

RoboLog Koblenz 2002 – Visualization Description

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Background. The RoboLog Koblenz team has participated in the RoboCup simulator competitions since 1999. Currently, the whole team consists of 10 people (see also our web page www.robolog.org). This year for the first time, we participate also in the presentation competition with a 3D visualization of simulation league games. The idea to start with a visualization arose during a practical, where students had to develop parts of a computer game with indoor and outdoor areas.

The Visualization. Our visualization has been developed under MS Windows using C++, and performance critical parts have been coded in assembler. Libraries we use are DevIL, Glu and OpenGL.

The main idea was to create a monitor where games are pleasant to be watched with, rather than trying to simulate humans playing soccer. On the other hand the monitor should be useful for debugging purposes and analysis of soccer games. Because of this, most if not all information available from the Soccer Server should be displayed on the screen. The network interface to our monitor is based on the 2D Soccer Monitors coming with the Soccer Server [1].

Camera Control. The location and movement of the camera can be controlled interactively, so that it is possible to have a look at areas which are of minor interest during regular games but important during the development. Additionally, the camera can be controlled automatically. The main focus of research for this part of the visualization was to simulate a camera control similar to that of real soccer games.

Graphical Effects. We are using multi-texturing for more realistic surfaces of objects, that is detail and bump mapping. For light and shadow effects we are using light maps.

Additionally, we created a particle system for animated effects during a simulation, which is used for visual effects emphasizing motion of objects.

Future Work. For later work, we want our visualization to provide more statistical information, which might be of interest for both spectators and developers. Additionally, we want our visualization to be used for a 3D soccer server.

References.

1. E. Foroughi, F. Heintz, S. Kapetanakis, K. Kostiadis, J. Kummeneje, I. Noda, O. Obst, P. Riley, T. Steffens, and U. Group. *RoboCup Soccer Server User Manual (for Soccer Server Version 7.06 and later)*, 2001.