**Krishna Kumar .M**

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**Objective**

To use my comprehension and experience appropriately in order to flourish within any given position that I may encounter, while absorbing any and every experience along the line of attack.

**Summary**

* 14+ Year of Embedded software Development experience, this includes Design, Development and Testing.
* **Vector Certified Embedded Professional :**  BSW Integration and Autosar Classic.
* Have **13 years of experience** in **automotive domain** in requirement analysis, coding, debugging and maintenance of embedded software for **Power train Applications**.
* Have 12 years of experience in **AUTOSAR** application software development.
* Have 12 Years of experience in AUTOSAR BSW Module configuration and integration.
* Good overview of **Automotive System** and **electronics** involved.
* Knowledge of **modeling and auto coding** of functional blocks in automotive system using tools such as **ASCET, Matlab and Simulink.**
* **Unit testing** using **INCA** on **Lab-car** and got good debugging skills.
* **Experience in Team Building, Mentoring and technical guidance to new engineers in the team.**
* **Interaction** and **Coordination** with teams in **France** and **Germany**.
* Experience in Embedded Software Development in Embedded C and Assembly.
* Implemented device driver for LCD, Keypad, DTMF Decoder, Serial EEPROM, serial ADC and DAC.

## Technical Profile

* Language : C, Assembly Language.
* Model Based Design Tools : ASCET, MATLAB & SIMULINK.
* AUTOSAR Tools : ASCET , Mentor Graphics, Vector DaVinci, EB Tresos.
* Technical Standards : MSR, AUTOSAR, MISRA.
* Test Bench : OPEN-LOOP & CLOSED-LOOP LABCAR
* Debugger : WinIdea, GreenHills, Lauterbach
* Data Acquisition tool : INCA from ETAS,
* Micros : TC1793 , Freescale( MPC56xx ), ARM CORTEX M0, ARM7(LPC21xx),NXP S32K, Renasas(RH850, V3M), Infineon(TC233LP)
* Communication Protocols : CAN, Flexray, I2C, SPI, SCI.
* Other Tools : CANoe ,Flash Magic, Turbo C, Catch
* Development Platform :Windows XP, Windows Vista

**Organization : SmartBytes Technology.**

Designation : Senior Technical Architect (Embedded software and AUTOSAR Consultant )

Period : Oct-2022 to Till Date

**Organization : Continental Automotive Components (India) Pvt. Ltd.**

Designation : Senior Technical Specialist

Period : Nov-2014 to JUNE-2022

**Organization : Tata Consultancy Service**

Designation : IT Analyst

Period : Feb-2014 to Nov -2014

**Professional Experience:**

Organization : **Robert Bosch** **Engineering and Business Solutions Ltd**

Designation : Senior-Software Engineer

Period : Aug 2019 to Jan 2014

**Projects**

**Project Experience Highlights:**

**Project Handled @ Smartbyetes Technologies**

1. **Automatic Door Control Module :** Autosar architecture based Software development
2. **Rear Differential Torque Control :** Autosar architecture based Software development

**Project Handled @ Continental, Bangalore**

**Title: ADAS AUTO-PILOT**

Client: AUDI

Modules: Application SW-C, Autosar BSW modules.

Microcontroller: NXP S32 G

Team size: 15

Tools: GHS ARM Compiler, CANoe,

Language: C

Platform: AutoSAR 4.3

AUTOSAR Tools :Vector Davinci Configurator and Developer

BSW Stack : CAN Communication Stack, Diagnostic, Memory, Watchdog

**Description:** The Scope of this project is to provide Platform for the AutoPilot project.

**Roles & Responsibilities:**

* Understanding the customer requirements and deriving the design requirements
* Functional safety requirement analysis and deriving design requirements.
* Configuration and integration of all Autosar Modules
* AUTOSAR SWC RTE configuration and Implementation
* Customer interaction on requirements
* Team built up and Planning the TASK.
* Responsible for all the AUTOSAR modules based on the customer requirements.

**Title: ADAS Reverse Trailer Assist**

Client: Fiat Chrysler Automobiles

Modules: Application SW-C, Autosar BSW modules.

Microcontroller: R-Car V3M

Team size: 6

Tools: ARM Compiler, CANoe,

Language: C

Platform: AutoSAR 4.2

AUTOSAR Tools : EB Tresos, Cessar CT/AB ,Vector Davinci Configurator and Developer

BSW Stack : CAN Communication Stack, Diagnostic, Memory, Watchdog

**Description:** The Scope of this project is to provide Trailer Reverse Assist feature to the FCA.

**Roles & Responsibilities:**

* Understanding the customer and System requirements and deriving the design requirements
* Functional safety requirement analysis and deriving design requirements.
* Configuration and integration of AUTOSAR BSW modules( eg: Diag, Mem, Com).
* AUTOSAR SWC configuration and Implementation
* Clarifying the customer on open issues
* Responsible for all the AUTOSAR modules customer requirements.
* Responsible for Meeting Project milestone

**Title: ADAS Surround View system**

Client: JLR

Modules: Application SW-C, Autosar BSW modules.

Microcontroller: R-Car V3M

Team size: 8

Tools: GHS Compiler,Eclipse, CANoe,

Language: C

Platform: AutoSAR 4.0.3

AUTOSAR Tools : EB Tresos, Cessar CT/AB

BSW Stack : Flexray Communication Stack, Diagnostic, Memory, Watchdog

 System services

**Description:** The Scope of this project is to provide Surround view system to the JLR.

**Roles & Responsibilities:**

* Understanding the customer and System requirements and deriving the design requirements
* Configuration and integration of AUTOSAR BSW modules.
* AUTOSAR SWC configuration and Implementation
* Clarifying the customer on open issues
* Responsible for all the AUTOSAR modules customer requirements.
* Responsible for Meeting Project milestone.

**Project Handled @ TCS, Bangalore**

**Title : Autosar BSW Stack Evaluation**

Client : GM Technical Center India

Modules : Application SW-C,Autosar BSW modules

Microcontroller : MPC5643L

Team size : 6

Tools : GHS Compiler,Eclipse, CANoe,

Language : C,Assembly

Platform : AutoSAR 4.0.3

Testing : Integration Testing of BSW Stack

AUTOSAR Tools : Vector Davinci Developer,Vector Configurator Pro,EB Tresos, Mentor Graphics

BSW Modules : RTE, NVM, DEM, Performance test measurements

**Description**: The Scope of this project is to evaluate BSW stack modules for different vendors with integrating into General Motors Test framework architecture and execute the test specifications for verifying the functionality of BSW modules as per the Autosar 4.0.3 specification documents.

**Roles & Responsibilities**:

* Requirement analysis, design and implementation of sw components according to requirement specifications.
* Prepare Test Specification document for the BSW module from Autosar specification document.
* Prepare Test Implementation document for the test cases related to BSW sw modules
* Develop embedded code in C language from software requirement specifications for the E2E functionalities.
* Maintain, develop, test, document and release software solutions according to a new requirement or change request.
* Responsible for AUTOSAR RTE generation, configuration and integration of AUTOSAR sw-c.
* Functional & Integration testing for the modules implemented to ensure conformance to requirements.

**Projects Handled @ RBEI, Coimbatore.**

**Title: Model Based Development for PSA (Peugeot and Citroën) and BMW**

Team size : 10

Role : Team Member,Mentor

Responsibilities : Modeling, Coding and Testing

Software standards : AUTOSAR, MISRA

Language Use : C

Operating System : ERCOS

Model Based Design : ASCET, MATLAB & SIMULINK

Duration : Jan 2011 to Jan-14

**Project Description:**

Here **OEM (PSA/BMW)** will provide functions developed by them in Matlab and simulink models, In BOSCH we remodel these function using (Advanced Simulation Control Engineering Tool) **ASCET**, which generates optimized code targeted for Automotive **ECU**.OEM is responsible for the function, **BOSCH** is responsible for Code.

Functions modeled using ASCET for the AUTOSAR standard, is reviewed for modeling Errors and possible optimization. This is termed as **function review**. Once function review is through, Automatic code is generated, this code is again reviewed, and this process is called as **software review**. Then generated code is integrated into software, checked for interface mismatch, finally compiled to get hex. This hex is used to flash onto ECU and testing is carried out either on OPEN-LOOP LABCAR or CLOSED-LOOP LABCAR (Test set-up from ETAS).

**Title: Autosar Adapter Development for PSA (Peugeot and Citroën)**

Team size : 8

Role : Team Member,Mentor

Responsibilities : Modeling, Coding and Testing

Software standards : AUTOSAR, MISRA

Language Use : C

Model Based Design : ASCET (Advanced Simulation Control Engineering Tool)

Duration : OCT-10 to Feb-11

**Project Description:**

Here **OEM (PSA)** will provides Interfaces which will exchange the data between different modules with different standard(MISARA and AUTOSAR). To make the Integration possible a strategy is adopted where Interface matching is done through software technique, called Adapter.

Development of Adapter demands understanding of some basic Autosar API’s and concept of software sharing.

Adapter is modeled in **ASCET**, reviewed for modeling errors and possible optimization. Production code is generated out of ASCET. Generated code is reviewed, then code is integrated into software, checked for interface mismatch, finally compiled to get hex. This hex is used to flash onto **ECU** and testing is carried out either on **OPEN-LOOP** **LABCAR** or **CLOSED-LOOP** **LABCAR** (Test set-up from ETAS).

**Title: Development of SCR (Selective Catalytic Reduction) Actuator function for PSA (Peugeot and Citroën) using State Diagrams**

Team size : 03

Role : Team Member

Responsibilities : Modeling, Coding and Testing

Software standards : AUTOSAR, MISRA

Language Use : C

Operating System : ERCOS

Model Based Design : ASCET, MATLAB & SIMULINK

Duration : 3 Months

**Project Description:**

Here **OEM (PSA)** will provide requirements in pseudocode form.The requirement document can be mere excel sheet explaining the possible function to be implemented or descriptive diagrams provided through Pdf form.

Bosch is responsible for the function development as well as production code.

Main work involved are requirement gathering , carrying out discussion of understanding with stake holders, possible risk analysis in the task.­­­­­

Functions are modeled using ASCET.

1. Simulation is carried out.

2. Model Review is carried out for identifying modelling errors, naming conventions, branched calculations etc.

3. Code review is carried after successful model review. Code is generated automatically and inspected for possible violation of MISRA rules, and possible optimization

Unit testing is carried out to ensure the proper implementation of the function.

1. Test is done under open or closed loop lab car set up.

**Education**

 **Bachelor of Engineering** in **Electronic and Communication-2009** with **71%** from BTL Institute of Technologies, Bangalore. Affiliated to Vishweshwaraiah Technological University (VTU), Belgaum, Karnataka

**Personal Profile**

Date of Birth : 18th April 1988

Sex : Male

Marital status : Married

Father : Prabhakar.M

Mother : Renuka.M

Languages known : English, Hindi, Kannada, Telugu

Permanent address : Krishna Kumar.M S/o Prabhakar.M

 Bandri (P), Sandur (T) Bellary (D)

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**Declaration**

 I hereby declare that all the information given above is true to the best of my knowledge and abilities.

 Krishna Kumar. M