SWAPNIL PHIRKE

e-mail: swapnil9216@gmail.com

Contact: +91 9028701680

Objective:

Seeking full time job in the field of Embedded Engineering as a Firmware Driver/Applications Engineer.

Work Experience:

- **Finite 4 Engineering consultancy services Pvt Ltd** , Pune

  Role: Embedded Design Engineer Aug 2013 – Present

Profile Summary:

- Over **4+** years of experience in Product Firmware Development, Project Execution & Engineering, Business Process Re-engineering and Quality Management. Also developing, debugging and maintaining embedded systems projects.
- Experience working different product category.
- Experience working on different microcontroller architecture includes ARM and MSP430 uc.
- Extensive Full Life Cycle experience in embedded system development and implementation including Requirement analysis, Firmware Development, Testing, Debugging, Maintenance and Documentation.
- Strong ability to write detailed engineering specifications.
- Excellent communication skills and profound ability and desire to work in a team environment.
- Coordinate and lead the Technical Review process for all projects as a system integrator

Technical Skills:

- **Software Development:** Embedded C, FreeRTOS, C++ Basic , JAVA .
- **IDE:** Eclipse, Code Composer Studio, MPLAB, KEIL.
- **Protocols: UDP, IEEE 802.11radio(Wi-Fi), SPI, I2C, RS232, RS 485, UART, SimpliciTI , Bluetooth ,BLE**
- **Operating Systems:** RTOS-(FreeRTOS),TI-RTOS.
- **Compilers:** Code composer studio, Keil uVision 3, GCC .
- **Microcontroller:** MSP430 (16bit), ARM(TIVA)
- **Development Tools:** Code composer studio, Keil, , IAR for ARM, IAR MSP430.
- **Software :**JAVA , Android studio

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Project Experience:

1) IoT based

Role: Embedded Firmware developer, Hardware development ,PCB designing ,Android App development .

Environment/Technology/Tools:

- Protocols like UDP,simpliciTI ,SPI ,UART .
- Inter Process Communication using socket programming and FIFO.
- Wireless communication using star topology.
- Multiple processor as MSP430, ATmega328.
- Wireless processor cc2500 for 2.4Ghz communication

Project description:

It used to collect data from multiple sensor and then send it to cloud server. These sensors include sensor like temperature sensor, occupancy sensor etc. That data we used to hub using wireless communication. It is battery powered application so low power processor and sensor were used.

We have used Texas Instruments MSP430 processor, cc2500 as RF Trans receiver. We designed wireless communication protocol for this particular application. It successfully connects with 600+ end devices with one Access Point. In this project we used our own wireless protocol to meet requirement of low cost.

In second version of this project we started using cc1310 sub-1Ghz for wireless communication using TI-RTOS with IEEE 802.15.4 protocol.

In this project I used SPI bus communication, RS-232,10-bit ADC.I was also responsible for schematic design include switching circuit, Battery power supply management etc. I was also responsible for PCB design. It was 2-layer PCB with 100+ pads.

2) UPS management system.

Role: Embedded Firmware developer

Environment/Technology: Embedded C, MSP430, RS485, UART, SPI, I2C

Project description:

This system is designed to collect multiple data from UPS and send it to server to manage and predict breakdown in UPS.

We collected data from multiple points from a UPS and send it to server using UDP protocol. Data includes current, voltage, frequency etc .A centralized server is used to check this data and predict breakdown.

In this project I used current sensor, 10-bit ADC to measure voltage, I2C protocol to communicate between battery modules to UPS module. We used UDP protocol to communicate UPS module to server.

3) Packaging system for cement

Role: Firmware development, Protocol Development, Testing, Optimization.

Environment/Technology: SPI, I2C.

Project Description: We have designed a system which check weight of the bag and control valve accordingly .This system also contain a system which is used to seal the cement bag .This system has increase efficiency of the system by 5-6 times.

In this system I used to control flow of cement in bag using servo motor .I used RS-232 communication protocol to communicate with computer .Timer module to communicate in between sealing module and motor to control its movement.

4) Wireless remote control for gaming console

Role: Firmware development, Testing, Optimization.

Environment/Technology: CCS , MSP430 , IEEE 802.15.4g , ADC .

Project Description: - This remote is used to control the gaming console .It is expected to be many gaming console and many remote in certain range .So the most challenging thing is to find the certain available frequency in given band and make communication between its appropriate remote. It contain 8 switches and 2 potentiometer.

In this system I used MSP430 with cc2500 module, 2 ADC for heavy switch,8 switches. I developed a wireless protocol it communicate with each other using encryption key which changes per system..

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5) Remote monitoring of UPS room & server room

Role: Firmware development, Testing, Optimization.

Environment/Technology: Zigbee,TIVA,UDP,ADC

Project Description: - This system is used to monitor temperature, occupancy, humidity, position of door etc. In this system there are multiple sensor sending data to on single access point .That access point is connected to server using UDP protocol.

In this system we have used temperature sensor humidity sensor using ADC , Wireless communication protocol Zigbee is used to communicate between multiple sensor .Then we send this data to server using UDP

Education:

B.E. – Electronics & Telecommunication
University of Pune, India

H.S.E
Maharashtra State Board, India.

S.S.E
Maharashtra State Board, India.

Strengths:

1. Initiative
2. Quick Learner
3. Paying Attention to Detail
4. Excellent working relationships and communication skills

Declaration:

I hereby declare that the above particulars are true and correct to the best of my knowledge.

Date:
Place:

Swapnil Balu Phirke