Yoganathan Venkatesan
Senior Embedded Developer

BTM Layout,
Bangalore - 560076
arulyogan97@gmail.com
+91-96297 01743
Yoganathan Portfolio

Technical Skills :

- ❖ Hands-on experience in Firmware development, Bootloader, UEFI DXE driver, FreeRTOS, Microcontroller driver development, Linux networking and Linux kernel Internals.
- ❖ Experience in Agile Framework methodology.
- ❖ Familiar with x86 and ARM processors, STM32(ARM Cortex Processor), Renesas(8/16 bit CPU core), MSP430, ESP32, ESP8266, Raspberry PI, BeagleBone.
- ❖ Extensive experience in LoRaWAN, and networking protocols like FOTA, DHCP, ARP.
- ❖ Excellent analytical, developing and debugging firmware for peripherals such as DAC, TIMER, ADC, RTC, WDT, PWM, DSADC, and Low Power Modes.
- ❖ Robust Development and debugging of device driver and application program for communications using UART, I2C, SPI, 1-Wire and knowledge about CAN protocol and its working functionality.
- ❖ Proficient to understand the datasheet and hardware schematics.
- ❖ Ability to understand and debug the analog and digital electronics circuit design.
- ❖ High-level hardware and software debugging using oscilloscopes, Volt/Ohm meter, and function generator.
- ❖ Programming Languages: C, C++, Bash Shell Scripting, Python(Basic).
- ❖ Having In-depth knowledge of the complete boot process of the system.
- ❖ Understanding and implementing Linear Data Structures.
- ❖ Exposure to debugging tools like lauterbach, SWD, JTAG and DediProg.
- ❖ Experience in Version management systems tools like GIT.

Awards and Achievements:

- ❖ Received **4** times **Start of the sprint award** in Dell Technologies.
- ❖ Received **Techie award** in Outdid Unified LLP.
- ❖ Completed Mastering Microcontroller and Embedded Driver Development, Linux Driver programming and FreeRTOS Courses in Udemy Course.

Experience :

- ★ Dell Technologies, Bangalore (Wipro Payroll)
  - July 2023 - present
    - ● Senior Software Engineer

- ★ Outdid unified LLP, Bangalore
  - February 2022 - June 2023
    - ● Senior Firmware Developer

- ★ Robert Bosch Engineering and Business Solutions, Coimbatore
  - July 2021 - January 2022
    - ● Automotive Software Developer

- ★ MS Tech Pvt.Ltd, Bangalore
  - June 2019 - June 2021
    - ● Embedded Developer

Course :

- ➔ **Embedded Systems - Linux.**

  Emertxe Institute for Embedded Systems - Bangalore

  Modules Covered: Bash Shell scripting, Advanced C, Data Structures, MCU, C++, Linux Internals and Linux Networking.

- ➔ **Embedded Systems - Microcontroller.**

  Techvolt Software Pvt.Ltd - Coimbatore

  Modules Covered: Basic C, Microcontroller programming.

Education :

- ★ Karpagam Institute of Technology, Coimbatore - June 2015 - April 2019
    - ● B.E - ELECTRONICS AND COMMUNICATION ENGINEERING
- ★ Government Boys Higher Secondary School, Uthangarai - June 2014 - April 2015
    - ● HSC - Biology Mathematics
- ★ Government Boys Higher Secondary School, Uthangarai - June 2012 - April 2013
    - ● SSLC

Projects:

1. **UEFI/BIOS:**
   - ➢ I have worked in the BIOS Connect team, Where i can actively contribute to FOTA and automated tools(Factory) development.
   - ➢ Ported UEFI DXE drivers from Intel x86/x64 processors to ARM architecture, adapting them for ARM-based systems.
   - ➢ Identified and fixed security vulnerabilities by analyzing code using tools and addressed issues in the software development lifecycle.
   - ➢ Familiar with EDK II build description files, including .dsc, .inf .dec and Makefile.
   - ➢ Collaborated closely with cross-functional teams to implement or integrate drivers into UEFI/BIOS.
   - ➢ Demonstrated strong understanding of existing UEFI DXE drivers and enhancements to improve driver functionality.

2. **EV-Charger for Car - (Single & Three Phase)**
   - ➢ Developed the application layer for OCPP, enabling communication between electric vehicle (EV) charging stations and central management systems.
   - ➢ Developed a bootloader for system initialization during startup and for enabling FOTA.
   - ➢ Developed APIs to integrate and transfer data to NFC, WiFi, 4G and Ethernet.
   - ➢ Implemented drivers for transferring data to EEPROM, Serial Flash.

3. **OCCUPANCY SENSOR MODULE with FreeRTOS**
   - ➢ I have implemented separate tasks for the following purposes using FreeRTOS.
     - ○ Battery Voltage Monitoring Task: This task periodically reads the battery voltage and takes appropriate actions based on voltage thresholds.
     - ○ Data Collection Task: Responsible for collecting data values from sensors.
     - ○ Data Transmission Task: Sends collected data to the server via MQTT.
     - ○ Low Power Mode Task: Manages low power mode to optimize energy consumption during idle periods.
   - ➢ I've enabled device drivers for various communication protocols and peripherals.

   Average Current Consumption: 12uA.

4. **THERMAL PRINTER - 3" & 2"**
   - ➢ Enabled communication driver's and developed application APIs to communicate and data transfer to WiFi and BLE.
   - ➢ I have implemented a circular buffer to handle continuous data reception.
   - ➢ I have implemented battery voltage monitoring and enabled low power mode in the system.

   Current Consumption is 30uA when it's low power Mode.

5. **IOT based SMART METER with LoRaWAN - (ENERGY, GAS, WATER)**
   - ➢ I have worked in the LoRaWAN Stack which is provided by ST and enabled device drivers for various communication protocols like UART, I2C and peripherals ADC, DAC, RTC,PWM.
   - ➢ Developed an application for collecting data values from sensors and Monitoring Battery voltage.
   - ➢ Collaborated with Hardware engineers for integrating Hardware components.
   - ➢ Enabled Low power mode when the system is idle.

   The average Current Consumption is 5uA.

Personal Details:
- Father's Name: Venkatesan
- Marital Status: Married
- Languages Known: English, Tamil, Telugu, Kannada
- Home Address:
  - ❖ Padavanoor(vill), Uthangarai, Krishnagiri, Tamil Nadu - 635304.

Career :
To work in a challenging atmosphere by exhibiting my skills with utmost sincerity and dedicated smart work for the growth of your esteemed organization along with mine.