Yoganathan Venkatesan

Embedded Software Developer

BTM Layout,
Bangalore - 560076
arulyogan97@gmail.com
+91-96297 01743
Linkedin/yoganathan
Yoganathan97.github.io

Technical Skills :

- Proficient in writing the Linux Device Driver with handling Multiple Devices.
- Good understanding of Operating system internals, Multithreading, and IPC.
- Familiar with STM32(L0,L4,F0,F3,F4,G0), Renesas(RL78,RX111,RH850), ESP32, ESP8266, PIC16, Raspberry PI.
- Extensive experience in LoRaWAN, FOTA, DHCP, ARP, TCP\IP.
- Working experience in AC voltage and current measurement using DSADC.
- Design, Develop and test the Embedded software using FreeRTOS.
- Excellent analytical, developing and debugging code for peripherals such as DAC, TIMER, ADC, RTC, WDT, COMP, PWM, and Low Power Modes.
- Robust Development and debugging of device driver and application program for communications using UART, I2C, SPI, and 1-Wire.
- Have good Knowledge about CAN protocol and its working functionality.
- Strong software development skills including device driver, design, development, testing, documentation, and debugging.
- In-depth working experience with different kinds of memory.
- Proficient to understand the datasheet, designing, and developing Embedded Hardware Schematics.
- Ability to understand and debug the analog and digital Electronics Circuit design.
- Competency with GSM and GPS modules.
- High-level hardware and software debugging using oscilloscopes, Volt/Ohm meter, and Function Generator.
- Programming Languages: C, C++

Key Skills:

- Microcontroller Device Driver Development.
- OCPP protocol is completely developed on my own(Highlights).
- FreeRTOS.
- Linux Device Driver Development.
- Bootloader.
- Understanding Data Structure and Hardware Schematics.

Projects:

1. **EV-Charger for Car - (Single & Three Phase)**

Ac chargers have a power output rating of 7(Single Phase) to 22KW(three Phase) chargers with multiple connectors. Ev charger Integrated with WiFi, GSM, Ethernet, and RFID. The charger has the ability to book the session via Mobile Application or instant charging using RFID or Mobile App. The charger stores past data. OTA enabled.

OCPP protocol is the global application protocol for communication between EVSE and a Central Management system, similar to cell phones and cell phone networks.

Responsibilities:

- ➢ Complete Design, Development, and testing of OCPP Application Layer and Bootloader and storing EV-charger Data.
- ➢ Complete application development for interfacing Ethernet, LTE, WiFi, and RFID.
- ➢ Design and implement software for embedded devices and systems from requirements to production and commercial deployment.

2. **THERMAL PRINTER - 3” & 2” (RX111)**

Thermal printing is a digital printing process that produces a printed image by selectively heating coated thermochromic paper. Integrated WIFI, BLE, and USB 2.0. Enabled Low Power for saving Battery power.

The printer has the ability to print ASCII characters, Images, and barcodes.

Responsibilities:

- ➢ Developing API for integrating BLE, WiFi, Printer Head, and stepper motor driver.
- ➢ Monitoring Battery voltage level and Enabling Low Power Mode.

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

3. **OCCUPANCY SENSOR MODULE with FreeRTOS and LoRa**

Industries and Banks use the Occupancy Sensor module to detect humans and send notifications to the Server. LoRa is a wireless technology that offers long-range, low-power, and secure data transmission. BME680, Ambient Light Sensor, and Gas gauge IC were integrated using the I2C protocol. If humans detect data posted every 10 minutes, humans do not see data posted every 1 hour and enabled Low power.

Program developed using FreeRTOS. Data contains Air Quality, Temperature, Humidity, CO2, gas, pressure, Light density, and Battery Voltage Level.

Responsibilities:

- ➢ Application design, development, and testing using FreeRTOS stack.
- ➢ Application development to read the data from sensors.

Average Current Consumption: 12uA.

4. **GAS & WATER METER with LoRaWAN**

LoRa is a wireless technology that offers long-range, low-power, and secure data transmission. The meter calibrates the reading using Wireless Sensors (LC or Magnetic Read Switch) and frequently posts the data to the server in a particular time interval.

- **Using LC Sensors**

When gas or water flows through the meter, the rotating plate inside the meter rotates according to the flow rate. LC sensors can detect the number of the plate's rotations without direct contact using an Electromagnetic field. **(OR)**

- **Using Magnetic Read Switch**

The magnet is connected with rotating wheels in meters. Two reed switches are used to detect the rotational direction and count the readings.

Responsibilities:

➢ Application Development for calibrating meter value and enabling Low power.

The average Current Consumption is 5uA.

5. **AIR & WATER PURIFIER**

- **Air Purifier using STM32F0 MCU**

Air purifiers essentially work by sanitizing the air. Integrated Air Quality sensor, temperature, and humidity sensor. Ability to control Air purifiers using a mobile, and laptop. Ability to switch the speed for sanitizing the air.

- **RO Water Purifier - Renesas RL78 MCU**

RO water purifier comes with a UV lamp that helps in disinfecting bacteria from the water by killing all the harmful pathogens present in the water. Generated AC from DC using power MOSFET(Full bridge converter)

Responsibilities:

➢ Application design, development, and testing.
➢ Component selection, Hardware design, and development.

Personal Skills :

- Adaptive Person to challenging situations.
- Good analytical and problem-solving skills.
- Willingness to take up higher responsibility.
- Languages Known: Tamil, Telugu, English, Kannada
- Flexible person for any situation.
- Home Address:
  - ❖ Padavanoor(vill), Uthangarai, Krishnagiri, Tamil Nadu -635304.

Experience :

★ Outdid unified LLP, Bangalore

January 2022 - Present

- Senior Firmware Developer

★ Robert Bosch Engineering and Business Solutions, Coimbatore

July 2021 - January 2022: 7 month

- Automotive Software Developer

★ MS Tech Pvt.Ltd, Bangalore

June 2019 - July 2021: 2 years 1 month

- Embedded Developer

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

Carrier :

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.