



Client Challenge

- Required major updates of generic system platform due to upcoming new vehicle-architectures and variants
- Fading control of ASIL-assignments by assessor due to increasing horizontal/vertical complexity of functional network and signal-interfaces to 3rd-party vehicle systems
- Increased effort in testing and verification due to partly inconsistent textual specification of similar systems with ambiguous, incomplete or conflicting requirements
- Recognized need to migrate from the legacy document-based process towards new modelbased approaches

Activity

- Review of existing requirement and interface specification of prototypical system model captured in SysML/Cameo
- Capture HARA and safety-goal argumentation with GSN
- Conception and Setup of a Modelica®/RODON-based model-library of generic requirement-buildingblocks
- Remodeling of subsystem-specification by executable blocks, model tailoring and parametrization acc. needs
- Automated batch-simulation/-evaluation of model-states incl. signal faults, export to FMEA, gap-/conflict-identification
- Model enhancement for cross-functional propagation/tracking of ASIL-assignments, from hazards to individual input signals incl. partitioning (supervision of a master thesis)

Benefit

- Report with identified requirement weaknesses facilitates improvement of existing platform system-specifications
- Delivered system-model and modular block-library allows efficient and consistent graphical requirements adaption plus unambiguous execution and spec-optimization
- More transparent automatic ASIL-tracing and partitioning
- Interactive injection of signal-faults allows evaluation of mitigation requirements and broader test-coverage

Key Technologies and Methods:

- ISO 26262
- Modelbased Specification
- Goal Structuring Notation | GSN
- Functional Decomposition
- Fault-Modeling | RODON
- FMEA-Automation
- Modelbased ASIL-Tracing and Decomposition
- Virtual Testing

