Infrastructure Contribution Plan

SPQR-UPM Rescue Virtual Team

February 15, 2010

SPQR-UPM Rescue Virtual Team has always supported the RoboCup community over the past years, developing several components for the old UT2004-based USARSim simulator. This document introduces our contributions to the new UT3-based USARSim simulator for the RoboCup 2010 Virtual Robots championship.

1 PowerCube Wrist 070

Community Points: 10
Status: in progress
Schedule: March 31st 2010
The PowerCube is a servo pan/tilt unit manufactured by Schunk (formerly Amtec), which can be used with a PowerCube arm, or with a SICK laser, allowing for 3D mapping (see Figure 1).

Figure 1: The PowerCube Wrist 070.

2 ATRV3D Robot

Community Points: 10
Status: in progress
Schedule: May 15th 2010
An ATRV3D robot is an ATRV model with a 3D sensor device installed on its top (see Figure 2). The reason for such a robot model is due to the need for enhanced 3D mapping, performed while the robot is moving. This requires the use of two SICK lasers, which cannot be installed on the top of P3AT robots without altering their dynamics. Using a robust platform, such as the ATRV

robot, one SICK is fixed for 2D mapping, while the other can be moved via a pan/tilt unit to acquire 3D point clouds.

Figure 2: The simulated ATRV3D robot model.