

Running Player Challenge

Our league has committed itself to be the first league that has running robots. To achieve this, we perform a challenge of single robots trying to run forward.

Requirements for Participation

Teams that want to participate have to provide the following

- a start script with name “startPlayerRunning.sh” that starts a single player of the team which runs forward as fast as it can. The script has to accept the server ip and a port to connect to example: startPlayerRunning.sh 127.0.0.1 3110
- no beams permitted (commands including a beam will be entirely ignored by the server)
- the walk has to be 'human like' (no strange crawling or saltos or similar, judged by human)

As this is a pretty low minimum requirement I hope that all or most teams will participate.

Evaluation

The score of the team is evaluated as the sum of

- the speed (in m/s)
- the relative amount of time both legs are off the ground.

The speed is measured in a 10 seconds run. The time starts when the player crosses the start line or 4 seconds after the player was beamed (by the automated referee) to its start position (-13.5, 0) which is 0.5 m behind the start line (which ever happens first). The speed is then the distance in only x-direction divided by the time to give m/s. If a player falls, this try stops and 2 meters are subtracted as a penalty from the player's current position (but at least 0 m overall distance). The time accounted in such a case will be the full 10 seconds. A player is decided to be fallen if the z part of the up vector is less than 0.6 or the z coordinate of the torso center is below 0.25.

The relative amount of time both legs are off the ground is determined by counting the cycles in which all (both) force sensors have a length of the force less than 0.01 divided by the number of available cycles (within the 10 seconds run).

Both measures are averaged out in 20* trials for each participating team. The final sum is rounded to 3 digits. Equal scores will result in the same place.

* the exact number may be changed when the amount of time available for the competition is finalized.

We will use a tool to measure the performance of all participating teams which is available at

<http://www.et-it.fh-offenburg.de/prof/kdorer/robocup/magmaOffenburg/html/downloads.htm>

together with a description of the tool.

Model changes

All robot models provided for the competition may be used in the run challenge.

Teams participating may optionally provide a changed robot model. The model has to be derived from the standard nao model and may contain the following changes:

- 3 additional hinge joints (with same limitations as current hinge joints) and at most 90 degrees working angle.
- change of the location (anchor) of existing leg hinge joints (but not rotation axis), e.g. to move the knee higher or lower.

The following has to remain unchanged:

- weight of the robot and its body parts. If a body part is split into two by a new hinge joint, the mass has to be split to the two parts in proportion to the size. If the feet are split (to have toes), all parts of each foot have to have a force resistance perceptor with name lfxxx or rfxxx for left or right foot parts respectively and xxx a number. The surrounding rectangle of the foot may not be increased.
- No new body parts are allowed except for splitting up existing ones by a new hinge joint.
- length of the legs, arms and torso
- maximum size of the feet (feet may only shrink)
- anything not explicitly mentioned to be allowed to change