VISWANADHULA KOTA SAIKUMAR

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Professional Summary:

- **5** years of experience in **Embedded System Design & Development**, **BSP** and **Automotive Embedded development** Industry Including Requirements Analysis, Interface Design, Firmware Programming, Application Programming, Testing & Live Support.
- Worked on various **processors/controllers**:
  - K60DN512, K66F18 and STM32F407VG, Aurix Tc39xx.
  - ARM: CORTEX M3/M4.
- Strong Knowledge solid programming experience in assembly code **C and Embedded C.**
- Good knowledge on **yocto build systems**, **uboot, kernel, root file systems**.
- Good knowledge of architecture, design, implementation, and maintenance of firmware.
- Worked on different components like **Boot Manger, CS520, PMIC, PFlash integrity check, Startup.**
- Worked on the product topics like **SFDE and FOTA**
- Designed and Developed **Communication protocols** from scratch which are currently live in satellite data simulators and object tracking systems.
- Worked on low level driver development for **ARM Cortex M3 & M4**, Strong working knowledge on 32/64-bit micro-controller architecture.
- Good Knowledge on **Canoe** and **CANalyser**.
- Worked on **Autosar** for **DCM** in **FOTA** Topic development.
- Trouble shooting HW issues, Design Development experience. Knowledge of **vehicle Architecture**, Diagnostics (**ISO 14229**).
- Worked closely with system applications and other teams on timing requirements, interfaces, and dependencies
- Knowledge on static code analysis for Development.
- Adept **Firmware Programming** using Embedded Designed multiple interfaces for tracking and simulation equipment.
- Designed and Developed Communication protocols from scratch which are currently live in satellite data simulators and object tracking systems.
- Developed system which has the capability to **track objects** in different modes such as Auto Tracking, Manual Tracking and Point Tracking.
- Development of functional safety software complying with **DO-178B**.
- Excellent knowledge and experience in Debugging through **JTAG, ST-Link and ULINK2**.
- Good in debugging the software with working experience in **TRACE-32** debugger
- Having good knowledge in serial communication protocol like **UART, SPI, I2C and CAN.**

Technical Skills:

Operating Systems	Windows, Ubuntu, uCos2, FreeRTOS
Programming languages	C, Embedded C, Data structures
Domain skills	• Firmware programing using Embedded C • Embedded Automotive Development • Communication protocols • System Application Programming using C and QT (C++) • Hardware and software debugging skills • RTOS
Protocols known	SPI, I2C, UART and CAN
Hardware platform Experienced	ARM Cortex M3/4 (Free scale K60, K66, STM32F407VG/427) Aurix Tc39XX
Other Tools	Keil, Code Warrior, Code blocks, QT Creator, CooCox, Eclipse and STM32 system workbench, Helix, AEEE pro, Visual studio Code, Canoe/CANalyser

- ✓ **PG-Diploma (DESD):** From **CDAC, Hyderabad (2018)**
- ✓ **B. Tech in ECE** : From Swarnandhra College of engineering and technology (2017)

Work Profile:

- ✓ Working as Embedded developer in Bosch Global software technology. From March 2022 to till.
- ✓ Worked as Firmware Engineer in Happiest minds technologies. from May 2021 to March 2022.
- ✓ Worked as Embedded software Engineer in Jisnu communication ltd. from December 2018 to May 2021.

Projects Profile:

Bosch Global software technologies(**BOSCH**)
Embedded Software Engineer:

Title **: PJ-IF RADAR HSW**
Duration **:** March 2022 – Till now.
Project Description **:**

Infrastructure system & software development for the **PJ-IF RADAR** platform project.
The team is developing a scalable infrastructure software giving customers the possibility to integrate own applications using standard interfaces (e.g., Autosar RTE & BSW), or proprietary interfaces (DA-Core).
Worked on different components like:
Boot manager: Very first code started by Boot ROM to execute Drive SW, STIL, Flash bootloader.
PMIC&CS520: It is ASIC, which generates super low noise highly stable supply voltage for RADAR front end, output voltages can be monitored and a safety watchdog supervises the micro controller.
PFlash integrity check: The SW shall detect if the safety related code stored in Drive Block of program flash is corrupted or not. This is performed using Cyclic Redundancy Check (CRC) method. A checksum will be calculated at the build time of the SW and stored in a specific location outside the safety related code in the Drive Block and this will be compared against the run time calculated checksum. If both the checksums are found inappropriate necessary system reaction will be taken to bring the System in to safe state.
System startup (BIST): Infineon controller has four different HW-based self-tests (BIST) and can be executed automatically by the firmware during boot time or by the Application SW during run-time. These functions help in identifying the latent faults in the micro-controller. (PBIST, MBIST, LBIST, MonBIST)
sFDE:
Systematic Field data exploration (sFDE) is continuous and sustainable activity to collect, store and explore system data which are stores in the electronic control unit which the goal to improve products and provide data for new services. Systematic monitoring and quantification of sensor-reliability and availability in the field (i.e., post-SOP) is a prerequisite for continuous improvement of current ADAS functions and systems.
FOTA:
FOTA is a mechanism that facilitates firmware upgrades over the air, in the background, to push new features and configuration changes responsible for controlling the underlying hardware. The ECU, capable of FOTA updates, communicates with the FOTA gateway, which is connected to the in-vehicle network. The Firmware Over the Air system consists of three components: a FOTA server that manages vehicle software releases; a FOTA client that communicates with the backend server; and a FOTA agent that performs run-time firmware upgrades.

Contribution:
- ➢ Design and Development of Firmware using Embedded C for controllers. Involved in development to handle.
- ➢ In Coordination with different teams for developing the new requirements and testing scenarios.
- ➢ Implementation of FOTA/Sfde functionality and support for customer projects.
- ➢ Responsible for PJ-CON and PJ-CP for embedded parts to deal with customers.

Project Executed at Jisnu communications:

Project # 1:

Title **: Portable Tracking System**
Client **: DRDL (Defense Research and Development Laboratory)**
Duration **:** Aug 2020 – May 2021.
Languages and Tools **:** C, C++, Keil, Eclipse, QT
Project Description **:**

The portable tracking system is Antenna Control servo system with pedestal. It is a real time operating system used for tracking both fast-moving objects like missiles and slow-moving objects like flights takeoff and landing. Antenna is driven by servo motors in both azimuth and elevation axes. It operates in different modes for object tracking. Major modes are Auto Track, Manual Track and Point Track. PTS has software running on a computer machine which enables the operator to configure commands, monitor and control the PTS hardware via Ethernet (TCP/IP Protocol).

Role:

☐ Involved as a **Firmware and software developer**.

Contribution:

➢ Reading and understanding about Motion control and Trajectory profiling.
➢ Learning and understanding the Design requirements.
➢ Making Simulated setup for preliminary system understanding.
➢ Porting the simulated setup to development hardware.
➢ Design and Development of Firmware using Embedded C for controllers.
➢ Writing test cases for Motion controller and Data acquisition System.

Project # 2:

Title	**:**	**Single Axis Pedestal**
Client	**:**	**Astra Microwave Products Ltd and DEAL (Defense Electronics Application Laboratory)**
Duration	**:**	Jan 2020 – Jul 2020.
Languages and Tools	**:**	C, C++, Keil, QT
Project Description	**:**	

The Single Axis Pedestal is first of a kind Man held portable pedestal for tracking of UAV (Rustom II) .Since the pedestal movement on azimuth axis, the second axis i.e. elevation axis used for tracking is done by beam steering technique. Control of Pedestal is given via GUI on 12-inch Mil-Std tablet via Lan/Serial interface; the common modes for Operations are Auto track, GPS- track, Scan mode and Manual mode.

Role:

☐ Involved as a **Firmware and software developer.**

Contribution:

➢ Designing motion profiler.
➢ Learning the understanding Design requirements.
➢ Design and Development of Firmware using Embedded C for controllers.
➢ Writing the test cases for Motion controller and Data acquisition System.
➢ Documentation.

Project # 3:

Title	**:**	**1.8 meters Auto Deployable Antenna System**
Client	**:**	**SPIC (Software for Project information Center)**
Duration	**:**	Jun 2019 – Dec 2019
Languages and Tools	**:**	C, C++, Keil, QT
Project Description	**:**	

The 1.8 m Auto Deployable antenna system is used for reliable communication for remote camps, vessel at sea, or applications often critical to business operations. These antennas have 3 axis motion which is been assisted with the help of stepper motor. Control to this system can do either via local system or via remote GUI. Basic operation modes are Satellite track, Step track, Tle track, Manual mode.

Role:

☐ Involved as a **Firmware and software developer. Contribution:**

➢ Learning and understanding Design requirements.
➢ Design and Development of Firmware using Embedded C for controllers.
➢ Designing the motion profiler.
➢ Documentation.

Declaration:

I do hereby declare that the particulars of information and facts stated herein above are true, correct and complete to the best of my knowledge and belief.

Place: Hyderabad   V K Saikumar