

Ready Scenario Library for Virtual Validation & Homologation Readiness



Assuring coverage for Virtual Validation of ADAS/AD development Requirement of millions of scenarios

In the autonomous driving development journey, verification and validation (V&V) coverage and scenario-based validation is a critical step. Building realistic scenarios that cover road conditions like traffic behaviors, weather, time of day etc. and regulations and safety (ISO2622 & SoTIF) is a key requirement as testing against a range (millions) of these scenarios assure coverage and accuracy. This in-depth testing against millions of scenarios brings the ADAS/ AD solution to homologation readiness



Ready Scenario Library for Virtual Validation 3 Million+ scenarios to help ADAS/AD solutions achieve homologation

A ready library of 3 Million+ scenarios that encompass various regulations (NCAP, ISO etc.), features and functions (AEB, ACC etc.) regions (US to Japan) and safety (ISO26262, SOTIF). These scenarios can be leveraged to execute virtual validation for ADAS/AD solutions from Level 2 to 4 autonomy. These ready scenarios will help achieve 85%+ coverage and homologation/ certification readiness across the globe from various ODDs operating design domains

Benefits

The scenario library contains quality details and huge coverage which would save a lot of cost which would go in planning and development of framework. Below are the highlights on how scenario library can benefit the customer



Ready scenario WRT standards

Quality scenarios in large numbers are readily Available which could be instantly put to use.



Assured Coverage

The library not only have standard related scenarios , but it also contains variety of scenarios with respect to ODD,KPI ,perception etc. derived on the abundant experience from previous projects



Easy customization

Scenarios can be easily customized as to accommodate specific customer expectations and also exports the same to their framework



Easy Integration

The library contains open standards models which as well can be easily integrated on any of the simulation environment

KPIT Scenario library on AWS

OEM’s and Tier1’s need to perform huge number of testing to make their products homologation ready. The only way to achieve this is through closed loop simulation in virtual environment. To do this they will be a huge set of scenarios complying to various standards, regulation and also requiring to achieve coverage w.r.t to various components of AD/ADAS functions. KPIT offers a ready scenario library that delivers very efficient user journeys by leveraging AWS’s cloud platform. This help achieve coverage testing when integrated with KPIT’s SIL platform (KSIL) which is also hosted on AWS leveraging AWS CI/CD pipeline.

Features



Feature #1

Regulations – ISO , NCAP, NHTSA, SAE

Regions – Universal ,USA, Europe, China, Rest of Asia

Safety – Functional Safety ISO26262 , Safety Of The Intended Functions (SOTIF)

The scenario library contains quality coverage with respect to the standards and safety. These scenarios would help the OEMs to get through the required certifications and expedite the production



Feature #2

Conditions – Weather, Traffic, Road, Environment

Features – ACC, AEB, TJA, HP, PA and more

The scenario library not only covers cases wrt standards , it also covers scenarios based on perception ,huge number of critical and corner testcases , ODD and KPI based scenarios as well to assure maximum coverage

Case Study: European OEM



Challenges

The OEM wanted KPIT to support with extensive and quality testcases to accelerate the production. KPIT convinced the OEM to take up the ready scenario library and showcased the quality output they would expect. OEM agreed to take up KPIT as a partner in the program



Solution

. KPIT formulated test cases for 300 scenarios, which are to be extracted from Simulib.AD library. KPIT also customized the testcases as per the application management tool in use with the OEM (Code Beamer) and created a framework to support open standards for modelling of the testcases



Results

1200 TC’s derived from the scenarios
 Test pattern files : json for simulation of scenario in ASTAS and xodr for road geometry were created in parallel which was successfully implemented and executed by the customer with minimum dependency

Get started with KPIT solutions on AWS

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