Prashant S. Tandale
Sr Embedded Software Engineer with 9+ years of Experience

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OBJECTIVE:

A competent & result oriented Embedded Software developer with 9+ years of experience in developing, debugging and maintaining embedded systems projects.

EDUCATION:

Qualification	Passing Year	Percentage	College/University
B.E. in Electronics	2011	60.00%	Maharashtra Academy of Engineering, Pune University.
Diploma in Industrial Electronics	2008	71.08%	Walchand College of Engineering (WCE), Sangli.

WORK EXPERIENCE:

Company name	Designation	Duration	Experience
Systems & Controls Pvt. Ltd.	Embedded Design Engineer	01/10/2011 to 10/05/2015	3.6 years
Alpha ICT LLP.	Embedded Engineer-Firmware	18/05/2015 to 13/10/2017	2.4 years
Sasken technologies. Client location: Intel	Senior Engineer - Sys Software Des & Dev	13/10/2017 to 02/01/2019	1.3 years
Ametek Instruments India.	Senior Software Engineer	02/01/2019 to 01/06/2020	1.5 years
ET System (India)	Software Engineer – Tech lead	01/07/2020 to Present	1.5 years

AFFILIATIONS AND AWARDS:

- Received Employee of the year award at Systems & controls pvt ltd, Sangli. (year 2013)
- Received SPOT AWARD for excellent contribution to Suecreek Linux Audio Device Driver development project at INTEL client location. (year 2018)

PROFILE SUMMARY:

- Above 9 years of experience in developing, debugging and maintaining embedded systems projects.
- Worked in power domain for almost 5 years to handle power supply related projects.
- Have experience in QT programming for Front Panel Display.
- Worked on Linux audio device drivers. Worked on platform driver, machine driver and entire flow from user space to driver level of audio domain projects.
- ALSA ASoC driver's development for Intel Suecreek project. Developed various features like volume control support, sysfs entry, debugfs entry etc.
- Kernel patch porting. Rebasing and submitting patches for code review & code merging with the help of git and Gerrit. Also worked on SVN repository.
- Worked on various Microchip, Atmel and ARM microcontrollers.
- Extensive Full Life Cycle experience in embedded system development and implementation including Requirement analysis, Design, Coding, Testing, Debugging, Maintenance and Documentation.
- Having experience in writing low level device drivers like CAN, UART, SPI, I2C, ADC, GPS, GSM/GPRS AT commands, SCPI commands etc.
- Proficient in Embedded C. Bare-metal coding for microcontrollers.
- Strong ability to do requirement analysis & detailed engineering specifications.
- Good debugging skills and problem-solving capabilities.

TECHNICAL EXPERTISE:

- ***Languages*** : C, C++(Basic), Embedded C, JS(Basic).
- **OS** : Linux, uclinux, Free RTOS (basic), Threadx RTOS.
- **Script** : Shell.
- ***Microcontrollers*** : PIC16f/18f/24f/32f series, Arduino Nano & Uno controller, ATMEL89c51ED2 & 89c51AC3, STM32 ARM cortex devices, TI C2000-TMS320F**.**
- ***Development Tools*** : Raspberry-pi3 board, GIT repository, Gerrit, SVN, Audacity tool, GCC compiler for ARM, Team forge tool to share code, Perforce access for documents, MPLAB X3.15 IDE, PICkit 3 In-Circuit Debugger/Programmer, Explorer 16 Development Board, Keil uVision 3 IDE, PCWHD C -Compiler, Eclipse Kepler IDE for MSP430, STM32F0/F4 Discovery/Nucleo evaluation board, Kinetis K70 module, Visual Studio Code.
- ***Communication Protocols*** : CAN, I2C, SPI, I2S, UART, RS232, RS485, MODBUS, GPS, Zigbee AT Commands for GSM & GPRS communication, RTC, Ethernet, Graphical LCD (QVGA & WQVGA), Bootloader, FOTA, SCPI commands, LXI interface, Ethercat, TCP/IP communication.
- ***Sensors used*** : Ultrasonic sensor, LDR sensor, LM35, NTC & PT100 temperature sensor

PROJECT EXPERIENCE:

AC/DC Programmable Power Supply:

Job responsibilities	Requirement Understanding, firmware design and development.
Project duration	Jan 2021 to Present
Platforms used	Embedded C, C++, Linux application development, QT programming for Front Panel Display.
Communication Protocol	CAN, UART, RS485, Ethernet, Ethercat, Parser, LXI interface, SPI, TCP/IP socket programming.
Description	This is a programmable power supply which will give output voltage from 0 to 60 volts. Device is having ethernet, USB, RS232, RS485 connectivity to communicate with outer world. Output voltage/Current/Power is settable with the help of knob provided at the front panel, same can be set from the front panel interface with digital input. This device also has regulation mode setting, which can set device in CP/CV/CC mode. User can save predefined programs into the device and whenever required he can run those programs as a sequence.

Functional Safety (FUSA) Development:

Job responsibilities	Requirement Understanding, firmware design and development, Preparing MDS documents
Project duration	Aug 2018 to Dec 2018
Platforms used	Embedded C, Threadx RTOS
Communication Protocol	IP specific communication protocol
Description	FUSA is responsible for providing safety for automation system. In FUSA there is one module called Fault Management Module (FMM), which will check for faults from different subsystems and alerts safety MCU accordingly. Developed low level driver for FMM which will provide alarm information to the application layer. According to severity of alarms FMM will inform safety MCU to take respective action like shutting down the system etc.

SUECREEK - Audio Driver Development:

Job responsibilities	Requirement Understanding, Audio driver Development
Project duration	Oct 2017 to Sept 2018
Platforms used	C, Linux audio device driver development.
Communication Protocol	I2C, SPI, I2S.
Description	Working on Speech enabling developer kit for Suecreek project. This speech enabler kit enables various features of Suecreek with the help of some commands. In audio drivers we have implemented some IPC's which will communicate to the firmware via spi & i2s interface and execute specific operations. Audio drivers are implemented according to standard ALSA architecture. Worked on various features like creating mixer controls (Key phrase Detection, probe injector/extractor etc.), creating sysfs entry (for controlling GPIO, injecting IPC etc.), debugfs entry, volume control etc.

Intelligent Traffic Controller:

Job responsibilities	Requirement Understanding, Architecture design, Firmware design and Development.
Project duration	Aug 2016 to Oct 2017.
Platforms used	Embedded C, MPLAB X3.0 IDE.
Communication Protocol	UART, I2C, SPI, GPS, GPRS, Wi-Fi.
Description	2nd version: This instrument controls whole traffic system. I have handled work of controlling the load & reading load wattages and giving its feedback to the master controller (via SPI). Load wattages are measured by ADC RMS measurement method. 3rd version: Advanced version of Traffic controller is started to implement from the month of May2017. It is implemented to overcome the limitations of previous version and to add additional features into it, like Wi-Fi memory etc.

GAS ANALYZER:

Job responsibilities	Requirement Understanding, Architecture design, Firmware design and Development.
Project duration	Oct 2015 to April 2017
Platforms used	Embedded C, MPLAB X3.15 IDE
Communication Protocol	UART, I2C, RTC, Graphical display, Thermal Printer, Bootloader (FOTA)
Description	Gas analyzer is a device which measures the concentration of gases in the air. Various gases measured are CO, CO2, HC, O2 and NO. As it is advance gas analyzer it is having various advance features like Wi-Fi connectivity, printer, USB connectivity, graphical display & android app for the device. This instrument has an advance feature of FOTA (Firmware Over the Air). It means we can update the firmware of the instrument over Wi-Fi.

Smart Parking sensor:

Job responsibilities	Firmware Development, Product Design, Product Development.
Project duration	Jun 2015 to Nov 2016
Platforms used	Arduino Nano.
Communication Protocol	RS485, RS232, Zigbee.
Description	Smart parking system provides user the available parking status on website or mobile app. In this project to get the status of the car we have used different types of parking sensors. There are two types parking sensors wired & wireless sensors. Both are uses ultrasonic sensors for object detection.

GPRS Modbus Server (GMS):

Job responsibilities	Requirement Understanding, Product design, Firmware design and Development.
Project duration	Mar 2014 to May 2015
Platforms used	Embedded C, MPLAB X2.10 IDE
Communication Protocol	MODBUS, UART, RS485, AT Commands for GPRS communication.
Description	GMS is a device which provides an advance way to communicate with the remote devices. It is a wireless based transmission system which collects data from different meters connected over a Modbus and then uploads it on web server.

Web based advanced pump controller:

Job responsibilities	Requirement Understanding, Product design, Firmware design and Development.
Project duration	Jan 2013 to Mar 2014
Platforms used	Embedded C, Keil uVision 3, MPLAB X2.10 IDE
Communication Protocol	I2C, SPI, UART, AT Commands for GPRS communication.
Description	The main objective of this project is to control & protect the motor which supplies water to the water tank. This system operates in two ways by voice interactive service i.e. manual mode & by shift timings i.e. auto mode. In this project records of various energy parameters like Voltage, Current, Power Factor, kwh etc. are dumped on the website with predefined periodic timings. Also, user can get alert if there is any fault at the pumping station. User can collect the data and analyses it at the base station to avoid malfunctioning. The various protections provided are Reverse Phasing, Single phasing, Phase Unbalance, Over current Protection, Under current Protection, Motor Stalling.

Intelligent Street Light Management System:

Job responsibilities	Requirement Understanding, Architecture design, Firmware design and Development.
Project duration	Oct 2011 to Jan 2013
Platforms used	Embedded C, Keil uVision 3, MPLAB X2.10 IDE
Communication Protocol	I2C, SPI, UART, AT Commands for GSM communication.
Description	This is GSM based Intelligent Street Light Management System. This system is having centralized controller which works on definite algorithm to control the streetlights according to latitude and longitude of current location of machine.

	Also, user can monitor and control the street lights forcefully with help of mobile or PC application which sends SMS to controller. User can set power save mode for the device by dimming the intensity of street lights. It also measures various energy parameters like Voltage, Current, Power Factor, kwh. 20*4 alphanumeric display is used for user interface.

DECLARATION:

I hereby declare that all information made in this application are true and correct to the best of my knowledge and belief.

Date: -

(Prashant S. Tandale.)