



USAR

Urban Search and Rescue
Carnegie Mellon University



A Challenging Real-World Problem

:: Project Goal

To develop a team of autonomous heterogeneous robots that can intelligently coordinate and plan to perform urban search and rescue



:: Team Members

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:: Application Goals

- Explore a structure, map significant features
- Locate victims
- Deliver emergency kits (radio, water, first aid...)
- Transmit a human readable map

Hazardous Task

- Lives saved by removing human rescuers
- Compromised structures, limited access areas
- Robots are ultimately expendable

Time Critical

- Great benefit from quickly locating victims
- Requires careful path planning and strategy

Highly Unstructured/unpredictable

- Requires adaptability, decision-making
- Negotiation = Navigation + Influence

:: Focus of USAR Project at CMU

- RETSINA Multi-Agent Architecture
- Control interface
- Robot design
- 3-D simulation of a disaster area