P12

Spatial Assistant Agent for Commander of Earthquake Emergency Response

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Strategic multi-agent scheduling & planning requires a team mixed of a human agent and a software agent to maximize global objectives of an urban search & rescue organization during earthquake emergency response. Problem definition was our motivation to propose an assistant agent to satisfy the defined requirements. To reach this goal, the first challenge is to model data and formulate the problem perfectly.

In this paper, we propose a data model which makes implementation of five following capabilities of the assistant agent possible: (1) model domain information (2) provide the commander a language to definite human strategic guidance, (3) model and manage temporal tasks of dynamic environment at a macro geographic scale, (4) run central multi-agent planning and scheduling algorithms (5) visual, manage, analyze geographic information and location-based ones. To evaluate feasibility of this data model, we implemented it for the operations commander of Red Crescent Society. We simulated an earthquake disaster scenario with a planning problem. Our results indicated comprehensiveness of this data model to satisfy the requirements defined for this problem domain.