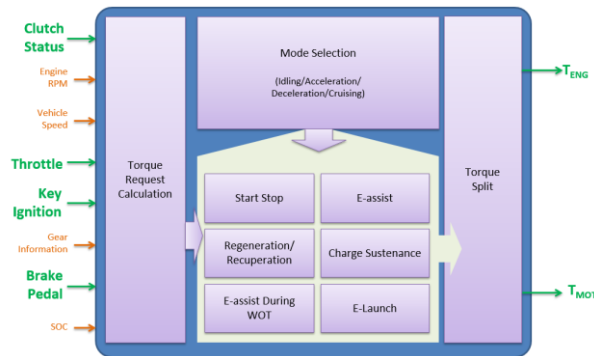


Intelligent Vehicle Controller Platform (ARAI-iVCON) for xEV



Technology

Intelligent Vehicle Controller (ARAI-iVCON) Platform – A configurable software Package (for P0, P1, P3 & EV configuration)

Technology Readiness Level: TRL7 (System prototyping demonstrator in an operational environment)

Features

- Software Solution Package for all types of HEVs & EVs
- User friendly customization to hybrid drivetrain i.e. P0/P1/P3 and EV drivetrain
- Also scalable to P2 and P4 HEV configuration
- Open MIL, SIL, PIL & HIL compatible Strategies developed in MATLAB-SIMULINK-STATEFLOW using MBD approach
- Offline and Real-Time Simulation Capabilities
- Contain various easy to parameterize strategies for -
 - Input & Output Processing
 - Vehicle mode determination
 - Torque request Calculations
 - Start Stop Functionality
 - Electric Assist
 - Electric Launch
 - Charge Sustenance
 - Regeneration
 - Diagnostics & Limp home
- Easy Integration with most of-the-shelf plant model
- User friendly GUI for the configuration

Application

- Vehicle Controller Development platform for Hybrid & Electric Vehicle of any category i.e. 2/3/4 Wheelers

Scale of Validation Achieved

The current version of the software package is verified and validated in Model in Loop (MIL). Interface of the controllers with different type of plant models has been tested. This package is MATLAB Simulink based configurable software and its compatibility with general Simulink based plant model is validated in offline as well as Real-Time.

Intellectual Property

NA

Abstract

The Automotive Research Association India has developed the indigenous software package for the vehicle controller of xEVs. The package is named as Intelligent Vehicle Controller (ARAI- iVCON) which is the suite of the standard control algorithm used to control the xEV applications. Especially in case of xEVs, the master vehicle controller is very important since it has to control the demands going to separate systems (like Electric motor, Engine, Battery, etc.). The efficient controller which controls the power flow as per the requirement of the vehicle demand and resources available is key for the hybrid operation.

This software package is user friendly configurable solution which will give the control module in MATLAB environment. User has to select the application HEV/EV and input basic parameters of the vehicle. The utility will create controller in soft format as per the application selected and parameters provided.

Beneficiary Industry

- Vehicle OEMs working on hybrid & electric vehicle platforms
- Tier 1 industries supplying the smart controls for hybrid & electric vehicle
- Engineering Service providers to Auto Industry
- Research Institutes/Academies/Universities working on Hybrid & Electric Vehicle programs