RobotChallenge - Humanoid Sprint Rules

Note: All rules subject to change without notice.
Short Description: Human-like robots have to complete a course by walking or running as fast as possible.
Changelog
20.12.2012
- Modified size of the arena
- Clarified scoring, when robot stops walking according to the requirements after the start

04.01.2011
- Frist publishing

25.03.2019
- Add the Humanoid Sprint Obstacle event
- Add notices in the Humanoid Sprint Classic

Name of Event: Humanoid Sprint Classic

1. Requirements for Robots

A. The robot must be a two legged walking humanoid biped that must shift its center of gravity to maintain its balance when walking.
B. When walking, one foot must lift off the floor, while the other foot is balancing the robot.
C. When walking, the foot that balances the robot must have a knee-joint angle greater than 90 degrees. At any point if this is not the case, the robot will not be considered walking.
D. The feet can be of any shape and form as long as all of the following are maintained:
a. The robot’s foot is defined as the part of the robot that is contacting the surface of the arena (ground).
b. The maximum length (size) of the foot must be less than 50% of the length of the extended robot’s leg. The leg length is defined as the distance between where the robots foot touches the ground and the axis that connects the leg to the upper body of the robot.
c. The maximum length of the foot must be less than 20 cm.
E. When robot is standing or walking, a rectangular outline around the left and right feet shall not overlap.
F. The robot must have 2 arms. Each arm extended length shall not exceed the extended leg length.
G. The robot must have a head.

2. Requirements for the Arena

2.1. Field Dimensions

The track has a width of at least 70 cm and is of any color. It is framed with a board of at least 8 cm height of any colour. The distance between start and the finish line is 200 cm.
The start and finish lines are black and have a width of 15 mm.

3. Game

3.1. Aim of the Game

The robots compete one after each other. Each robot must walk forward from the start line to the finish line as fast as possible.

3.2. Course Time

Time is measured from the start signal until the time the robot crosses the finish line. A robot is deemed to have crossed the line when the forward most part of the robot contacts or crosses over the line.

3.3. Time Limit

A maximum of 3 minutes is allowed for a robot to complete the course. A robot that cannot complete the course in the allotted time shall be taken out. The successfully managed distance shall be noticed for scoring.

3.4. Timekeeping

Time shall be measured by an electronic gate system or by a judge with a stopwatch, based on the availability of equipment. In either case the recorded time shall be final.

3.5. Autonomous Control

Once a robot has crossed the starting line it must remain fully autonomous, or it will be disqualified.

3.6. Slipdown

A slipdown occurs when a robot falls down. If the robot fails to get up within a 10 second countdown, the robot shall be taken out. The successfully managed distance shall be noticed for scoring.

3.7. Scoring

The fastest robot completing the course wins. If no robot manages to complete the course, the robot, which covered the longest distance, wins. Only the part where the robot walks as described in the requirements (1.A – 1.C) will be counted.

3.8. Notices

A Launch of the robot should be kept away from the starting line at certain distance to avoid the launch should touch the timer.
B When the robot is walking, the feet to keep the robot in balance should have be maintained at a knee bending angle of 90°.
C When the robot is walking, its hands should not touch the ground for support.
D When the robot is walking, the huge profile of the left and right feet should not be overlapped. In other words, the robot should walk forward. Side sliding is not allowed.
E The robot should be automatic. Remote control is not allowed.
F If the robot falls down before reaching the destination, the teammates are

allowed to place the robot back to the starting point and keep moving on. The judge will put down the position where the robot falls. The timing of the whole journey will not be stopped.
G The team mates should not artificially interfere the working of the timer at the finishing point.

4. Declaring Objections

4.1. Declaring Objections

A. No objections shall be declared against the judges' decisions.
B. The lead person of a team can present objections to the Committee, before the match is over, if there are any doubts in the exercising of these rules. If there are no Committee members present, the objection can be presented to the judge before the match is over.

5. Flexibility of Rules

As long as the concept and fundamentals of the rules are observed, these rules shall be flexible enough to encompass the changes in the number of players and of the contents of matches. Modifications or abolition of the rules can be made by the local event organizers as long as they are published prior to the event, and are consistently maintained throughout the event.

6. Liability

C. Participating teams are always responsible for the safety of their robots and are liable for any accidents caused by their team members or their robots.
D. The RobotChallenge organization and the organizing team members will never be held responsible nor liable for any incidents and / or accidents caused by participating teams or their equipment.

Name of Event: Humanoid Sprint Obstacle

1. Requirements for Robots

A. The robot must be a two legged walking humanoid biped that must shift its center of gravity to maintain its balance when walking.
B. When walking, one foot must lift off the floor, while the other foot is balancing the robot.
C. When walking, the foot that balances the robot must have a knee-joint angle greater than 90 degrees. At any point if this is not the case, the robot will not be considered walking.
D. The feet can be of any shape and form as long as all of the following are maintained:
a. The robot’s foot is defined as the part of the robot that is contacting the surface of the arena (ground).
b. The maximum length (size) of the foot must be less than 50% of the length

of the extended robot’s leg. The leg length is defined as the distance between where the robots foot touches the ground and the axis that connects the leg to the upper body of the robot.
c. The maximum length of the foot must be less than 20 cm.
E. When robot is standing or walking, a rectangular outline around the left and right feet shall not overlap.
F. The robot must have 2 arms. Each arm extended length shall not exceed the extended leg length.
G. The robot must have a head.

2. Requirements for the Arena

2.1. Field Dimensions

A The track has a width of at least 70 cm and is of any color. It is framed with a board of at least 8 cm height of any colour. The distance between start and the finish line is 200 cm.
B The start(Fixed starting position) and finish lines are black and have a width of 15 mm.
C There are 3-5 groups of unknown obstacles in the site. The distance between obstacles is 30-40 cm, the height of obstacles is 40 cm-60 cm, and the width and length of obstacles are unknown. The track layout will be separated by obstacles to a 40 cm wide channel, and the robot will automatically find the channel to walk through.

3. Game

3.1. Aim of the Game

The robots compete one after each other. Each robot must walk forward from the start line to the finish line as fast as possible.

3.2. Course Time

Time is measured from the start signal until the time the robot crosses the finish line. A robot is deemed to have crossed the line when the forward most part of the robot contacts or crosses over the line.

3.3. Time Limit

A maximum of 3 minutes is allowed for a robot to complete the course. A robot that cannot complete the course in the allotted time shall be taken out. The successfully managed distance shall be noticed for scoring.

3.4. Timekeeping

Time shall be measured by an electronic gate system or by a judge with a stopwatch, based on the availability of equipment. In either case the recorded time shall be final.

3.5. Autonomous Control

Once a robot has crossed the starting line it must remain fully autonomous, or it will be disqualified.

3.6. Slipdown

A slipdown occurs when a robot falls down. If the robot fails to get up within a

10 second countdown, the robot shall be taken out. The successfully managed distance shall be noticed for scoring.

3.7. Scoring

The fastest robot completing the course wins. If no robot manages to complete the course, the robot, which covered the longest distance, wins. Only the part where the robot walks as described in the requirements (1.A – 1.C) will be counted.

3.8. Notices

A Launch of the robot should be kept away from the starting line at certain distance to avoid the launch should touch the timer.
B When the robot is walking, the feet to keep the robot in balance should have be maintained at a knee bending angle of 90°.
C When the robot is walking, its hands should not touch the ground for support.
D When the robot is walking, the huge profile of the left and right feet should not be overlapped. In other words, the robot should walk forward. Side sliding is not allowed.
E The robot should be automatic. Remote control is not allowed.
F If the robot falls down before reaching the destination, the teammates are allowed to place the robot back to the starting point and keep moving on. The judge will put down the position where the robot falls. The timing of the whole journey will not be stopped.
G The team mates should not artificially interfere the working of the timer at the finishing point.
H Robots need to bypass obstacles and allow them to touch obstacles, but they must not knock down or over the obstacles violently. Similarly, they must not over the edge of the track.

4. Declaring Objections

4.1. Declaring Objections

A. No objections shall be declared against the judges' decisions.
B. The lead person of a team can present objections to the Committee, before the match is over, if there are any doubts in the exercising of these rules. If there are no Committee members present, the objection can be presented to the judge before the match is over.

5. Flexibility of Rules

As long as the concept and fundamentals of the rules are observed, these rules shall be flexible enough to encompass the changes in the number of players and of the contents of matches. Modifications or abolition of the rules can be made by the local event organizers as long as they are published prior to the event, and are consistently maintained throughout the event.

6. Liability

C. Participating teams are always responsible for the safety of their robots and are liable for any accidents caused by their team members or their robots.

D. The RobotChallenge organization and the organizing team members will never be held responsible nor liable for any incidents and / or accidents caused by participating teams or their equipment.