

The RoboCup Soccer Simulator

Short presentation

At the University of the Basque Country - Computer Science Faculty - TAIA (German Rigau)



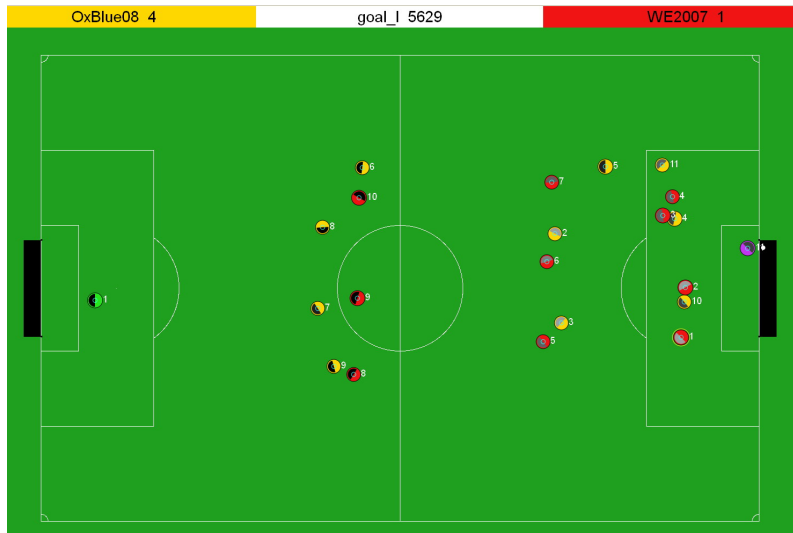
Description

The RoboCup Soccer Simulator is a research and educational tool for multi-agent systems and artificial intelligence. It enables for two teams of 11 simulated autonomous robotic players to play soccer (football).

Two versions:

- RoboCup 2D Soccer Simulation
- RoboCup 3D Soccer Simulation

2D version



3D version



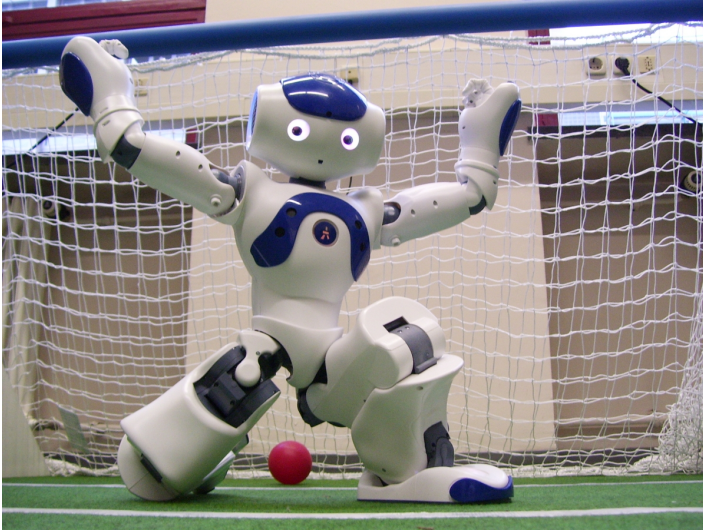
2D Soccer Simulator

- First version of the server finished 1995
- Most soccer rules are implemented
- Teams using advanced strategies and teamwork
- Focused on artificial intelligence

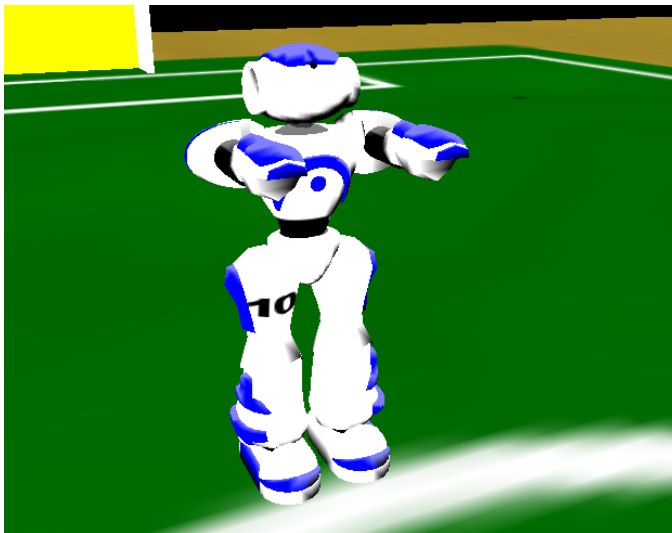
3D Soccer Simulator

- First version of the server released end of 2003
- Simulating real robots
- Current robot model based on Nao robot
- More focused on robotics than AI
- Basic problems of stability

Nao robot



His rendered brother



Three main components:

- Soccerserver
- Soccermonitor
- Agents/Clients

The server

- Receives commands from the clients
- Simulates movements of players and ball
- Sends (noisy) sensor information to the clients
- Controls the game according to rules

The clients

- Communicate via UDP/IP
- Can be implemented in any language on any platform
- Each client controls only one player
- Communication between clients is restricted
- Receive (noisy) sensor information from the server
- Send commands to the server

The monitor

- Is not necessary for a game, but you won't see it without
- Allows a human referee to execute some commands

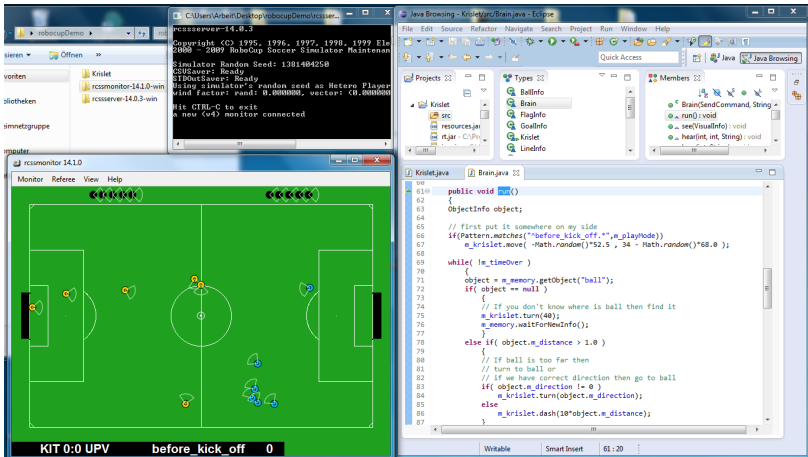
General experience

- Server and monitor can be found at sourcefourge
- For windows there exist working executables
- On another page I found a working client example

The client

- Written in Java
- Could be started in and outside of Eclipse
- Very simple behavior
- Some hundred lines of code

Personal experience



Short summary

- Research and educational tool
- Easy to understand
- Complex to master
- Client/Server architecture
- Heterogenous agents with restricted communication
- Possible to try out different AI technics