SUMIT CHOUHAN

Embedded Software Engineer

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SUMMARY

Dedicated Embedded Software Engineer with 11 Months of ongoing industry experience and 9 months of hands-on training in embedded systems development. Skilled in C programming, microcontroller interfacing, and embedded software design. Currently contributing to real-time embedded projects and eager to apply strong technical knowledge and problem-solving skills to build efficient and reliable embedded solutions.

EDUCATION

Malout Institute of Management and Information Technology| 2020-2024

Bachelor of Technology in Electronics & Communication Engineering

CGPA 7.56

RMC HR.SEC.SCHOOL | 2018-2020

Intermediate

Percentage 79.6%

RMC HR.SEC.SCHOOL | 2016-2018

High School

Percentage 63.6%

WORK EXPERIENCE

Recorders & Medicare Systems Pvt. Ltd.| MAR 2025 - Present

Embedded Engineer

- Worked on Biochemistry Analyzer (BCA-707) project involving GUI and touch-screen development using STM32F429BIT6 microcontroller.
- Developed interactive UI screens, TFT display control, and touch-event handling for real-time operation in medical diagnostic equipment.
- Contributed to firmware development of a 6kw C-ARM machine using LPC2378 microcontroller.
- Implemented communication b/w two controllers using I2C and hardware-software integration for C-ARM system stability.
- Gained hands-on experience with 8051 microcontroller through real-time embedded projects involving timers, UART communication, and low-level peripheral control.

Emertxe Information Technologies | Jan 2024 - Oct 2024

Embedded Engineer Trainee

- Gained hands-on experience in Advanced C.
- Learned basic Linux, shell scripting, and Linux internals for embedded development.
- Worked on microcontroller programming using PIC18F4580 and STM32 series.
- Implemented peripheral interfacing using GPIO, UART, SPI, and Timers.
- Developed, compiled, and debugged embedded applications using MPLAB X IDE.

SKILLS

- Advance C, Embedded C, Microcontrollers(STM32F429, STM32F103), LPC2378,PIC16F1509, PIC18F4580, ADC, DAC, Timer, Communication Protocols (UART, SPI, I2C), Basic Linux, 8051

PROJECTS

BIO-CHEMSITRY ANALYZER (BCA -707)

- Developed GUI screens and touch-screen interface using STM32F429BIT6 for Biochemistry Analyzer (BCA-707).
- Implemented LCD/TFT display drivers, event handling, and UI navigation for real-time system interaction.
- Optimized embedded UI performance for fast user response and reliable clinical workflow.
- Developed GUI screens , a high-resolution 800×480 GUI using the STM32F429BIT6 LTDC controller, delivering smooth real-time graphical updates across all analyzer screens.

6kW C-ARM Machine – (LPC2378)

- Currently contributing to embedded control firmware for a 6 kW C-ARM medical imaging system using LPC2378, working on sensor interfacing, and safety-critical routines.
- Developing GUI screens for a 5.6” TFT display, including custom LCD driver implementation for responsive operator interaction.
- Using I²C communication on LPC2378 to interface system peripherals and exchange control/status data with the SCADA monitoring system.
- Involved in firmware support for fluoroscopy and radiography operational modes, contributing to reliable control, monitoring, and safety-critical behavior.

Car Black Box

- The Car Black Box Project is designed to log critical driving data such as gear shifts, speed and real time, providing detailed insights into vehical usage using PIC18F4580.
- Capturing and storing critical events like gear shifts, speed, and time in real-time without missing data.
- Storing large volumes of data in EEPROM or external storage while preventing memory overflow.
- Implementing a reliable password-based system to prevent unauthorized access to logs.

Image Steganography using LSB Encoding and Decoding

- The objective was to send a secret text file encoded inside an image of bmp file format. Encoded the length of the secret text and then encoded the data into the LSB of the image bytes.
- Understanding of pixels and header of image file by doing literature study.
- 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

Address Book

- Built a Address book where users can add, edit, delete, and search contacts. I implemented this project using file handling to store data persistently, which enhanced my skills in handling user input and structuring data for efficient access and modification.
- Implemented efficient memory management using dynamic allocation.
- Focused on error handling and optimized performance for scalability.

Ultrasonic Radar System

- Designed and developed an ultrasonic radar system for object detection and distance measurement using HC-SR04 ultrasonic sensor.
- Implemented real-time angle scanning using a servo motor to create a 180° radar sweep for environmental mapping.
- Processed distance data on a microcontroller (e.g., Arduino) and generated visual radar output on a PC interface using serial communication.

KEY ACHIEVEMENTS

Technical Fest -PROYOG

- Collaborated as part of the organizing committee for Proyog, ensuring efficient event flow and participant engagement.
