
HUMANOID ROBOT RACING 2012 RULES

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1. INTRODUCTION

Humanoid robots attract interest from public and researchers around the world. However, coordination and fluidity of movement, while keeping balance to accomplish a given task, is still an open challenge for the humanoids.

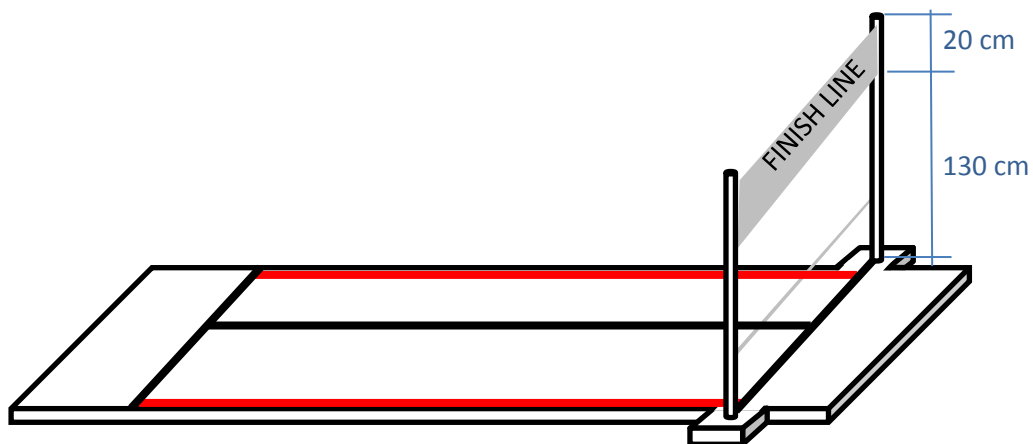
In 2012, the IEEE RAS Latin American Robotic Council introduces a new robot competition category, with the purpose to develop humanoid robot coordination. The competition is called Humanoid Robot Racing – IEEE HRR.

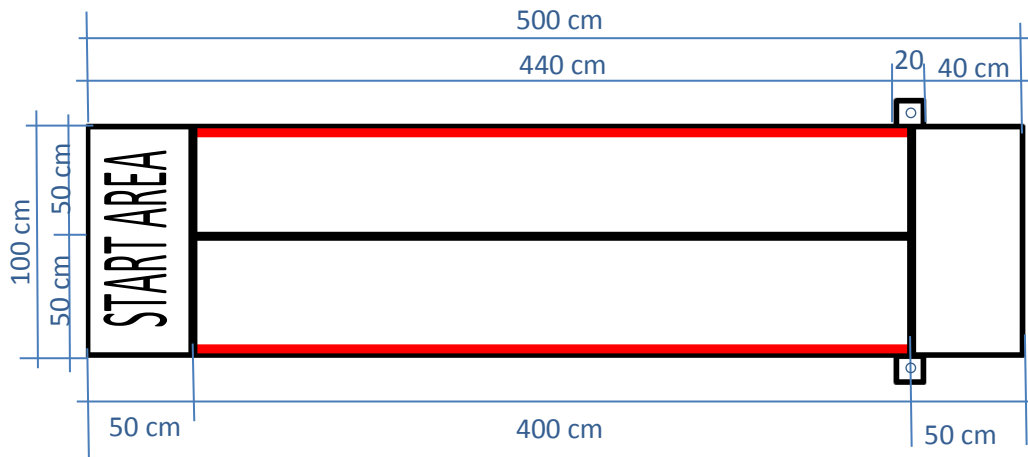
RULES OF THE IEEE HRR 2012

2. THE ARENA

The IEEE HRR competition takes place in a rectangular arena of 5.0 x 1.0 meters, as sketched in Figure 1. The floor of the arena must be made of MDF, or equivalent material, with 15mm thickness and painted of matte white color. It must be seated on a flat, plain and even surface. Adjusting shims may be used, if necessary.

The arena must be marked with black and red stripes of 6 cm width (3M® insulating tape, 19mm thickness), and contain a 20 cm wide finishing line positioned at 130 cm height. Details of the placement are depicted on the drawing in Figure 1.





3. THE ROBOTS

There are two racing categories, based on the height of the competing robots:

- CHILD SIZE – robots up to 60 cm height.
- TEENAGER SIZE – robots between 60 and 120 cm height.

Robots must have humanoid-like body plan. They must consist of two legs, two arms, and one head, attached to a torso. The robot must be able to stand upright on its feet and to walk on its legs. The only allowed modes of locomotion are bipedal walking and running. They should not have any communication with external devices.

4. THE RACE

The race happens with a single robot in the arena at a time, and the time available for the robot to complete the course is limited to 5 minutes. The robot must start the race positioned entirely within the START AREA, behind the black line. The referee will notify the team to start the robot. Clock ticking starts when the robot moves.

If the robot does not move after three (3) referee start notifications, the race is terminated with no movement.

A robot completes the race when, and only when, part of it, however small, touches the FINISH LINE. The robot is not required to finish the race on the upright position. It is allowed to jump. If the robot falls, it must return to stand position by itself. During the entirety of the course, if any team member touches the robot, whether it is standing or fallen on the ground, the robot must be repositioned within the START AREA, without interruption of the clock.

The winner of the race will be the robot that completed the course in the shortest time. If no robot completes the course on its turn, the winner shall be the robot that reached the farthest position from the START LINE. If the team decides to stop the race prematurely, the position where the robot stopped will be considered as its traveled distance and the time elapsed will be considered 5 minutes.

Each robot has 3 chances to race, with at least 30 minutes interval in between trials. The best result of the robot will be considered for classification purposes.

5. PARTICIPATION REQUIREMENTS OF THE HRR COMPETITION

To participate of the Latin American Robotics Competition LARC 2012 IEEE HRR category, teams must be composed of undergraduate students of any educational institution of any country. To register, teams must submit a document describing the development and operation of the robot (TDP), in IEEE format. This TDP will be used by the winner teams to make a brief presentation to the other competitors. Please verify the deadlines on the event's website.

6. EXTRAORDINARY SITUATIONS DURING THE COMPETITION

Any situation not covered under the above mentioned rules, or disputes about score, will be ruled by the referees and organizers of the competition.

7. THE JURI

The JURI will be composed of three members. One of the organizing chairs, one assistant of the event organization and one member chosen among the teams not competing on that particular match, chosen before it starts.

