

Aryan Singh

CONNECTED SYSTEMS ENGINEER LEVEL-2@MARUTI SUZUKI

CONNECTED SYSTEMS ENGINEERING | MODEL BASED SYSTEM ENGINEERING | TELEMATICS & EMBEDDED SYSTEMS

Growth oriented individual with a focus on **Model Based Design**, Hardware QA & verification, connected solutions, and vehicle integration & model-based development, contributes to various **telematics** projects for global Suzuki and Toyota, achieving high-quality standards and integration of **connected functionalities**. Aiming for continuous improvement, offers skills in developing **embedded systems**, innovative cloud design, and comprehensive knowledge of automotive electrical systems to enhance vehicle connectivity and functionality.

Noteworthy Highlights

INR 10M Project Execution 25% Sales Sustenance

- Delivered an INR 10M project on Telematics Function Models constructed using SIMULINK.
- INR 5M Cost Conservation
- Contributed to sustaining MSIL in sales in the SUV segment at **25%** following the successful launch of New Brezza, Grand Vitara, Fronx, and Jimny.
- Procured research reports in Connected Systems from a consulting firm, leading to a cost-saving initiative of INR 5M through direct vendor billing and negotiation.

PROFILE SUMMARY

- Evolving proficiency in designing and implementing connected systems, ensuring integration and functionality in automotive environments.
- Intellectual capabilities to execute innovative cloud design strategies, incorporating cloud engineering skills to enhance the performance and connectivity of automotive systems.
- Aims to excel in model-based system engineering initiatives, applying advanced methodologies to enhance design efficiency and accuracy.
- Brings forth the abilities to develop embedded systems, with a focus on telematics engineering, ensuring the delivery of cutting-edge automotive solutions.
- Possess comprehension of automotive electrical systems, leveraging knowledge for advancements in vehicle connectivity and functionality.
- Dedicated to success in testing and quality assurance, implementing robust methodologies throughout the Software Testing Lifecycle to guarantee the reliability of automotive software.
- Committed to delivering **cross-functional collaboration**, fostering communication and synergy across teams for success.

<u>Awards:</u> Star Performer in Annual Performance Appraisal (2022-2023) || Top 5% of Maruti Suzuki India Limited Research & Development Employee || High Performer in Annual Performance Appraisal (2022-2023)

CORE COMPETENCIES & SKILLS				
 Connected Systems Engineering Model-Based System Engineering Embedded Systems Development Telematics Engineering E2E Testing 		 Cloud Design Automotive Electrical Systems Testing & QA Network Management Frontend & Backend Development 	 Software Testing Lifecycle Software Defined Vehicles Code Generation Cross-Functional Collaboration Team Management 	
Technical Skills:				
Connected Cars V2X Model-based Design	AWS I CV2X, MATL Softw	AWS IoT & IBM Cloud E2E Design and Integration in Telematics Server Generations CV2X, LTE-PC5, LTE-Uu, DSRC, NR-PC5, ETSI Standards MATLAB, SIMULINK, STATEFLOW, Embedded Coder, System Composer, Model-in-Loop (MIL), Software-in-Loop (SIL), Hardware-in-Loop (HIL) dSpace TargetLink, Fixed Point Conversion		
Embedded Systems	EmberVectoANSI-	Embedded-C, C++, Python, ESP8266, MDM9628, SA415 Vector CANoe & CANalyser, JIRA, POSTMAN API Testing, JSON, Node.JS ANSI-C, ISO 26262, JMAAB, ASPICE, ASIL-D, MISRA-C, SysML, UML, AUTOSAR		

WORK EXPERIENCE

Connected Systems Engineer Level-2, Maruti Suzuki India Limited, Delhi-NCR, India

Key Deliverables:

- Cloud Development: Head the cloud development for Next Generation Telematics System in AWS IoT based Containerized Solution Architecture [Kubernetes, IoT Core, Microservices built in NodeJS & Angular JS]
- Connected Solutions: Manage design, development, and validation of the Next Generation Connected Solution Server, leveraging cloud
 engineering skills for integration and functionality.
- Model Based Development: Design and develop Global Suzuki Telematics Controller functions using MATLAB, SIMULINK, and STATEFLOW. Manage Embedded-C Code Generation and conduct validation at the vehicle level.
- QA & Testing: Perform testing of Global Suzuki & Toyota Telematics Platforms in Europe, Japan & India for models including Baleno, Ertiga, XL6, Brezza, Grand Vitara, Invicto, and EV Models. Ensure high-quality standards through testing and verification processes.
- Vehicle Integration: Develop V2X Proof-of-Concept Project for the Baleno Model including the integration of connected functionalities.
- Telematics Collaboration: Collaborate on Telematics projects across regions including Europe, Japan, and India, for Suzuki and Toyota.
 Foster coordination for integration of connected functionalities across vehicle models.
- Patent Application: Lead patent application process in the Indian Patent Office for the grant of "A system for detection of disorientation and misalignment of GNSS Antennas in a vehicle" (Application No. 202311044098).
- Skill Development: Contribute to innovative solutions in the realm of connected vehicles and develop skills in-vehicle models encompassing traditional and EV Models. Engage in continuous improvement, staying updated on industry trends and technological advancements.

Key Achievements:

- Global Telematics Solution Launch: Spearheaded launch of Global Suzuki's Original Equipment Telematics Solution across EU, JP, and IN regions, including Baleno (2022), Ertiga (2022), XL6 (2022), Brezza (2023), Grand Vitara (2023), Fronx (2023), and upcoming EV models.
- Integration Leadership: Managed successful integration of Connected Systems in Global Suzuki's PoC on Vehicle-to-Everything Technology at IIT Hyderabad, presenting the solution to senior officials of the Government of Telangana and other organizations.

PROJECTS HANDLED

Project: Global Suzuki Advanced Mobility POC on V2X || Company: Maruti Suzuki India Limited, Suzuki Motor Corporation

- Scope: Collaboratively with Suzuki, Maruti Suzuki, and IIT Hyderabad, orchestrated and presented the pioneering Research Demonstration of India's first Vehicle-to-Everything (V2X) Communication. [Link]
- Responsibilities:
- \rightarrow Spearheaded the design and implementation of specifications, collaborating with hardware (HW) and software (SW) suppliers.
- → Orchestrated the integration of critical components in test vehicles, overseeing CAN interfacing, as well as antenna and bracket design.
- → Established a state-of-the-art testing lab, designing test scenarios for On-Board Unit, CV2X (LTE-PC5 & LTE-Uu) communications, WPC Band conformance, and CAM & DENM message transmission checks.
- → Drafted a compelling technical paper titled "Innovative Testing and Validation Methodologies for V2X Applications" in collaboration with professors from IIT Hyderabad. [Link]
 - Project: Telematics Controller Unit Functions Design & Development using MBD/MBSE | Company: Maruti Suzuki India Limited
- Scope: Independently lead the design, development, and verification of Telematics Function Embedded Software Packages, leveraging Model Based Design and Tools such as MATLAB, SIMULINK, STATEFLOW, and dSpace TargetLink Code Generator. Ensured strict adherence to AUTOSAR, JMAAB, and ISO 26262 Automotive Design Standards throughout the project lifecycle.
- Responsibility: Ensured delivery of the software packages to Suzuki Japan, meeting project milestones.

EDUCATION

Bachelor of Technology in Electronics & Communications Engineering || Delhi Technological University, Delhi July, 2016 ~ June, 2020

CERTIFICATIONS & TRAININGS

TUV SUD Akademie Gmbh Training as Qualified Electrician for HV Systems in Motor Vehicles & Live working, MATLAB Fundamentals for Automotive Applications, Simulink Fundamentals for Automotive Applications, Stateflow for Automotive Applications, Simulation-Based Testing with Simulink, System Composer for Architecture Modelling, Design Verification with Simulink, Code Generation for Classic AUTOSAR Software Components, Introduction to Programming with MATLAB, Functional Safety Assurance for Automotive (ISO 26262), Siemens United Graphics CAD/CAE Modelling

LANGUAGES

ENGLISH (C2 LEVEL), GERMAN (A1 LEVEL), JAPANESE (A1 LEVEL)