



The USAR Control Interface

:: Objective

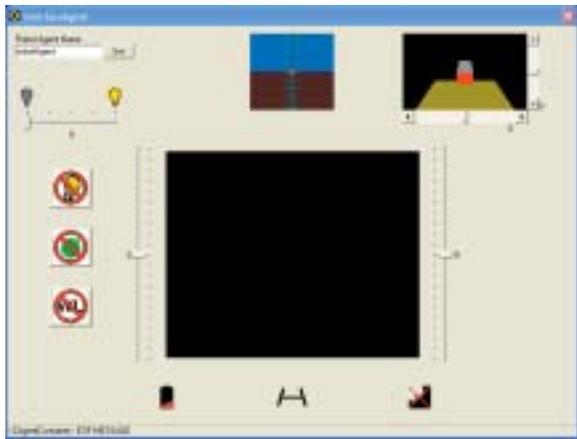
The USAR interface controls both robots and the simulators. The challenge is to help the rescue workers to understand what he is seeing. Think of looking at the world through a straw standing on your head. That's what controlling a robot on a rumble pile is like and that's what the USAR interface tries to make a little easier for fire fighters and rescue workers

:: Characteristics

- Views the human user as an agent
- Translates user desires into KQML messages
- Translates KQML messages into a format intelligible by a human
- Consists of modules for different types of user control device
- The USAR Interface consists of two components: Retsina Agent Interaction and Human Interaction (GUI)
- The Retsina Agent Component allows the same interface used with the simulators to be used with actual robots
- Interface modules allow for rapid prototyping and testing of Human Interaction controls. Examples of Interface modules are the Joy Stick control and Command Grid control

:: Interface Agent

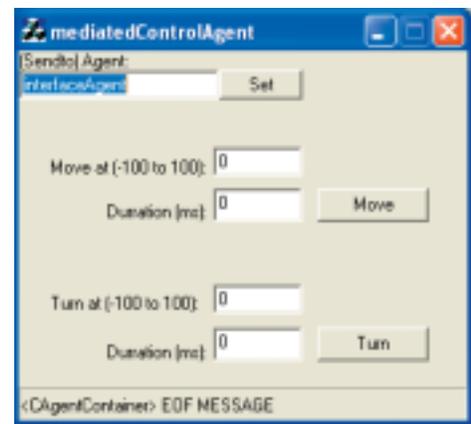
Provide intelligible robot feedback to the human controller



Real-time control UI

:: The Mediated Control UI

user input a move-rate or turn-rate and a duration to move or turn at that rate



Command mediated control UI

:: Design Challenge

The problem most frequently faced by human controllers is disorientation and loss of control caused by losing track of the robot orientation relative to the video orientation.

We attempt to solve this problem by having an attitude indicator and a camera position indicator