Venkata Naga Ravikiran Bulusu

DOB   **:** 30-11-1989
Nationality : Indian

Contact

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Github:
https://github.com/ravikiranbvn/repobvn

Languages

English – C1
German – A2

Summary

Embedded Software Developer specializing in

- Satellite Communication systems
- Medical Software (IEC 62304)
- Well-versed with software development cycle
- Developed software in C, C++/C++17 and Python
- Experience with RTOS, Embedded Linux and STM32 Microcontroller boards

Experience

Embedded Software Engineer - 06/2021 – present
VITES GmbH, **Ottobrunn, Germany**
Project: Implementation of Satcom on the Move (SOTM) using Ku-band Receiver/Transmitter

- Designed and developed the software for SOTM in C/C++17, design patterns
- Board bring up: ARM Cortex A9 Zynq-70xx chip with Embedded Linux
- Project environment setup and cross compiling tool chain set up
- Designed and maintained the multi-threaded application to point the antenna for the satellite receive/transmit the data
- Developed the system software, IPC mechanisms and sub-systems communication
- Configuration set up for monitoring sensors, PLL, ADC and RF units
- Implemented Hardware Abstraction Layers (HAL): SPI, I2C, PLL drivers, ADC drivers (libiio)
- Application software: Thread management, TCP/IP Server-Client, Ubus, watchdog, message queues and notification handlers
- Satellite Tracking algorithm for orbital calculations
- Custom OS: petalinux 2020.2 with Yocto build/BitBake recipes
- Maintained Linux kernel 5.4 and support for drivers
- UML design and doxygen software documentation
- Test automation/system tests using Robot Framework
- Debug, code optimizations, performance test and google tests
- Build process: Cmake/Make, gitlab
- Code coverage (lcov) with google tests
- Test set up using Raspberry pi3
- Coordinated with system engineering, RF and hardware teams to work in Agile style for software releases
  Key technologies: Petalinux v2020.2, Yocto build, Gitlab, Cmake/Make, Google test, Visual Studio code, Robot Framework
  Communication: I2C, SPI, UIO, UART
  Libraries: GNU, Poco C++, OpenAMIP, TCP/IP, Ubus, libiio, Valgrind
  Programming: C/C++17, shell, lua, python 3.9

Embedded Software Engineer - 10/2018 – 05/2021
B1 Engineering Solutions, Munich, Germany
Project: Maintenance for Jenny critical care unit

- Debugging and enhancements: Integration of Jenny Critical care unit SW with Central Monitoring system over Ethernet and Wi-Fi in QT creator 5.9/C++11, STL based on Embedded Linux (Yocto)
- Modules: Patient data, critical care monitoring, ventilation wave forms and measured values.
- Interfaced the Alarms between Jenny and Central Monitoring system
- Worked in Agile methodology among the teams
  Technology and Tools: TCP/IP and QT creator 5.9

Skills

C
C++11/C++17
Standard Template Library (STL)
Data Structures and Algorithms
Design Patterns
C#
Shell
Node js
Python
Microsoft SQL
PCB Soldering

Tools

QT creator 5
Matlab/Simulink
MS Visual Studio15
Keil uVision5
Eclipse (oxygen)
SVN, GIT
GoogleTest
WireShark
PCAN Explorer
Polarian
Polyspace
VectorCAST
Enterprise Architect 14
FreeRTOS
Robot Framework
Visual Studio

Trainings

Topic: Discover STM32 security ecosystem, from theory to practice
STMicroelectronics, UK
25.10.2020 – 27.10.2020
- Hands on experience with STM32L4 boards on security

Experience

Project: Implementation of a Heart-Lung Machine control unit based on STM32F767 Microcontroller
- Developed medical software (IEC 62304) in C/C++11, Design patterns and python programming
- Designed and developed safety critical algorithms for machine control to drive the connected pumps and sensors using CAN protocol
- Brief overview of algorithms: Profile set up, distribution and maintenance of each pump, device number assignment for each connected pump resolving the CAN arbitration
- Refactored the Electrical Venous Occluder (EVO) – a heart lung machine equipment by enhancing the calibration and motion control
- Designed and developed Infrastructure layer for Non-Volatile memory
- Hardware Abstraction Layers (HAL): Refactored and maintained
- Multi-Threaded programming using Keil RTX5 RTOS
- Static Code Analysis with Polyspace Bug Finder and Code prover
- Detailed UML design/documentation with Enterprise Architect 14

Project: Thyro care unit, secondary bleeding detector for indication after thyroid operation
Platform: STM32 based MCU and pressure sensors for throat pressure monitoring and transmit the data via Bluetooth LE to Android mobile for updating the status of patient through notifications
- System tests/HW/SW debugging to log errors
Technology and Tools: Bluetooth 4.0, Android mobile, Google Test

Embedded Software Engineer - 04/2018 - 07/2018
Mediola AG, Frankfurt, Germany
- Integrated Selve RF module and sensors with ESP8266 (Gateway) and STM32 Nucleo board for IoT based Home Automation
Technology and Tools: Eclipse IDE (oxygen), Open OCD debugger, Logic analyzer, Postman and GIT

Embedded Software Engineer - 03/2017 - 02/2018
Baudisch Intercom GmbH, Baden-Württemberg, Germany
- Developed and enhanced the Intercom software in C/C ++11
- Development, extension and configuration of Intercom (iMX-6 NXP SoC with audio and camera modules) based on Embedded Linux (Yocto)
- Developed audio and video API (Libraries: GStreamer, PJSIP, Port audio, glib) SSL/TCP/UDP communication improvements (QSsl, QTcp, QUdp)
- Multi-thread programming (QThreads, POSIX)
- Configure and tune the WebInterface API (QJSON library)
Technology and Tools: WireShark, GIT and QT creator 5.8

Member Technical (Software Engineer) – 07/2011 – 02/2014
Broadridge, Hyderabad, India
- Data analysis and development for financial data in C++
- MS-SQL Database management and maintenance
- Project management and documentation of the process with results
Technology and Tools: MS-SQL 2008 server, MS Visual Studio10

Education

- **2014 – 2016: Master of Science – Electronics Engineering**
  Major: Microsystems
  Electives: Project Management and Team Building
  Hochschule Bremen, Germany
- **2007 – 2011: Bachelor of Technology in Electrical and Electronics**
  JNTU, Hyderabad, India