Vasana Kusuma

EXPERIENCE SUMMARY

Experience Level: 6 Months
Now: Mirafra Software Technologies, Hyderabad, Software Engineer I , 19th June 2025-Present.

SKILLS

- **Programming Languages**: C,Embedded C ,Data structures, C++.
- **Microcontrollers/SOCs**: LPC2129 Microcontroller,BCM2711.
- **Tools & Technologies**: Keil µVision.
- **Bus Protocols**: UART, I2C, SPI, CAN.
- **Operating Systems**: Linux (System Programming).
- **Device Drivers:**Character Device Drivers (IOCTL,IRQ,Tasklets,Work Queue,Wait Queue,Kthreads), Platfrom Drivers(GPIO Driver,UART Driver,I2C Driver),Memory Leaks and crash dump analysis**.**

PROJECTS

Kernel-Level Multi-System Game Interface Using Sockets, UART, I2C OLED, and ALSA Audio.

- Implemented keyboard interrupt handlers (IRQ 1) to capture user inputs and transmitted actions over TCP sockets for inter-system communication.
- Designed and integrated a custom UART kernel driver on Raspberry Pi to receive game data, parse user guesses, and trigger system responses.
- Interfaced an I2C OLED display for real-time game prompts and feedback, ensuring smooth kernel-to-hardware communication.
- Utilized ALSA kernel audio subsystem to deliver outcome messages (win/lose notifications) via audio playback.
- Focused on kernel-level resource management, demonstrating strong expertise in device drivers, interrupts, and kernel-space networking.

Data-Driven Vehicle Control Using CAN Protocol

- Designed and implemented an embedded multi-node vehicle control system using LPC2129 microcontroller and CAN bus protocol.
- Developed and integrated key features:
- Engine temperature monitoring using DS18B20 sensor, with real-time display on 16x2 LCD.
- Reverse alert system using GP2D12 IR distance sensor, LEDs, and buzzer for obstacle detection.
- Window control unit using switches and CAN communication for distributed actuation.
- Built multi-node CAN communication between Main Controller, Reverse Alert Node, and Window Control Node, ensuring reliable data exchange and fault tolerance.
- Programmed in Embedded C with Keil µVision, using interrupt-driven communication, timers, and GPIO-based interfacing.
- Designed modular and scalable codebase for easy addition of future nodes (e.g., door lock, lighting).

Medicine Reminder System

- Designed and implemented a real-time embedded reminder system using RTC (DS1307), 16x2 LCD, keypad, and buzzer on LPC2129 microcontroller.
- Programmed in Embedded C to schedule and trigger medicine alerts at multiple user-defined times.
- Developed keypad interface for user input of medicine schedules, with LCD-based interactive menu navigation.
- Integrated buzzer and display alerts for timely reminders, ensuring ease of use for patients.
- Implemented modular code structure with RTC timekeeping, user input, and alert handling as independent modules for scalability.

Railway Ticket Management Using Linked Lists & File Handling

- Developed a C-based ticket booking application with features like user sign-up/sign-in, ticket booking, cancellation, and train information lookup.
- Designed using structures, singly linked lists (SLL), and dynamic memory allocation to manage passenger and train records efficiently.

ACADEMIC CREDENTIALS

Sri Vasavi Institute of Engineering and Technology, Nandamuru – 521369
B. Tech in Electronics and Communication Engineering
Duration: 2021 – 2024
CGPA: 8.34 / 10.0

Sri Vasavi Institute of Engineering and Technology, Nandamuru – 521369
Diploma, SBTET
Duration: 2018 – 2021
Percentage: 96%

Z.P. High School, Mallavolu – 521149
Secondary School Certificate
Year: 2018
Percentage: 93%

PROFESSIONAL TRAINING

- Embedded Systems Course, Vector India Hyderabad (September 2024-May 2025)

ACHIEVEMENTS & ACTIVITIES

- Elite Certificate in Digital Circuits course from NPTEL.
- Participated in “Design and Implementation of Low-Cost & Highly Reliable Embedded Systems” workshop (ECE Dept., 2021).

(V. Kusuma)