**Shravanthi Nadukuda**

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Bridgend, South Wales (Willing to Relocate)

**5+ years** of experience in the domain of Embedded C programming, Schematic capturing, Hardware testing, Soldering, Finding the hardware issues using PCB design, hardware fault diagnosis and rectification and component placement check. Did MSc in Electronics Engineering from Staffordshire University. Implemented VHDL and Verilog code for test projects to run with FPGA. Having knowledge on digital signal processing, TCP/IP and Zigbee. Having excellent problem solving and analytical skills and experience of writing documents and test reports.

**Technical Skills:**

**Programming Languages**: C, Embedded C, C++, VHDL, Verilog, C#

**Operating Systems**: Windows 7/8/10/XP

**Tools**: Xilinx, Simulink, Matlab, Multi-Sim, LabVIEW, Code composer studio, Visual Studio12, 13, Keil, STM32CubeMx, Vivado design suite, dev C++, QT, Arduino, Altium.

**Compiler**: AVR GCC, ARM

**Testing**: Hardware testing

**Protocols**: RS232, I2C, SPI

**Wireless Networks**: Wi-Fi, Bluetooth

**Microcontrollers**: AT mega, ARM32 Cortex M3 and M0, NRF51822, MSP430, Mc68hc11

**Displays**: Dot matrix, LCD, Wearable LED screens, Neo pixel, Touch screen.

**Education:**

* **Sept 2014 – June 2016:** Staffordshire University, MSc Electronics Engineering with **Merit.**

**Project/Dissertation: IOT controlled Home Automation**

**Description:** Things present in the home are controlled by using the wireless network. Microcontroller is used to control the things according to the input. For this project Wi-Fi module is used to interconnect controller with the internet. Things used in my project are temperature sensor, LDR, Motion sensor, motor, fan, light, light intensity control and LCD (dot matrix) display. Wi-Fi module reads the command from the web and sends it to the controller and then controller takes the action according to the command.

* **Aug 2011 - Jan 2012:** Diploma in VLSI, Vector institute, Hyderabad, India.
* **Sept 2007-June 2011:** JNTU, Hyderabad, India, Bachelors in Electronics and Communication Engineering with **Merit.**

**Employment Profile:**

**Sep 2016 - Present DST Innovations Ltd,** Bridgend, South Wales, UK.

**Project #1: Wearable Technology Design using Bluetooth.**

**Description**: This project displays whatever the user wants to show on wearable materials. For this project built in Bluetooth low energy nrf51822 was used. After establishing the connection through Bluetooth between mobile and the device, whatever entered in the mobile will be read by the controller and displayed on to the wearable material.

**Responsibilities**:

* Developed the code to light up the LEDs for basic test using Charlieplexing concept.
* Developed the code to scroll the words entered through mobile on to the screen.
* Implemented the code to display the symbols and emojis on to the wearable screen.
* Implemented the code for compass design, Circle drawing, line drawing using Bresenham line algorithm and for colour switching between RGB as per user's request.
* Developed the code for compass tilt compensation using Accelerometer and magnetometer sensors, screen light up depends on PIR and Sound detector.
* Written code to read the temperature and sends that back to the mobile, colour wheel interconnect with BLE to update the screen colours, gradient control.
* Implemented the code to interconnect music app to the controller to display frequency bars on the wearable screen respective to frequency changes for music beats.

**Project #2: Touchscreen to control the VideoBrix.**

**Description**: This project controls the functionality of the VideoBrix. This project is developed with and without library files. It controls the brightness, contrast, saturation and rotation of the VideoBrix. And it reads data from FPGA board to updates the screen settings i.e. pitch, panel count, active panels list etc. This project saves the previous data updates automatically after power ON. STM32 controller was used for this project and SSD1963 is the driver of the screen.

**Responsibilities:**

* Developed the code to communicate touch screen with controller to write/read to/from the screen.
* Implemented the code to display graphical images of the video brix control features such as brightness, contrast, saturation, rotation, pitch selection, gamma correction, panel grid and settings (load, save, default).
* Implemented code to Read the information from the screen to the STM controller and controller will send this to FPGA board through I2C protocol and then FPGA board will update the VideoBrixs.
* Developed the code to read the information such as panel count, active panel, previous settings and single panel settings from the FPGA board and controller will send this to the screen to update with the new values.
* Implemented code to store the graphical images and newly changed data into the internal flash memory and EEPROM as for user’s request.
* Managed all hardware connection, designed schematic as for requirements and handled hardware and functionality test of the design.

**Project #3: Waterpolo**

**Description:** This project operates the LEDs under the pool as for the request by communicating with the Bluetooth.

**Responsibilities:**

* Developed code to change the colour of the LEDs under the pool, temperature monitoring of the LEDs, fault detection and error reported automatically to the managing team.
* Implemented code to display the emoji images with combination of few LEDs, LEDs on/off as for the moment.
* Implemented code to detect the power issues by monitoring condition of the LEDs continuously.
* Tested the PCB design and captured the schematic for this design, handled component placement and diagnoses the soldering issue and rectified.

**June 2011 – July 2014 Kargotech Software Systems PVT LTD,** Hyderabad, India

* 3+ years of experience as general R&D electronics engineer and as an Embedded C Programmer within a team of four.
* As R&D electronics engineer handled schematic design, components verification according to schematic, PCB routing check before component placement, electronic design fault diagnosis and solution for it, tested overall design with developed software and Test report preparation and design documentation.
* As an Embedded software engineer responsible for code developing for different controllers such as Atmega8/256, ARM 32-bit Cortex M3 SAM and STM controllers, MC68hc11 and MSP430 to communicate with various peripherals.
* Gaining and understanding of the documents of controller and other hardware components such as Printers, EEPROM, Flash, Usart, ADC, Real time clock, Timers (16-bit, 8-bit) and LCD (normal and dot-matrix), Wireless network modems Wi-Fi and Bluetooth.
* Provided solutions to the identified problems in electronics design as well as in software.

**Project #1: Bus Ticketing Machine**

**Description:** Processor used in this project is ATmega2560. Ticket Issuing Machine Application is used to Issue a Ticket for different types of Route and Tickets (Full, Half, Student, Pensioner) per Route. Payment can be accepted in both CASH and CARD. It Can handle in reverse order for return journey route automatically. Generates separate trip report, collection report, status report per route. Security provided for different users according to the username and password.

**Responsibilities:** As per SRS, Developed the source code for the following:

* User access entries and Duplicate Ticket Printing.
* Interfacing Serial Communication, External EEPROM, Real Time Clock, Serial Flash, LCD and ADC.
* Implemented the command set for the User to access the unit.
* Implemented the concept for return Journey with Same route.
* Implemented the code for trip report, status report and collection report as well as printing section.

**Project #2: Three Phase charger**

**Description:** This project is used to charge the batteries in industry from 440volts of input, this 440v turned into single phase by operating the thyristors in a sequence according to the phase obtained at input. Firing of thyristors involved with a standard PWM wave, another timer to control the phase sequence time and phase sequence detection. For this project SAM 32bit controller is used with dot matrix LCD communicate with SPI bus, external storage IC’s are used, and real time clock implemented.

**Responsibilities:** As per SRS, Developed the source code for the following:

* Clock configuration for 64Mhz. Interfacing Serial Communication, External EEPROM, Timer, Serial Flash, LCD (dot matrix) and ADC.
* Implemented code for standard 10Khz PWM wave generation.
* Implemented code for Phase sequence detection, Phase missing detection and Phase angle duration detection.
* Developed the code to fire the six thyristors by a sequence according to the concept of the Three Phase by detecting the sequence of the phase for a specific time period.

**Project #3: Bluetooth Printer**

**Description:** This project accepts the input data from RS232, USB and Bluetooth module and sends this data to the printer according to the priority allotted to it. This priority allocation will have done by user. According to the priority data will send to the printer for printing. For this project STM 32bit controller is used with 72Mhz of clock. For data storage external flash and EEPROM is used.

**Responsibilities:** As per SRS, Developed the source code for the following:

* Code for Peripheral clock configuration for 72Mhz.
* Interfacing Serial Communication, External EEPROM, Serial Flash, Printer and ADC.
* Implemented the communication between Bluetooth module and the controller. Read the data from Bluetooth and send it to the printer.
* Involved in USB code implementation.

**References:** PROFESSIONAL REFERENCES AVAILABLE UPON REQUEST