Holistan Revisited: Demonstrating Agent- and Knowledge-Based Capabilities for Future Coalition Operations

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In order to provide a context for technology demonstration, we developed a detailed military scenario based on previous scenario specification efforts within the ITA (Roberts et al, 2007). The scenario we have developed features the involvement of US and UK coalition forces in a large-scale humanitarian-assistance/disaster relief effort. Following an initial mission planning phase, coalition forces (comprising logistical, infantry and aviation elements) are dispatched to three mountain settlements in order to assist with aid distribution efforts. En route to the mountain settlements, the forces encounter a number of obstacles including attacks by insurgent forces and damage to major transport routes. On arrival at one of the settlements, military units are required to engage with insurgent forces in order to secure the settlement for humanitarian aid distribution.

The 'Holistan Revisited' scenario provides multiple opportunities for technology demonstration within the ITA programme. Current focus areas for demonstration include (but are certainly not limited to) the use of semantic match-making techniques to support sensor asset utilization and deployment, the use of semantic integration techniques to align and integrate information from multiple repositories, and the use of semantically-enriched planning models to support the communication, serialization and representation of plan-relevant information.
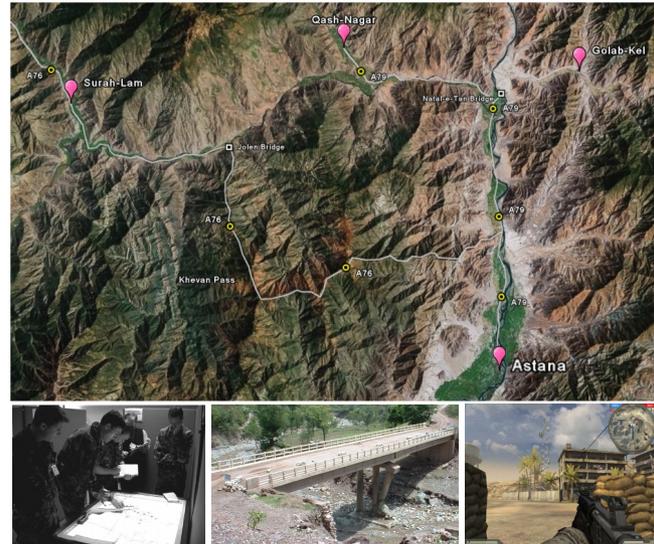
Mission Planning

Mission plans are developed to enable coalition forces to deliver humanitarian aid. Relevant information about sensor assets, resource requirements, security threats and landmine hazards is retrieved, fused and analyzed.

Force Deployment

Coalition forces depart brigade HQ and head towards to the mountain settlements. The forces are hindered by damage to major transport routes, and one unit also comes under attack from insurgent forces.

Combat Operations

Military units are dispatched to Surah-Lam to assess the security situation and neutralize any threat. As the platoons move into Surah-Lam, they are engaged by insurgent forces and a fire-fight ensues.

Technology Demonstration Opportunities

Project 8

Semantic integration of sensor asset datasets; application of match-making techniques to sensor ontologies.

Project 9

Use of semantically-mediated information fusion algorithms to process acoustic sensor data.

Project 10

Development and utilization of dynamic mission context models using the Battlefield 2 simulation environment.

Project 11

Generation of culture-specific coalition plans using cultural network analysis techniques and cultural models.

Project 12

Information retrieval; semantic integration and inter-operability; representation of plan-relevant information.