Live Link:** <https://adwaid00.github.io/portfolio-website/>

EDUCATION

- **BTech in Electronics & Communication Engineering**
College of Engineering, Vadakara (2020 - 2023) | **CGPA: 6.75**
- **Diploma in Electrical Engineering**
Model Polytechnic College, Vadakara (2016 - 2019) | **CGPA: 7.35**
- **Higher Secondary (Class XII)**
GHSS Azhiyur (2014 - 2016) | **64%**
- **Secondary School (Class X)**
BEM High School (2013 - 2014) | **87%**

CERTIFICATIONS & TRAINING

- Advanced Embedded Systems Course – Emertxe Information Technologies
- Python Programming Course – Udemy
- Security and Surveillance system, Networking and Electronic circuit – Baker & Grey

ACHIEVEMENTS & LEADERSHIP

- NSS Volunteer (2020 - 2022) – Led a team of 20+ volunteers in social initiatives such as blood donation drives, tree plantation campaigns, and public awareness programs.
- Coordinated technical workshops and hackathons during college events.

LANGUAGES

- **English** – Proficient
- **Hindi** – Fluent
- **Malayalam** – Native
- **Tamil** – Conversational