

Telerobotics Project Proposal

EE 451 Senior Laboratory

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11/2/00

Overview

The telerobotics project is an implementation of web based telepresence. Two users connected anywhere on the internet will be able to control two robots located on the second floor of Jobst Hall. The users will be able to manipulate the two robots via a Java interface. Provisions will be made to play the game “ghost in the graveyard”, in which one robot that is designated as “it” must attempt to catch the second robot and reverse the situation.

Description

An appropriate robotic platform solution will be identified. Two of these robots will then be purchased and outfitted as required. Desired features are on board video and frame grabbing, onboard proximity sensors, and PC/104 bus support. An initial system block diagram showing the functional relationships of these devices is shown in Fig. 1.

Each robot will be capable of supporting the PC/104 bus architecture. This enables the use of Linux, which in turn allows the use of the Apache web server software. Each robot will then be its own web server. A Java application will also be for the users control interface. This allows the user on the remote end to view the current surroundings, send control signals to the robot, and inform the user of the current game status.

A wireless LAN will be implemented using 802.11b standards. The WLAN’s purpose is to provide wireless data transmission for the robots to eliminate hard wiring. A wireless LAN transceiver will be connected to the ethernet and transmit user data to the appropriate robot. Likewise, each robot will have a wireless LAN transceiver will be connected to a PC104 bus using PCMCIA format.

