Vedant Paithankar

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Home: 70329 Stuttgart (Germany)

SKILLS

C / C++ / Embedded C / Python / Bash script

Hardware Skills

NVIDIA Jetson / Arduino, ESP8266 / ESP32 / Raspberry Pi / TI Jacinto 7 / AVR32 / Arm Cortex M3 / STM32

Communication Protocols and Operating System

TCP/IP / UART / USB / CAN / SPI / I2C / FreeRTOS / NFC / Linux / Windows

Development and Debugging Tools

GIT / Visual Studio Code / Logic Analyzer / Jupyter Notebook / Espressif ESP32 (ESP-IDF and Arduino) / Eclipse / STM32CubeMX / VIM / Oscilloscope / Yocto / Code Composer Studio

WORK EXPERIENCE

Master Thesis

Robert Bosch Gmbh [01/04/2023 – Current]

City: Stuttgart

Country: Germany

Thesis Title : Host based Intrusion Detection System for Inter-Processor Communication

- Optimized the system boot up time by 20% and ported u-boot, Linux filesystem on Texas Instruments Jacinto 7 board .
- Working on application development on Linux and RTOS environment for Inter-Processor communication between heterogeneous 3 cores in Embedded C.
- Designing a Host based intrusion detection system to continuously monitor the communication and prevent malicious threats.

Embedded Software Intern

Robert Bosch Gmbh [01/10/2022 – 31/03/2023]

City: Stuttgart

Country: Germany

- Board bring up and ported u-boot and Linux filesystem to the TI Jacinto 7 based custom target.
- Customized u-boot, BSP layer and integrated Software Defined Vehicles stack using Yocto.
- Designed a custom RAUC layer for TI Jacinto 7 target to update firmware over the air.
- Customized recipes to install required libraries and bash script to set up an appropriate boot selection logic in u-boot.

Embedded Software Engineer
Tata Elxsi Ltd [09/2019 – 08/2021]

City: Pune
Country: India

- Built an user-space USB gadget driver on Nvidia Jetson TX2 and established a USB Plug and Play functionality.
- Developed a GPIO and I2C microcontroller middleware drivers to test camera, motors, IR sensors at device boot up.
- Refined the design of firmware update script to manage the firmware on the microprocessor.
- Enhanced the system performance by developing multi-threaded Linux based embedded applications in C/C++.
- Gained experience in working with OOPS concepts, POSIX Threads, STL, boost, filesystem and chrono libraries..
- Debugged firmware level issues and tested product to validate application architecture and design.
- Maximized the embedded product efficiency by optimizing the processing cycle time by 40%.
- Mentored interns to understand the embedded design and development process in our team.
- Worked in an agile environment and maintained firmware using GIT version control.

EDUCATION

Master of Engineering - Electrical Engineering and Embedded Systems
Ravensburg Weingarten University of Applied Sciences [09/2021 – Current]

Post Graduate Diploma - Embedded Systems and Design
Centre for Development of Advanced Computing [01/2019 – 08/2019]

Bachelor of Engineering - Electronics & Telecommunication
Savitribai Phule Pune University [08/2014 – 08/2018]

PROJECTS

Custom Bootloader for STM32F446RE Nucleo Board
[02/2022 – 03/2022]

- Developed a UART driver on STM32 microcontroller to communicate with Host using In Application Programming.
- Implemented functionalities in Embedded C to successfully achieve erase operations such as sector erase, mass erase and critical bootloader functionalities on flash memory such as read, write and reading option bytes.

Advanced Driver Assistance System (ADAS) using CAN
[04/2019 – 05/2019]

- Implemented a CAN interface between two STM32 Microcontroller nodes to send and receive Ultrasonic, Speed sensor values.
- Achieved high speed communication approximately 8 MHz through SPI to configure CAN Transceiver's with master nodes.

LANGUAGES

English (Full Professional Proficiency), German (Elementary Proficiency A2)