Drop-In Player Challenge for the RoboCup 2013 3D Simulation League Competition

The main point of this challenge is for teams to develop 'drop-in' players that can be good teammates and play well with a team composed of drop-in players from a variety of teams. This is also known as an ad hoc teams challenge.

Each participating team will contribute at least one, and most likely two, drop-in field players to a game. Each drop-in player will compete in full 10 minute games (two 5 minute halves) with both teammates and opponents consisting of randomly chosen other drop-in field players. Each team will also be assigned a common goalie agent (a modified version of the goalie from the winner of last year's RoboCup competition UT Austin Villa). The exact number of games played by each drop-in player will depend on the number of teams that participate in the challenge, but all drop-in players will play at least one game against every other drop-in player in the challenge. If there are 25 teams participating in the challenge this can be done in as few as 20 games. If there are fewer than 10 teams participating then either default common canonical players (a version of last year's RoboCup champion UT Austin Villa running at half speed), or additional randomly sampled agents from the same team, will be added to a team to bring the total number of players to 22.

Each drop-in player may communicate with its teammates using a simple protocol. However, drop-in players are not required to utilize this protocol — the use of the protocol is purely optional. Both goalies, and canonical players if added, will support this communication protocol. The protocol will communicate the following information in an encrypted format:

- player's team

- player's uniform number

- player's current (x,y) position on the field

- (x,y) position of the ball

- time ball was last seen

- if player is currently fallen over

In order to account for server communication restrictions the protocol only allows for one teammate to communicate at a time every other simulation cycle. This is accomplished by giving each agent a rotating time slice to communicate information based

on the uniform number of an agent. A C++ implementation of the protocol, as well as the goalie/canonical agent supporting the protocol, can be found at
`http://www.cs.utexas.edu/~AustinVilla/sim/3dsimulation/2013_dropin_challenge/`.

All normal game rules apply in this challenge. Each player will be randomly assigned a uniform number from 2-11 at the start of a game. In order for an agent to participate it must allow for the following arguments to its start script to start a single agent:

- -t TEAM_NAME : the name of the team that the agent will be playing on

- -u UNIFORM_NUMBER : the uniform number of the agent

- -k 64BIT_NUMBER : encryption key for optional communication protocol

A sample start script can be found at the same location as the communication protocol and goalie/canonical agent.

The challenge will be scored by the average goal difference received by an agent across all games that an agent plays in.

After the tournament all teams participating in the challenge will be asked to release their drop-in player binaries and start scripts.