The role of End-Users as partners in NIFTi

Salvatore Corrao
CNVVF, Italy in collaboration with FDDO, Germany

Topics

- End-users contributions
- NIFTi scenarios
- Joint mission at Mirandola (Italy): post-earthquake damage assessment, July 2012
- Possible future deployment of Robots
- Lessons learned and Follow-up
End-users contributions

- First responders experience in HAZMAT and USAR
- Scenario Design in training area facilities
- Assessing Human Factors when using Robots
- Sharing data obtained in NIFTi
- Providing real-life sites and logistics
- A real test in disaster areas after the Emilia Romagna earthquake (Italy, 2012)

NIFTi scenarios

- **Road Tunnel accident**: HAZMAT rescue operations at CNVVF Operational Training School in Montelibretti (Italy)
- **Railway Tunnel accident**: HAZMAT rescue operations at Fire Department, Dortmund (Germany)
- **Earthquake**: USAR rescue operations at the debris camp set up in Prato Fire Station (Italy)
Joint mission at Mirandola (Italy)

- **No longer a simulation, but a real field test**
- **Venues:** the *Church of St. Francesco of Assisi and the Duomo* of Mirandola damaged by the earthquake (about 20 km from the epicenter of Finale Emilia in shock in May 20, 2012)
- **End-users main activities:** logistics, safety, human-robot deployment on the disaster areas, sharing data with National Heritage
Possible future deployments of Robots (1/2)

- Type of scenarios (floods, earthquake, S&R…)
- Type of tasks (emergency, monitoring in HVE, prevention, “change detection”, …)
- Deployment via road/air. Limitations to take into account
- Designing special vehicles and/or special cases where to host the robotic units and sensitive materials;
- Create a board of experts/specialists/IT units ready on-call and to be deployed on a mission.

Possible future deployments of Robots (2/2)

- Flood scenario in Sardinia, November 2013;
- Search and Rescue task;
- Deployment via road/air;
- Other Possible tasks: survey and detection of an area (e.g. a dam), to supervise after posing a temporary embankment the functionality of it;
- Outputs: 3D, 2D maps (indoor/outdoor); to match data with meteo forecasts and better enhance the S&R process;
Lessons learned and Follow-up (1/2)

- Awareness of the possibilities of robot use in disaster response helping the decision making process (e.g., mapping, data sharing, real-time videos)

- Experience with HRI in disaster response at different operational levels (e.g., Advanced Command Post)

- Gained experience with technical and operational issues arising in real conditions (e.g., network, time to set up, interfaces, safety)

- Identification of additional requirements and possibilities on the human-robot-team setup (e.g., arm, manipulation)

Lessons learned and Follow-up (2/2)

...Collaboration and “persistence” continues in EU-FP7 project TRADR:
Long Term Human-Robot Teaming for Robot Assisted Disaster Response

http://tradr-project.eu