

eMOBILITY HILS FRAMEWORK

Agile | Scalable | Ready-to-Use

Trending

Regulatory pressures on internal combustion engines (ICEs), combined with technological improvements in electric powertrains and batteries, are driving a surge of demand for electric vehicles (EVs). Global sales of new electric vehicles (EVs) has passed a million units. Under the current growth trajectory, EV producers could almost quadruple that achievement by 2020, moving 4.5 million units, around 5 percent of the overall global light-vehicle market.

This fostering innovation has resulted in dramatic spikes in the amount of data flowing throughout vehicle electrical/electronic (E/E) systems, which need to meet stringent quality norms.

A common and quite significant trend today's automotive engineers dealing with is the massive number of V&V cycles now required, including testing that spans across the many gaps in the tiered development ecosystem.

Opportunities & Challenges

Opportunities

- eMobility HILS framework being put forth as a "Test House" offers customers a quick, flexible and ready made test system. This can be utilized in component level as well as to the system level, based on the requirements. As most of the components are readily available and are designed with high modularity, the HILS infrastructure can be set up at a faster pace

Challenges

- Design and develop a flexible and cost-effective test system for is a challenge
- Replicating Test Scenarios in the real world
- Stable operation of the test is dependent on the electrical parameters of both the DUT and the combination of other equipment



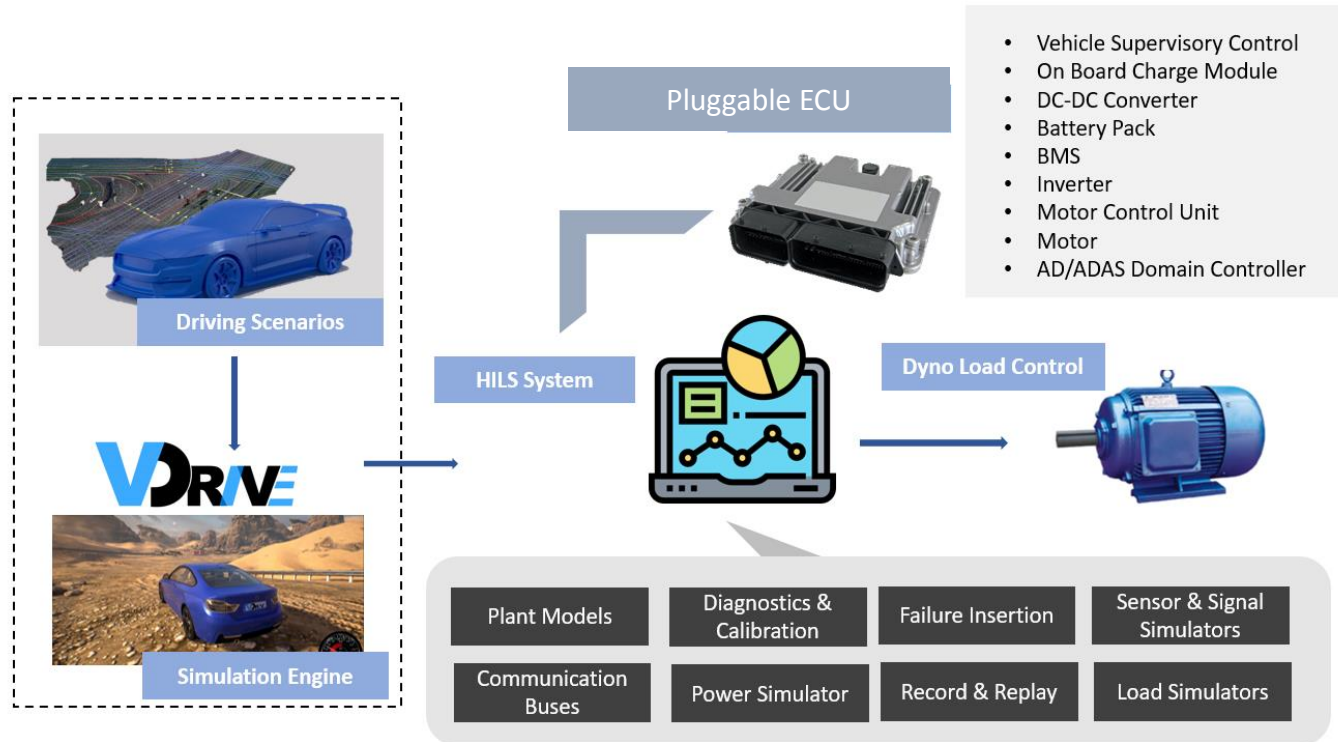
Benefits

- Quick set-up of HILS
- Validation as a service
- Readily available components
- In-house competency
- Lab based test scenario generator
- Scalable to component level, system level and vehicle level

eMOBILITY HILS FRAMEWORK

Lab-based Framework for the Validation of EV systems

Service Framework



- Complete interconnected vehicle level HILS
- Full fledged NI test bench and Dyno load control
- Coupled solutions for Simulating environments, create drive scenarios and vehicle dynamics
- 70% automated real-time testing

Available Components

Battery Management System, DC-DC Converter, Inverter, Dyno, Head Unit, AM-FM Simulators, Audio, Bluetooth, Mobileye Camera and Accessories

Differentiators

- Whole vehicle validation as a service under one roof
- Readily available components which are designed with high modularity
- Re-usable test framework and software & hardware licenses
- Solutions from simulating environments and creating drive scenarios like VDrive
- Scalable to component level, system level and vehicle level

Cases

Inverter Motor Controller Testing through eMobility HILS for Tier 1 Japan

- Offshore HILS commissioning and configuration
- Functional, Diagnostics and Performance validation of TPIM features
- Developed Motor and Inverter models in FPGA