

Explore social issues around planning support agent through mixed reality game - AtomicOrchid

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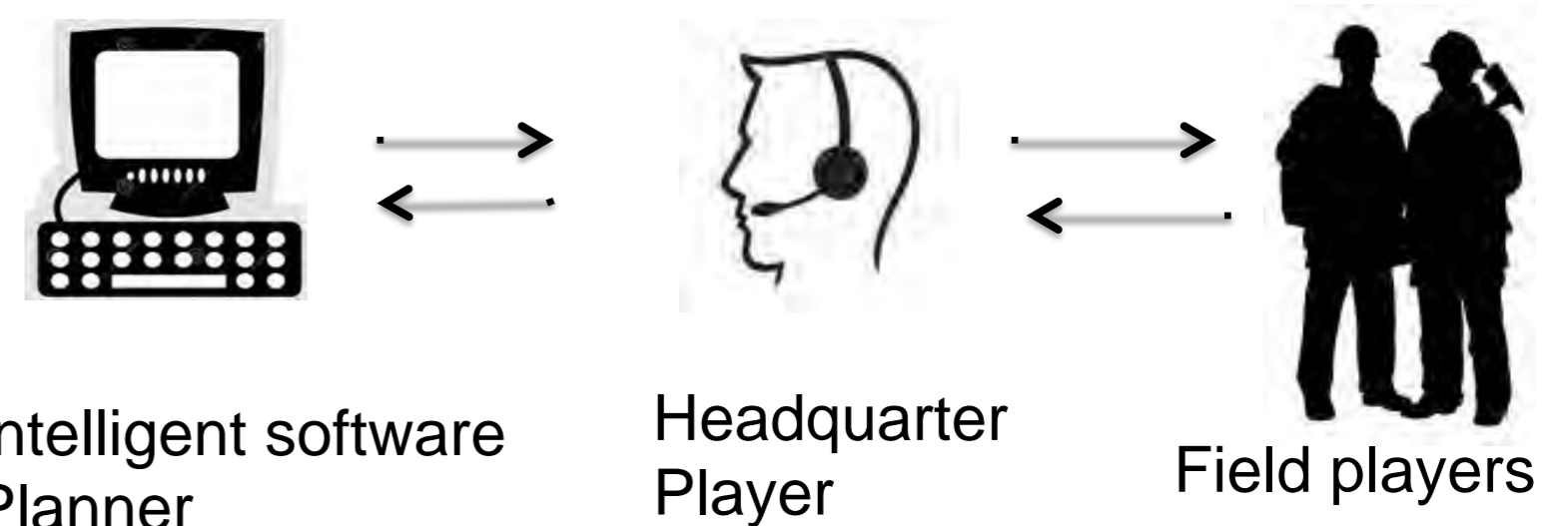
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Objective

1. Exploring socio-technical issues of Agent Human collaboration in time critical task domains.
2. Inform the design of Human-agent interaction

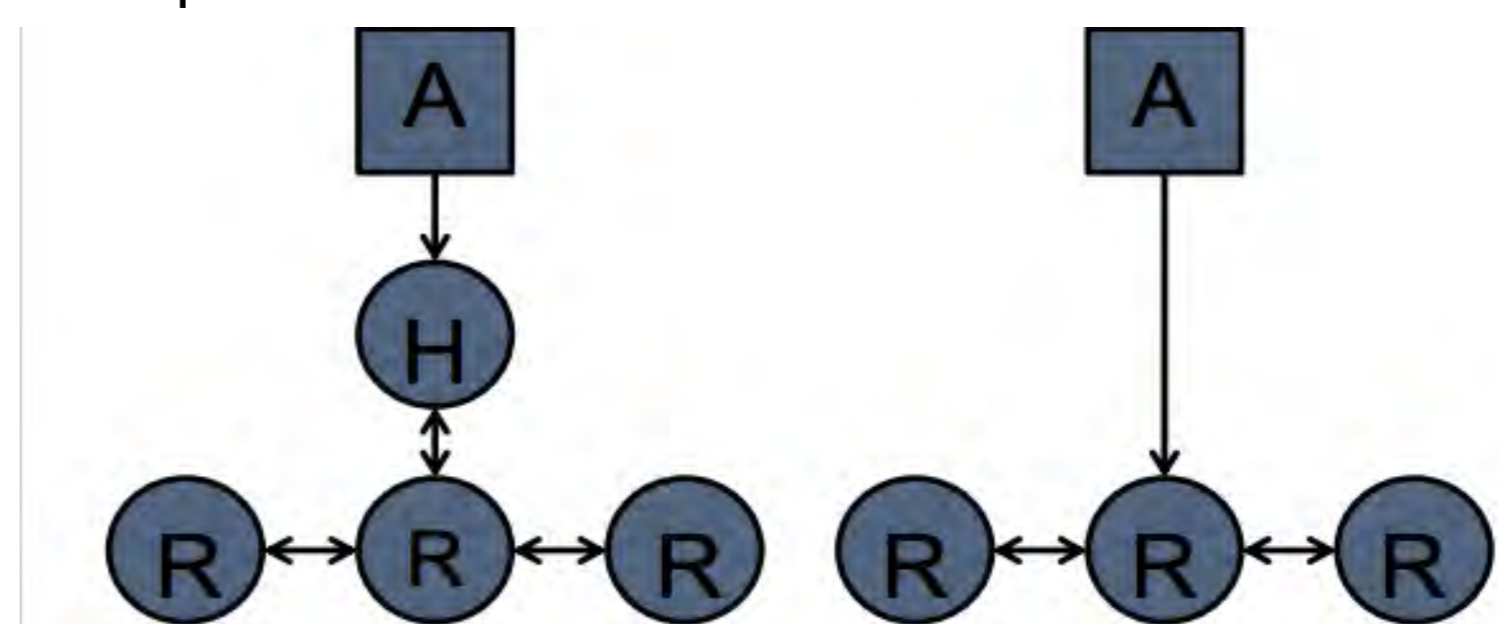
Introducing Planning Agent

A Planning Support agent was introduced in the game to support task planning activities.



The agent takes into account both time (cloud and human movement speed) and spatial (path planning for responders) constraints to produce high quality task allocations that minimise the travelling distance of first responders, and maximise the number of targets rescued.

We explored two interactional arrangements between human teams and field responders.



Task Planning in Disaster Response Operation



Task planning in control room



Limited resources



Personnel with different capabilities



Large impact area

AtomicOrchid – A Disaster Response Game

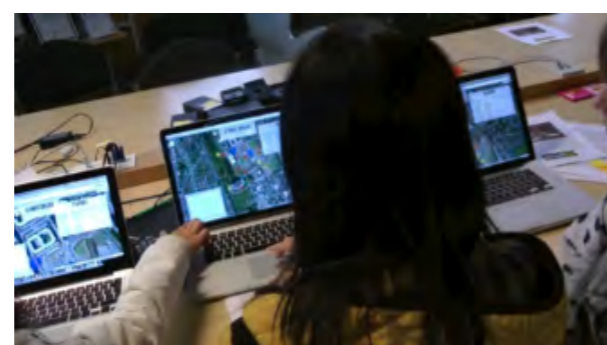
The game is designed as a testbed to simulate disaster response operations.

Disaster game scenario in which :

- Radioactive leak happens, creating life-threatening radioactive cloud.
- Field Players play as Field Responder to evacuate virtual targets in the impact area.
- Online players play as Incident Commanders to guide field players



Field responders

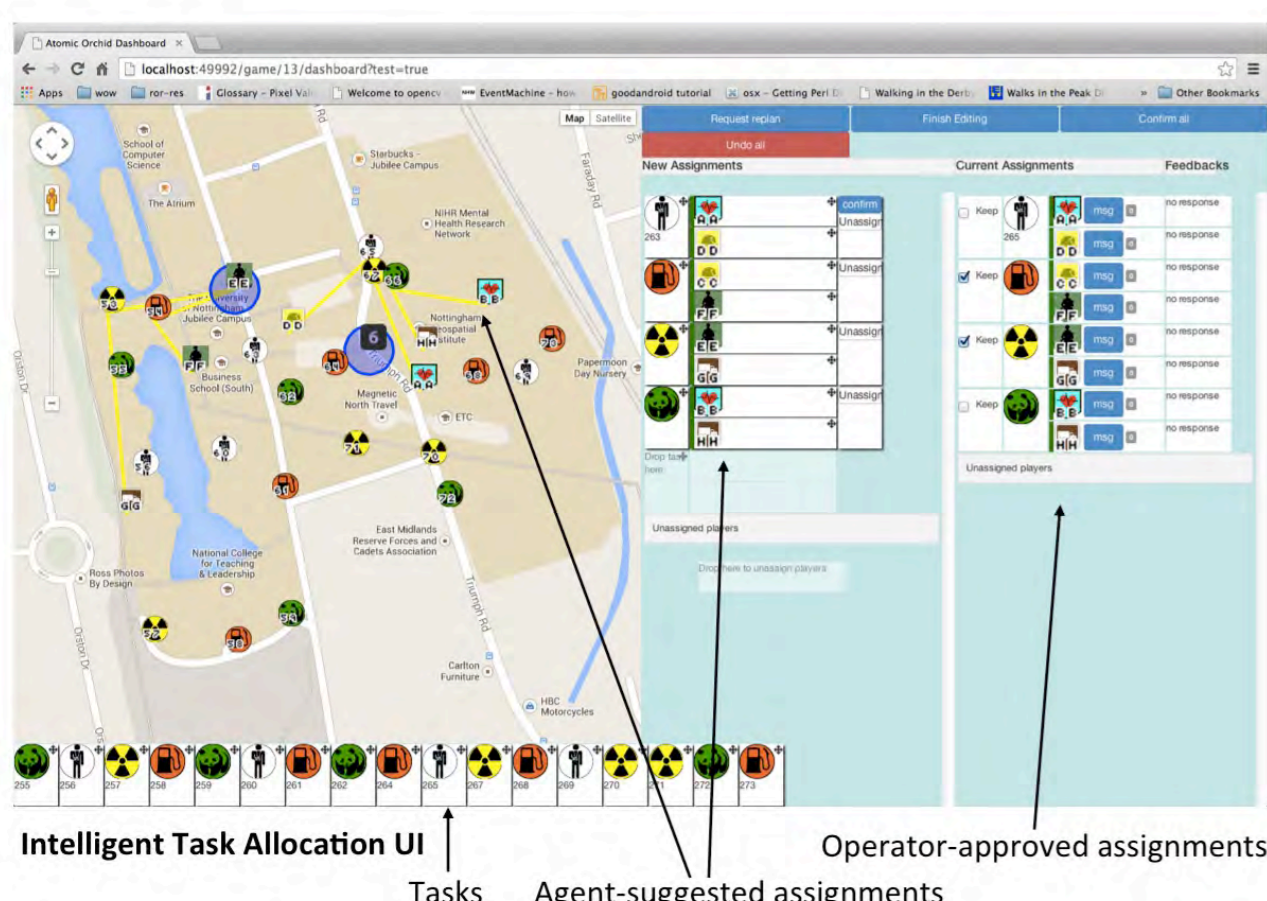


Headquarter

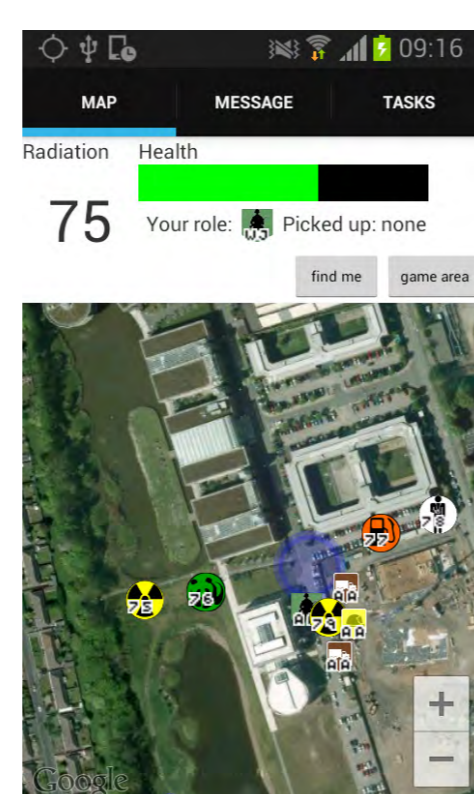
Team coordination is the key challenge of the game.

- Players need to coordinate with each other via text messaging, GPS and map sharing.
- Need to prioritise geographically distributed targets to achieve good team performance.

Game Interface:

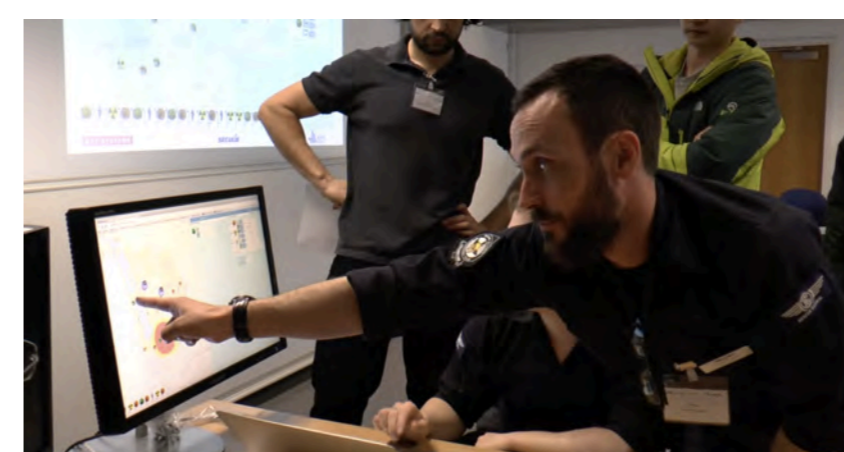


Task assignment interface



Mobile interface

Studies



The AtomicOrchid has gone through 3 development iterations.

A total of 7 field trials have been conducted

Both professional responders from Rescue Global and General Public are recruited in field trials.

Key results

1. Agent handles the planning of teaming and task assignment, freeing the team to focus on navigational issues

2. However, we also found that while the agent may consider the team reformation costless, there could be social cost hidden in the interactions.

1. Social interactions are required to disengage from a team in an accountable way
2. Unwillingness to discard on-going task, and attachment to local group
3. Actions not accountable to remote team members