RoboCupRescue

Robot League Competition

Padua, Italy

July 4-11, 2003

PARTICIPANT INFORMATION SHEET

TEAM NAME: Scarabs RoboCup Team	ORGANIZATION: Private
CONTACT NAME: Michael Randall	COUNTRY: United States of America
TOTAL NUMBER OF TEAM PERSONNEL: 11	EMAIL: mr_mr@earthlink.net
ROBOT NAMES: George	TELEPHONE: 310-459-0117
WIRELESS FREQUENCIES (PER ROBOT): n/a (controlled via cable)	FAX NUMBER: n/a

X PRE-REGISTERED ☐ REGISTERED ☐ ARRIVED ON SITE ☐ COMPETITION READY

PLEASE DISCUSS YOUR APPROACH TOWARD KEY DESIGN CHARACTERISTICS (WITH EMBEDDED PICTURES):

Locomotion: Tracked design. 50 mm wide automotive timing belts used as treads. Invertible design. Dual arms on front end of robot: lift it over obstacles, stabilize it on stairs, and (with attached omnidirectional wheels), lift most of the tread off the floor for more efficient driving /steering on flat surfaces. Robot is designed to climb a 45 deg. slope at a rate of 6 m / minute. Power will be supplied via a 45 m cable, allowing continuous operation.

Sensors for navigation: Axis 2120 network camera, providing 30 f.p.s. compressed JPEG images. Two-axis solid-state gyro, and 3-axis accelerometers used for inertial guidance. Vision software to provide supplementary position information.

Sensors for victim identification: Vision: video images evaluated by operator. Current chassis includes provisions for the addition of audio, infrared imaging, and other sensors. Digital video recording can also be accommodated.

Sensors for localization: Visual. Current chassis includes provisions for the addition of multiple cameras, infrared distance, ultrasonic distance, and other sensors.

Control scheme: Teleoperation. Current chassis includes provisions for the addition of an onboard PC capable of vision / sensor processing. With additional software, this will provide the possibility of semiautonomous / autonomous operation.

A single operator will control the robot via a laptop PC interface. Control of all functions will be with a single joystick.. The on-screen display provides live high-quality video, robot position, and status.

Communications: 100BaseT Ethernet, via a 45 m cable.

Map generation/printing: The laptop computer automatically generates a map of the robot's position, based on inertial sensors and video data. The operator can, via the keyboard, mark the location of victims, obstacles, etc. on the map. The map can be viewed onscreen, or output to a printer (if available).