

Aravind J Kumaranair

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Professional Synopsis

A dynamic embedded professional with 10+ years, of experience in automotive software verification and validation.

- Acquired expertise in Embedded Automotive System level testing, and also done Automotive Software Development and Maintenance.
- Hands-on experience in **Power Steering, ADAS-Advance Radar Sensor, Battery management system and Instrument Panel cluster.**
- Hands-on experience in Black Box and White Box Testing.
- Hands-on experience in Static and Dynamic Embedded C code analysis.
- Hands-on experience in Caterpillar Specific Tools and its Protocols.
- Hands-on experience in Diagnostics protocols like UDS.
- Possessing good knowledge on C language including CAN protocol.
- Worked on Vector tools like CANalyzer, CANoe, DiVa, CANape, CANStress, Candela Studio etc.
- Familiar to automotive standards like AUTOSAR, and Safety Standard ISO 26262.
- Worked on MATLAB-Simulink Model Testing.
- Good communication skills, self-initiating and adapt to learning.
- Worked ONSITE **Germany**.
- Having Valid **H1B** US Visa

Technical Skills & Core Competencies:

Black Box Tools: CANalyzer, CANoe, DiVa, CANape, ATLAS.

White Box Tools: Source Insight, Beyond Compare, Edit plus, Notepad++, QAC.

Protocols: RS232, CAN, Flexray.

Design Tool: Microsoft Visio.

GUI: NI Lab VIEW.

Configuration Tools: Clear Case, Clear Quest, RTC, SMIS, PTC and V-file.

Requirement Management Tools: DOORs, Team Center.

Diagnostic Testing Tools: DET, DTS, DiVa, GGDS, V-Flash.

Languages: Embedded C, MATLAB, CAPL.

Compilers: Keil μ Vision 2 & 3, Metrowerks, VC++.

Work Experience

- Working as Project Lead in **L&T Technology Services**, Bangalore, From June 2014 to still date.
- Working as IT Engineer in **CMC**, Chennai, From May 2013 to May 2014.
- Worked as Senior Engineer at **Mahindra Satyam**, Bangalore from May 2008 to April 2013.
- Worked as junior software Engineer at **Knowx Innovation Pvt ltd**, Bangalore from June 2007 to May 2008.

Accolades

- Got appreciation for providing a customer delivery on time during critical time.
- Recognized as an asset and received star rating for delivering outstanding performance continuously from 2 years.
- Lead the team within one year and received outstanding appreciation from the manager on deliverables.

Project details

The details of the various projects that I have handled are listed below.

- **Project** : Software Requirement testing for BMS
 - Client** : A123 Systems, Livonia, MI, US
 - Duration** : 7 month
 - Description** : The BMS is intended for use in automotive products as part of the hybrid or electric vehicle powertrain. Up to 8 battery packs can be installed in one vehicle, but the packs do not need to be aware of each other, nor coordinate their actions. The BMS is responsible for monitoring the battery pack and communicating status and usage limits to external users (such as a vehicle or off-board charger). The BMS measures voltage, current, and temperature from the batteries. These measurements are critical inputs to the battery pack and vehicle control systems. The BMS is responsible for monitoring the battery pack and communicating Status and usage limits to external users (such as a vehicle or off-board charger).
 - Role** : Individual contributor.
 - Highlights** : Exposure to BMS
 - Organization** : L&T Technology Services, US
- **Project** : Software Requirement testing for ARS (Advance Radar Sensor)
 - Client** : Continental Technical Service Centre, Bangalore, India
 - Duration** : 2.6 +year
 - Description** : ARS (Advance Radar Sensor) is next generation long range Radar. ARS uses 77 GHz SiGe technology and it having two scans for far and near range Angle detection by 3rd FFT (Electronically Scanning Radar), auto alignment in Azimuth and Elevation. ARS is used Daimler passenger cars. This ARS project is software System level testing which includes requirement analysis, Automation using CAPL test script, Updating test specification in DOORS, Test specification are linked with requirements in Doors and validating ARS ECU. Updating test results in DOORS and reporting issues in MKS Integrity.
 - Role** : Individual contributor , Travel to Germany for release testing
 - Highlights** : Exposure to ADAS and Flexray
 - Organization** : L&T Technology Services, Bangalore
- **Project** : System level testing for Instrument Cluster, and Infotainment Feature
 - Client** : Visteon Technical Service Centre, Chennai, India
 - Duration** : 1year 1 month
 - Description** : The Instrument Cluster have electronic gauges driven by stepper motor, Telltales

driven by LEDs, beep generated by buzzer, a high resolution dot-matrix display for Odo, Trip related, Fuel economy, data Transfer through USB interface and diagnostic information.

Infotainment Feature of Ford cars. This works with the concept of distributed system where the master control is from Infotainment system. Cluster displays the data send from Infotainment system Features include Bluetooth Phone, Navigation, entertainments etc.

Role : Team Member
Highlights : Exposure to Instrument Cluster and Infotainment.
Organization : CMC Ltd, Chennai

- Project : Column Drive Engineering Support Onsite
- Client : TRW, Shirley, UK
- Duration : 1.7+ years
- Description : This Project is one of the major projects of EAPS Column Drive. Column Drive Electric Assistance Power Steering (EAPS) system provides power assistance to the steering system which is applied directly to the column with a motor. The project involves requirement analysis, Automotive Software Development and testing of the new features to the steering system.

Role : Team Lead
Highlights : Developing application software and Testing.
Organization : Mahindra Satyam, Bangalore

- Project : Software Integration Tests - Module Level Unit Testing
- Client : TRW, Shirley, UK
- Duration : 1 year
- Description : This is a module level testing; boundary of the module is defined with the help of requirement document. Here module is tested for various levels of input variables and the result is verified with respect to the requirements. In order to check the implemented code, separate expected implementation code is developed in C language with reference to the given requirements for a particular module. The test cases are executed and results are compared by using the CANTATA++ tool.

Role : Team Lead
Highlights : Dynamic analysis
Organization : Mahindra Satyam, Bangalore

- Project : MATLAB-Software Software Integration Tests - Module Level Testing
- Client : TRW, Shirley, UK
- Duration : 3 months)
- Description : This is a module level testing, MATLAB model is provide by the customer for the module. This testing is required to check the module robustness for the various levels of input variables values by considering the relevant requirement document. Both MIL (Model-in-loop) and SIL (Software-in-loop) tests were carried out for the MATLAB model.

Role : Team Lead

Highlights : MATLAB and Simulink exposure
Organization : Mahindra Satyam, Bangalore

- Project : Verification and Validation of Electrically Powered Hydraulic Steering
Client : TRW, Shirley, UK
Duration : 1 year
Description : The EPHS System provides the driver with steering assistance using a Hydraulic System that includes an Electric Motor/Pump Assembly. The speed of the pump rotor is controlled by an ECU. The ECU inputs are stimulated and the ECU outputs or the effect on the system is observed to validate the complete software through System Testing.

Role : Team member
Highlights : CANape, CANalyzer
Organization : Mahindra Satyam, Bangalore

- Project : Verification and Validation of VIMS (Vital Information Management System)
Client : Caterpillar, USA
Duration : 1 year
Description : This project involves verification and validation of VIMS (Vital Information Management System) for the customer Caterpillar. Caterpillar's Vital Information Management System (VIMS) is a powerful tool for machine management that provides operators, service personnel and managers information on a wide range of vital machine functions. If VIMS detects an impending or abnormal condition in any of the machine's systems, it will alert the operator and instruct them to take appropriate action.

Role : Team member
Highlights : Exposure to Verification and Validation
Organization : Mahindra Satyam, Bangalore

Personal Data:

Marital Status : Married
Available VISA's : H1B

Educational Details

- **Bachelor of Engineering** (B.E.) in Electronics And Communication from PSNA College of Engineering (Affiliated by Anna University), India, April 2007.

Engagements:

Present Address : 24758 Roosevelt CT, Independence Green,
Apartment 365, Farmington Hills, MI-48335

Place: MI

Aravind J Nair