



RobotChallenge – Humanoid Sprint Rules

Revised on September 15, 2025

Introduction: Humanoid robots must walk or run from the start line to the finish line without falling over, completing the distance in the shortest possible time.

group:

A. Adult

1 Robot Requirements

1.1 Robot Specifications

- A. The robot must be a bipedal humanoid robot that walks on two legs and must shift its center of gravity while walking to maintain balance.
- B. While walking, one foot must be lifted off the ground, and the other leg must be used to maintain the robot's balance.
- C. While walking, the foot maintaining the robot's balance must have a knee joint bend angle greater than 90 degrees. If this rule is violated at any moment, the robot is not considered to be walking.
- D. The feet can be of any shape, provided they meet all the following criteria:
 - a. The robot's foot is defined as the part of the robot that contacts the field.
 - b. The maximum length of the foot must be less than 50% of the robot's extended leg length. Leg length is defined as the distance from the foot contacting the ground to the axis connecting the leg and the upper body.
 - c. The maximum length of the foot must be less than 20cm.
- E. When the robot is standing or walking, the rectangular outlines of the left and right feet must not overlap.
- F. The robot must have two arms. The extended length of each arm must not exceed the extended leg length.
- G. The robot must have a head.

1.2 Robot Equipment Requirements

- A. Any robot equipment is permitted.
- B. The robot must be autonomous; remote control is not allowed.

2 Competition Field

- A. The track must be at least 70cm wide.
- B. The track must be surrounded by barriers of any color, at least 8cm high. The distance from the start line to the finish line is 200cm. The start and finish lines are 15mm wide.



RobotChallenge – Humanoid Sprint Rules

3 Competition Rules

3.1 Competition Time

- A. The timer starts when the robot crosses the start line and stops when it crosses the finish line. The robot with the shortest time wins.
- B. Each robot has a maximum of 3 minutes to complete the race. If the time limit is reached and the robot has not finished, the farthest distance traveled will be recorded, and the time will be recorded as 03:00:01.

3.2 Autonomous Control

After starting, the robot must remain fully autonomous; otherwise, it will be disqualified.

3.3 Important Notes

- A. If the robot falls, it is considered a slip/fall. If a fallen robot cannot stand up and continue within a 10-second countdown, the team member may pick up the robot and place it back at the start line to restart the attempt. The point where the robot fell will be recorded by the referee.
- B. This action can be repeated within the 3-minute time limit. If the robot cannot reach the finish line within 3 minutes, the recorded farthest distance will be taken as the robot's result.
- C. When starting the robot, it must be placed at a distance from the start line to avoid immediately triggering the timer upon activation.
- D. While walking, the foot maintaining the robot's balance must have a knee joint bend angle greater than 90 degrees.
- E. While walking, the robot is not allowed to use its hands to touch the ground for support.
- F. While walking, the outlines of the left and right feet must not overlap. The robot must walk forward facing forward; side-shuffling or sliding steps are not allowed.
- G. The robot must be autonomous; remote control is not allowed.
- H. If the robot does not reach the finish line and falls, the team member is allowed to pick up the robot and place it back at the start line to try again. The referee will record the point where the robot fell. The overall timer continues running.
- I. Team members must not manually interfere with the finish line timer.

3.4 Competition Ranking

- A. The winner is primarily determined by the robot with the shortest time to complete the course within 3 minutes.
- B. For robots that do not complete the course within 3 minutes, ranking will be based on the farthest distance traveled.



RobotChallenge – Humanoid Sprint Rules

4 Objections

4.1 Raising Objections

- A. No objection to the referee's decision.
- B. If there is any lack of understanding regarding the application of the rules, the team captain may raise an inquiry with the referee.

5 Flexibility of Rules

These rules should be flexible enough to adapt to changes in the number of participants and the content of the competition, provided the concepts and foundations of these rules are respected.

6 Liability

- A. Participating teams are always responsible for the safety of their robots and for any accidents caused by their team members or robots.
- B. The RobotChallenge organizing committee and its personnel shall not be held liable for any accidents caused by any participating team or their equipment.