

BOMBARDIER



Master's Thesis:

Structural Modeling of an Onboard Signaling System

Background

System architectures for large complex systems are still documented in a text-based format. This information is presented in various documents today which have no modeled dependencies; it is informal, unlinked and inherently imprecise, which may lead to possible contradictions and omissions that are costly to correct.

It is therefore highly desirable to facilitate a shift to an MBSE (Model Based System Engineering) approach by creating an initial high-level structural model of the onboard signaling system.

This requires the creation of a generic structural block that can be used for all system components. An initial deployment of this template to all subsystems is also needed as a proof of concept. The model should consider future use cases such as modeling of behavior and linking to the existing system requirements.

Objective

The main objective of the master's thesis is to:

- Collect information on the system architecture and interfaces
- Identify the level of detail that should be captured in the system model in agreement with all stakeholders and agree on a modeling language to be used.
- Prepare a generic structural block that can be used to model system components
- Prepare a first structural Model of the system including the external interfaces
- Extend the structural model to include subsystems and internal interfaces
- Present the evolution of the system model regularly and incrementally to the system architects to solicit feedback and make adjustments to the concept and generic block as needed.

Application

Qualifications:

Electronics Eng. / Electrical Eng. / Computer Eng. / Telecommunications Eng. /
Software Eng.

Master student with a specific interest in systems modeling.

Knowledge:

- Basic knowledge of UML/SysML
- Familiarity with HW and SW Design and modeling tools such as Matlab or similar
- Interest in railway signaling systems
- Driven and self-propelled
- Results oriented person

For more information, contact

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