

Survivor Buddy: A Social Medium Robot

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ABSTRACT

This video describes the Survivor Buddy social medium robot.

Categories and Subject Descriptors

B.0 [General Hardware]

General Terms

Design, Experimentation, Human Factors,

Keywords

Human robot interaction, rescue robotics

1. Video Summary

This video describes the Survivor Buddy social medium robot. Under funding from Microsoft Research and a National Science Foundation grant, researchers at Texas A&M and Stanford have been investigating human-robot interaction for situations where a human is highly dependent on a robot since 2007. The objective of the on-going project is to explore how trapped victims would use a web-enabled robot to interact with the outside world. One example of a dependent is a trapped victim, such as the Chilean miners, using a multi-media interface on a rescue robot to communicate with the outside world, watch TV, or surf the web while waiting to be extricated. In these situations, the robot is acting as a medium to outside world.

The Computers As Social Actors, or CASA, model of human-robot interaction [1] suggests that since the robot moves, the dependent will respond to the robot as a social actor. The dependent may become distrustful as well as cognitively confused by a robot that sometimes acts like an intelligent being and sometimes like a stationary TV. Therefore, the hypothesis is that the robot must maintain a consistent affective presence and that presence is a social medium, an identity between a social actor and a pure medium.

In order to support the study of this novel identity of a robot as a social medium, the Survivor Buddy robot [2] was designed to be capable of a wide range of affective expressions. It is similar to the AIDA robot head [3] but has greater multi-media functionality and is not constrained to driving assistance. The expressions are programmed via a GUI simple enough to be used by middle school girls.[4]

Survivor Buddy is 42.7 cm high when extended and 27.7cm wide yielding an approximate height/width ratio of 1.618

(Golden Ratio). It has four joints which support a MIMO miniature multi-media LCD device which can acts as a second desktop to the controlling computer. This allows an operator to drag media, windows, etc., to the Survivor Buddy “face” for viewing and listening by the dependent. The four joints are a neck roll of $\pm 50^\circ$ at rotational speeds of up to 290 deg/s, a neck pan of $\pm 90^\circ$ and 480 deg/s, a neck tilt of 80° to 90° and 270 deg/s, and -5° to 90° for the torso tilt at up to 80 deg/s.

While Survivor Buddy is primarily a research tool, it can be used with actual rescue robots. It is lightweight, weighing only 7.8 kg, and self contained so that it can be mounted on different rescue robots or used by itself. The robot is low cost, under \$2,000USD.

Current work is using Survivor Buddy to create a formal, comprehensive communication strategy for HRI that combines verbal and non-verbal affect. This will unify the theory and practice of social robots, and will ultimately improve the quality of life for victims of accidents or disasters as well as “shut-ins.”

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