Synthesis and Validation of Models for Management of Narrow Passageways

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Introduction
Examples of narrow passageways include one-way bridges, canals, and work zones. Common problems include:
- Traffic congestion, accidents, and costly delays.
The purpose of this study is to understand how the elements of this problem domain should be organized for synthesis and validation of system-level architectures.

Operation Concept to Models
High-level representation is in terms of use-case diagrams for narrow passageways (e.g., work zone).

The development methodology is as follows:

Positive and Negative Scenarios
We are exploring the use of positive and negative scenarios and model checking procedures for the elicitation of system behavior models.

High-level representation is in terms of use-case diagrams for narrow passageways (e.g., work zone).

Activity Diagrams

Fragments of System Behavior
Sequence diagrams show the interaction of objects that occurs during system scenarios.

Conclusion
Our goal is to create high-level models applicable to multiple narrow passageways domains, and to organize concepts into class hierarchies suitable for reuse.