ADWAID P K

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Highly motivated and detail-oriented Engineer with a solid foundation in Electronics and Communication Engineering. Eager to apply theoretical knowledge to real-world projects and gain hands-on experience while learning from industry professionals.

EDUCATION

College of Engineering Vadakara — Kozhikode, Kerala

Bachelor of Technology in Electronics and Communication Engineering CGPA: 6.7 — *Dec. 2020 – Dec .2023*

Model Polytechnic College Vadakara — Kozhikode, Kerala

Diploma in Electronics CGPA: 7.4 — *June 2016 – Nov. 2019*

GHSS Azhiyur — Kozhikode, Kerala

Graduated HSE in Biology Science Mark: 65% — *Aug. 2014 – Mar. 2016*

BEM High School, Vadakara — Kozhikode, Kerala

10th SSLC Mark: 87% — *June 2013 - Apr 2014*

EXPERIENCE

Emertxe Information Technologies — March 2024 – Present

Advanced Embedded System Course — *Bangalore*

- A Government of India certified program, aligned with Skill India / NSDC under Electronics Sector Skill of Council
- Executed and appraised complex projects involving Advanced C, C++, Data Structures and Algorithms, Linux, and Microcontroller programming

Baker & Grey — Jan. - 2019

Security and Surveillance system, Networking and Electronic circuit — *Kochi*

- Completed a summer internship at Baker & grey, Gained practical knowledge in security systems, basic networking concepts, and electronic circuit design and troubleshooting.

PROJECTS AT EMERTXE

Advance C | LSB Image Steganography — July 2024

- The practice of hiding secret information within a non-secret message, image, or other medium. The goal is to conceal the fact that there is even hidden information, making it difficult for unauthorized parties to detect and access the sensitive data.
- Technologies used- Embedded C– File operations, Pointers, Bitwise operations, Functions, Command line arguments.
- Key challenges & Learnings: Understanding of pixels and header of image file by doing literature study, Transforming the embedded information to the destination without changing properties of original image, faced challenges while doing bitwise manipulation of data to embed as well to retrieve the data from the destination image which was solved by self-understanding

Advance C | AddressBook — July 2024

- The program simulates a digital address book, enabling users to add, delete, modify, save and search for contacts
- Technologies used- Embedded C– File operations, Pointers, Structures, Functions.
- Key challenges & Learnings: Validating user input to ensure that contacts are stored correctly and consistently, reading and writing contacts to a file, handling file errors, and ensuring data consistency.

Data Structure | Inverted Search August 2024

- Implements an efficient inverted search algorithm using data structures to quickly retrieve documents containing specific keywords.
- Technologies used- Embedded C– File operations, Pointers, Single Linked List, Hash Table Functions, Command line arguments.

Data Structure | Arbitrary Precision Calculator August 2024

- Arbitrary Precision Calculator using data structures to perform mathematical operations on numbers.
- Technologies used- Pointers, Double Linked List, Structures, Functions, Command line arguments.
- Key challenges & Learnings: Implementing arithmetic operations like addition, subtraction, multiplication, division for arbitrarily large numbers, Analyzing the computational complexity of arithmetic algorithms and optimizing them for performance.

Micro-controller | Car Black Box October 2024

- Design and develop a compact, real-time car black box using a micro-controller to record and store vital vehicle data, providing valuable insights in case of accidents or mishaps
- Technologies used- Cross compiler-XC8, Communication protocol-I2C and UART, Functions, Pointers.
- Key challenges & Learnings: Referring data sheet to understand the register memory structure and working with limited memory and interfacing different components.

Micro-controller | Digital Timer November 2024

- Design and develop a digital timer using a micro-controller, capable of displaying real-time information including time, date, and scheduled events, with additional functionality for editing and customization.
- Technologies used- Cross compiler-XC8, Communication protocol-I2C, Functions, Pointers
- Key challenges & Learnings: Referring data sheet to understand the register memory structure and working with limited memory and interfacing different components.

Linux Internals | Mini Shell December 2024

- The project involves building a mini shell that can execute basic commands and handle user input and signals. The mini shell will utilize Linux system calls to interact with the operating system.
- Technologies used- System calls-fork(), execvp(), wait(), linked list, signal handling
- Key challenges & Learnings: Understanding and using the system call interface to interact with the Linux kernel, learning system programming concepts, including system call interfaces, process management, signal handling and error handling.

ACADEMIC PROJECT

Blockchain Integration in Aquaponics System June 2023

- Developed a smart aquaponics model integrated with blockchain to ensure secure, transparent, and tamper-proof data logging of environmental parameters.
- Utilized sensors for real-time monitoring of water quality, temperature, and pH, with data stored on a blockchain network.
- Key Learnings: Gained experience in IoT integration, smart agriculture, decentralized data management, and blockchain-based transparency and traceability in agri-tech systems.

Smart Car Parking System using ESP32 and Arduino June 2022

- Designed and implemented a smart car parking system using ESP32 for real-time monitoring and Arduino with IR sensors for automatic gate control and slot detection.
- Integrated IR sensors to detect the presence of vehicles in parking lots and automate gate opening/closing based on availability.
- Enabled Wi-Fi communication with a web dashboard for displaying real-time parking slot status and vehicle count.
- Key Learnings: Strengthened skills in IoT systems, ESP32 and Arduino interfacing, sensor-based automation, and real-time data visualization for smart city applications.

TECHNICAL SKILLS

- **Programming Languages:**
  - Shell Scripting
  - Advanced C Programming
  - OOP using C++
  - Data Structures
- **System Programming:**
  - Linux Kernel system calls
  - IPC mechanism – Pipe, FIFO, Shared memory
  - Network Programming using TCP and UDP sockets
  - pThreads – Multi thread programming
- **Embedded Controllers:**
  - Hands-on working with GPIOs, Analog I/Os, Memory usage, interfacing, character LCD
  - Peripherals usage- Timers, Counters and Interrupts
  - Communication protocols- UART, SPI, I2C, CAN
- **Embedded platforms:**
  - Distributions- Linux (Ubuntu)
  - PIC (16F877A) board
- **Development environment and tools:**
  - Dev environment: Vim, Makefiles, MPLAB, HP ALM, ServiceNow
  - Compilers: GCC, XC8
  - Debuggers: GDB

SOFT SKILLS

- Dedicated team player with a strong work ethic and a commitment to achieving goals.
- Experienced in working flexible schedules, including shifts and weekends.
- Successfully completed projects and assignments while working under pressure and meeting quality standards.
- Known for being a reliable and supportive team player who is always willing to go the extra mile.

LEARNING EXPERIENCE

Python Programming | Udemy (Dr. Angela Yu) – In Progress

- Currently learning Python fundamentals, object-oriented programming, and hands-on coding through mini projects.