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Objective

A skilled Embedded Software Engineer with 4.5 years of experience in developing real-time systems and embedded software solutions. Seeking opportunities to work on innovative projects involving IoT, automation, and embedded systems.

Profile Summary

- 4.5 years of experience in embedded systems design, development, and deployment, with expertise in real-time applications.
- Proficient in C, C++, Python, Linux Device Drivers and experienced with FreeRTOS, Zephyr RTOS, and AUTOSAR 4.2 for embedded solutions.
- Strong background in communication protocols: UART, I2C, SPI, CAN, MQTT, TCP/IP.
- Hands-on experience with STM32, ARM, Nordic, NXP, ESP32, and other microcontroller platforms.
- Expertise in Android Build Process and customizing Android boot image for system integration.
- Skilled in hardware-software integration, version control (Git), and project tracking (Jira).
- Successfully led projects in IoT, robotics, automotive, and data monitoring.
- Key projects include Doorbot (voice-controlled robotics), Production Test Bench, Remote Data Monitoring, and AUTOSAR-based automotive systems.
- Passionate about innovative technologies and continuous learning in IoT, embedded systems, and automation.

Skills

- **Languages:** C, C++, Python, Linux Device Drivers.
- **Embedded Systems:** Embedded C, FreeRTOS, Zephyr RTOS, AUTOSAR 4.2.
- **Protocols:** UART, I2C, SPI, CAN, CANFD, MQTT, TCP/IP.
- **Controllers:** ARM controllers, STM32, Nordic, NXP, ESP32, Raspberry Pi.
- **Operating Systems:** Linux, Windows.

Education

B.Tech in Electrical and Electronics Engineering (EEE)

Sreenidhi Institute of Science and Technology, Hyderabad, Telangana, Graduated: 2017

Training

Advanced embedded systems training in Vector India.

Work Experience

Replicant Systems

Embedded Software Engineer | Sep 2024 – Present | Hyderabad

Android TV System - Client: Mivi Energy

The focus of this project was on customizing the Android TV system, particularly on changing the boot image to reflect the Mivi brand and integrating touchscreen functionality for enhanced user interaction.

Roles and Responsibilities:

- **Boot Image Customization:** Customized the Android boot image to reflect the Mivi brand, ensuring company-specific branding on system startup.
- **System Integration:** Integrated key Android TV features, ensuring stable performance and seamless interaction with connected peripherals, including HDMI and touchscreen interfaces.
- **Android Build Process:** Participated in the Android build process, ensuring smooth integration of custom drivers and kernel modifications to support hardware features like HDMI, and touchscreen functionality.

Techolution India Pvt Ltd

Embedded Software Engineer | Apr 2023 – May 2024 | Hyderabad

Doorbot: Doorbot is an innovative robotic system designed to automate door control through voice commands. The system leverages Bluetooth and Ultra-Wide Band (UWB) communication to allow seamless interaction with mobile devices, providing an efficient and hands-free door management solution.

Roles and Responsibilities:

- **Project Leadership:** Led the development of the Doorbot robotic system, focusing on automating door control via voice commands.
- **Communication Setup:** Facilitated Bluetooth communication between the Nordic 5240 microcontroller and mobile devices, ensuring smooth data transfer.
- **UWB Integration:** Integrated Ultra-Wide Band (UWB) communication using the MK UWB Kit SR150, enhancing location tracking and communication accuracy.
- **Android Application Development:** Contributed to the development of Android applications for initializing UWB communication and managing data.
- **Version Control & Progress Tracking:** Managed version control using Git, tracked project milestones, and ensured smooth collaboration with the team using Jira.

Bosch Global Software Technologies (BGSW)

Embedded Software Engineer | Dec 2021 – Apr 2023 | Coimbatore

Mainstream Automotive Project: This project focused on developing embedded software for automotive applications, using the AUTOSAR 4.2 standard for system configuration and communication stack setup. The project aimed to ensure reliable and secure communication within automotive ECUs (Electronic Control Units).

Roles and Responsibilities:

- **AUTOSAR Configuration:** Involved in configuring AUTOSAR 4.2, including setting up the Comstack using AEEE Pro IDE and NDS Editor, ensuring compliance with automotive software standards.
- **Embedded System Testing:** Conducted testing of embedded systems using LABCAR and Canoe to validate system functionality for automotive applications. Performed unit testing with Cantata and managed network simulation setups with NETSIM.
- **Security:** Focused on securing Protocol Data Units (PDUs) to ensure the integrity and reliability of communication between automotive ECUs.
- **Project Tracking:** Utilized ALM (Application Lifecycle Management) tools to track project progress, manage documentation, and ensure timely delivery of project milestones.

Voltino Systems LLP

Remote Data Monitoring System: The Remote Data Monitoring System was developed to collect, process, and transmit data in remote environments, ensuring high reliability and performance. Using the STM32 microcontroller, this system facilitated communication and real-time data display, while incorporating secure communication protocols and diverse peripheral integrations.

Roles and Responsibilities:

- **System Design and Implementation:** Designed and implemented both hardware and software components for the Remote Data Monitoring System, with STM32 microcontroller as the core processing unit. Managed data collection, communication, and user interface display, ensuring smooth and reliable operation in remote conditions
- **Secure Communication:** Developed and implemented MQTT-based secure and encrypted communication between the device and the server, using GSM for reliable data transfer in remote locations
- **Peripheral Integration:** Integrated various peripherals, including ADC, USB, I2C, SPI, CAN, Bluetooth, Wi-Fi, and UART, to monitor and display real-time data seamlessly on the system's user interface

Wi-Fi UPS Project: Designed and developed hardware for a Wi-Fi UPS system capable of delivering up to 2A output, with automatic output voltage adjustment based on input voltage sensing.

Production Test Bench: Developed software for Automated production test bench using Python, developed scripts that interface with hardware PCB boards, perform automated testing, and log results into Excel sheets for easy documentation.

Technomore Solutions Private Limited

Vehicle Tracking System: The Vehicle Tracking System was designed to provide real-time tracking and monitoring of vehicles. It involved developing embedded drivers for STM32 controllers and integrating communication modules to ensure seamless data transmission and system updates.

Roles and Responsibilities:

- **Embedded Driver Development:** Developed embedded drivers for STM32 controllers, integrating communication protocols like CAN (MCP2562T), QUADSPI (ISSI), and GSM (SIM800C) for real-time vehicle tracking and communication.
- **Firmware Updates:** Implemented Over-The-Air (OTA) updates for firmware, enabling seamless field upgrades and ensuring continued system reliability and functionality.
- **Bootloader Development:** Implemented a bootloader for the system, allowing for the secure and efficient loading of firmware updates.
- **Documentation and Continuous Improvement:** Maintained version-controlled documentation to track system progress and suggested improvements for the current model, ensuring ongoing development and enhancement of the product.