



NASA SBIR 2009 Phase I Solicitation

X13.02 Situational Awareness for Multi-Agent Operations

Lead Center: JSC

Participating Center(s): ARC

This subtopic calls for a Small Business Innovative Research project to develop a situation awareness and conflict resolution tool for a wide-area multi-agent operation environment with substantial time delays. Humans and robots in future Lunar or Mars surface operations would be operating both on the Lunar (Mars) surface and on Earth remotely to carry out a common task. Consequently, substantial communication delay would make tasks planning and execution difficult. The goal of this SBIR is to develop a tool so multiple agents can work harmoniously regardless of geographical locations.

The tool therefore shall overcome the hurdle of communication delays and (1) enable situation awareness by providing timely information of tasks conducted by other agents, (2) ensure that newly generated procedures mesh well with the originally scheduled activities, (3) allow operators to poll state data from all agents at any moment, and (4) provide recommendations for best task planning and procedures.

An algorithm for the tool is expected as the deliverable for Phase 1 and a prototype is expected should the project continue on to Phase 2.