

# KPIT's SIL Platform for scenario -based ADAS/AD testing & validation



## Need for a solution to execute scenario-based testing for ADAS/AD End to end platform for ADAS/AD solutions

More and more OEMs are in the process of bringing Level 3 and above ADAS/AD vehicles to market this also includes commercial vehicles. To optimize the time to market a solution for ADAS/AD testing is needed that offers scale i.e., running 1000s of tests simultaneously, is cloud enabled and can execute testing of ADAS/AD Features (e.g., AEB, ACC etc.), Functions (e.g. Sensor fusion etc.) and components (Camera, Lidar etc)



## KSIL Platform an end-to-end solution for scenario based ADAS/AD testing

The KSIL platform is a cloud-based test management framework. The Platform integrates with scenario and KPI databases, enables selection of scenarios against which the feature or function should be tested, executes 1000s of test runs simultaneously and provides results against KPIs on a visualization dashboard where each scenario can be viewed (video) and also downloaded as reports. The solution has already been deployed on AWS and is being utilized for global OEMs for testing upto Level 4 autonomy

### Benefits

KPIT's cloud-based test management (KSIL) solution offers a great deal to the OEM's for validating the AD/ADAS software functions against millions of well-designed scenarios at scale, without having to manage the test infrastructure. KSIL makes it a possibility to run volumes of simulations in a few days of time enabling countless test needs from Automated Driving industry.



#### Ready to use Scenario Library:

The KSIL platform contains a vast variety of functional scenarios available as OpenX format content, enabling the OEMs to validate their AD/ADAS software models against millions of simulated miles covering edge cases.



#### Dashboard for Performance Analytics:

KSIL offers a web-based dashboard to visualize the performance results of the feature-under-test against the KPI's from industry standards, regulatory authorities and custom specifications.



#### Accelerated test executions:

The scenario executions with KSIL will be much faster than the on-premise execution, leveraging the scalability provided by AWS compute services. A million simulations of work load is brought down to few days from months.



#### Simulator Agnostic platform:

KSIL is a customizable framework on various fronts. The executions platform can be integrated with Scenario simulator of choice and thus providing a freedom to the organization to choose from available commercial or non-commercial tools in market.

## KPIT's SIL Platform on AWS

Closed loop validation in the automotive industry usually requires various non-integrated tools. The data produced in different process stages are manually, or semi-manually handed over between these tools. KPIT offers an integrated platform that delivers very efficient user journeys by leveraging AWS's cloud platform. Customer data flows more naturally between process steps helping in validation the AD function with respect to homologation readiness. The platform automates various stages and helps in achieving desired results in more efficient manner. Moreover, AWS CI/CD capabilities enable customers to bring in or take their data from the platform securely, any time

### Features



#### Feature #1

KPIT's SIL platform is an end-to-end process to validate functional test cases based on system/functional testcases needed for testing AD features/functions. The test data is automatically executed in the AD integrated simulation environment. This automated execution of tests help ensure adequate test coverage. The integration with a workflow system enables the traceability of the test results back to the requirements. The test data generated is automatically analyzed with respect to selected KPI for generating performance report.



#### Feature #2

OEM and Tier 1 suppliers often require integration with their existing ALM/PLM or requirements management systems for traceability and reusability. KPIT's SIL platform API enables any ALM/PLM tool to be integrated. For example, through the integration with DOORS NG, the pre-defined system requirement test cases can be imported into the platform, or create test sets in ALM tool and trigger executions bringing the comfort of traceability

### Case Study: Japanese OEM



#### Challenges

The validation of AD/ADAS functions involves running high volume of simulations to cover various driving scenarios. Without cloud infrastructure, this timeline takes months to cover executions of all scenarios. KSIL solves this issue by scaling the compute infrastructure to meet the work loads.



#### Solution

KSIL is a web-based test management framework provisioned on AWS cloud, offering end-to-end ALM workflow integration. The simulation jobs are managed using SQS services and are orchestrated to scalable on-demand compute instances. The test artefacts are stored and managed using secure S3 storage services.



#### Results

With KSIL, the customers were able to benefit from the faster test executions cycles with minimum responsibilities over test infrastructure. The pay-as-you go pricing structure from AWS enables the KSIL customers to have the most economical execution cost.

Get started with KPIT solutions on AWS

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