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SCUOLA DI INGEGNERIA INDUSTRIALE
E DELL'INFORMAZIONE

Formal Analysis of Search-and-Rescue Scenarios

Project for Formal Methods for Concurrent and Realtime
Systems course

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Abstract

This document presents a formal model implemented with Uppaal of search-and-rescue scenarios. Inside a rectangular map of arbitrary size, civilians have to be brought to safety by either reaching an exit or being assisted by first-responders. Drones surveys the area and coordinate the rescue efforts by instructing civilians on what to do. The model then undergoes formal verification to highlight key behavioral aspects and identify optimal configurations for maximizing civilian safety.

High Level Model Description

Component Description

Design Choices

Properties

Conclusion