

# An Intuitive 3D Monitor System with Automatic Commentary for RoboCup 2002 <sup>1</sup>

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## Introduction

This project is to demonstrate the RoboCup simulation games in a new way. The fully 3D playfield gives you visual effects like the real soccer games to some extent. And the automatic commentary system will make voice comments and sound effects when some actions happen. The audience of RoboCup simulation games can see and hear every thing happened in the server.

### The system has following new features:

- A completely new look.

Mainly on a new playfield with lighting effect and a new animation based character system with action support. We used a simple playfield last year. This year we'll make the playfield rich. And we're still searching for originality. Things are better in our character system. Upon last year's work, we've done a new one. It's time and action based, even makes it easy to let the players dance, laugh and other interesting things you can imagine, while the actions keep smooth. (Coded with Delphi and OpenGL 1.2.)

- Situation analysis improved.

The goal is to provide rich, valuable and accurate information about the on-going match. The information is reported immediately. After last year's practice, there will be a significant improvement on the information it can analyze out and on accuracy. We tried to copy the style of real soccer report last year, but found it not a good idea, because RoboCup had its own style. So this time we try to present the RoboCup style. (Coded with Visual C++.)

- Synchronized sound effect and voice.

A fledged sound system will replace last year's simple one. We plan to use a special kind of positionable sound tech commonly used in movies. It's between traditional two-channel sound and the vogue 3D sound. It gives more control over the 3D sound for some situations. And it also removes the requirement of DirectX. The result of situation analysis is reported through voice. The requirement of Speech API is also removed. Instead, recorded voice is used and composed, result in better tone for soccer game. (Coded with Delphi and SDL.)

- Usability improved.

Automation to simplify manual operation, more functions and smaller CPU cost.

### Our future work includes:

- Design more complex player models, actions, and playfield models, while not increasing the CPU cost very much.
- Give the ball a **Z** coordinate **greater than zero** so it can fly off the ground.

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