Modelisar
Modelica – AUTOSAR integration to support Vehicle Functional Mock-up

PROJECT SUMMARY
Functional Mock-Up is the next generation of the Digital Mock-up to enable the simulation of the vehicle functional behaviour, leveraging Modelica for vehicle behaviour modelling & simulation, and AUTOSAR for embedded software generation.

OBJECTIVES
- Boost collaboration and innovation across system and software disciplines thanks to integrated System & Software simulation (Functional Mock-up)
- Test the vehicle behaviour earlier, faster and at a lesser cost in the virtual world

TECHNICAL OBJECTIVES
- Define a new standard: FMI (Functional Mock-up Interface) to enable open co-simulation between Modeling & Simulation tools and generated Embedded S/W
- Demonstrate the support of FMI by leading market tools, especially for Modelica and AUTOSAR
- Demonstrate seamless integration of the Modelica and AUTOSAR design & verification flows on top of PLM infrastructure

CONTACT
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WORK PACKAGES OVERVIEW
- WP1 Project management
- WP2 FMI development (specifications, technology studies, tools prototypes)
- WP3 Automotive Proof of Concepts
- WP4 Code generation; HIL, calibration and test
- WP5 Collaborative PLM for Modelica, AUTOSAR & FMI

MODELISAR PARTNERS
- Large companies (6)
- Small companies (14)
- Universities (2)
- Research Institutes (7)

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Deliverables

FMI STANDARD
- High quality and mature FMI specifications for model exchange, co-simulation and product lifecycle management,
- FMI open specifications available on http://www.modelisar.com

MODELING AND SIMULATION STUDIES
- 10 FMI prototypes - for model exchange, co-simulation and PLM
- 10 scientific studies on AUTOSAR, cosimulation, timing and bus management
- Modelica evolution proposals for the benefit of FMI and AUTOSAR

PROOFS OF CONCEPT
24 FMI demonstrated use-case proofs of concept:
- Cabriolet Top
- Power Lift Gate
- Engine Gearbox
- Mechatronic Shifting
- Electrical Power Drive
- Chassis Controller
- Combustion Ignition
- Chassis Simulation
- Interior HMI
- Climate Comfort
- Electronics
- Energy Mgt
- Card Board Network
- Cabin Air Flow & Temperature

EXPLOITATION
- 110 communication actions
- 34 announced FMI-compatible tools (25 available, 50% external to MODELISAR)
- FMI Reference book
- FMI established organization to support, enhance an disseminate the FMI standard www.fmi-standard.org
- FMI in ITEA 2/ OPENPROD & MODRIO; ARTEMIS/CESAR & MBAT; CleanSky/ISSE, E-Bird; CORAC / AME...
- Address other industrial domains (Aerospace, Train, wind turbines, industrial machinery and construction equipment)
- Academia exploitation in the US

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