

Motorsport to Automotive

An important part of vehicle development is Driver-in-the-Loop testing and there is an increasing need to start this level of testing earlier in the process, often before a representative prototype is available. To meet this need a wide range of driving simulators are available with the most sophisticated systems now able to support detailed vehicle engineering.

The vehicle model is a critical component in these systems and the capability of the platform to support vehicle engineering activities is determined by the fidelity of this model. Using Modelica modelling language, Claytex can produce high fidelity vehicle models that include every vehicle system consisting of MultiBody mechanics, electrical, thermal, fluids and control systems. Dymola,

a Modelica modelling and simulation tool, is used to transform these models into efficient simulation code that can run in real-time and be coupled to the Driver-In-the-Loop simulation platform.

These technologies have been developed in motorsport and applied in Formula 1 and NASCAR for many years enabling the teams to evaluate detailed geometry changes or new technologies before arriving at the race track. The same technology is now being applied for road cars to enable a wide range of engineering activities including handling, active safety systems, ride, NVH and control system integrity.

Modelica can be used to create MultiBody vehicle dynamics models that can be run in

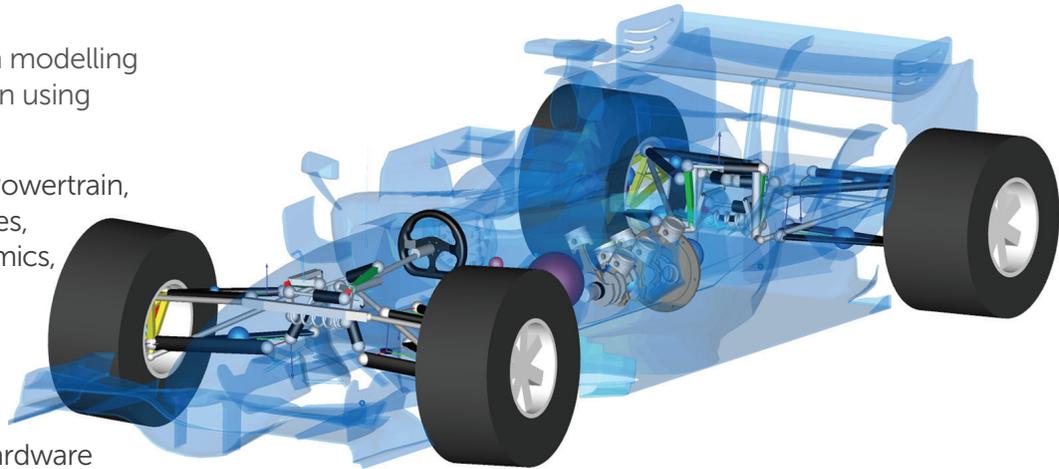


real-time in a driver-in-the-loop simulator. Modelica allows to easily include the electric motors, power electronics and energy storage devices associated with a hybrid or electric powertrain and to include the thermal management of these systems as part of the simulation.

Meet with Claytex at High-Tech Systems Exhibition on 25th & 26th March, Stand 9, to find out more. Claytex will be presenting at the Thermo Mechatronics Session on Thursday 26th March at 16:00. 'Investigating the effect of gearbox preconditioning on vehicle efficiency'

Systems Engineering Specialists

- Multi-domain modelling and simulation using Modelica
- Libraries for Powertrain, Hybrid vehicles, Vehicle Dynamics, Thermal Management
- Real-time simulation to support Hardware and Driver-in-the-loop
- Full support for the FMI standard



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