ROBO SOCCER RULEBOOK

Event guidelines and specifications

Introduction

Robo Soccer is a thrilling robotics competition where teams design, build, and program autonomous or manually controlled robots to play soccer on a predefined field. The objective is simple score the maximum goals within the given time!

Event Overview

Robo-Soccer is a technical event designed to test participant's proficiency in robotics design, control, and strategic execution. In this competition, teams are required to design and build manually controlled robots capable of playing a soccer match on a predefined arena.

The primary objective of each team is to score goals against the opponent while preventing the opposing team from scoring, within the allotted match duration. The event evaluates the teams on parameters such as robot design, control mechanism, programming efficiency, and overall gameplay strategy.

Robo-Soccer aims to promote innovation, teamwork, and problem-solving skills among participants. It provides a platform for students to apply their theoretical knowledge of electronics, mechanics, and programming to a practical and competitive environment. The team demonstrating the best technical performance, coordination, and fair play will be declared the winner.

Team Composition

Team Size:

1. Each team must consist of a minimum of 2 and a maximum of 5 members.
2. There must be 1 female member in each team.

Roles:

1. Teams should designate a team captain, a lead programmer, and a lead builder.

Collaboration:

1. Effective teamwork and communication are crucial for success.

Responsibilities:

1. Team members are responsible for robot design, construction, programming, and match strategy.

Mentorship:

1. Teams may seek guidance from mentors, but the core work must be done by the team members.

Fair Play:

1. All teams are expected to adhere to the principles of fair play and sportsmanship.

Robot Specifications

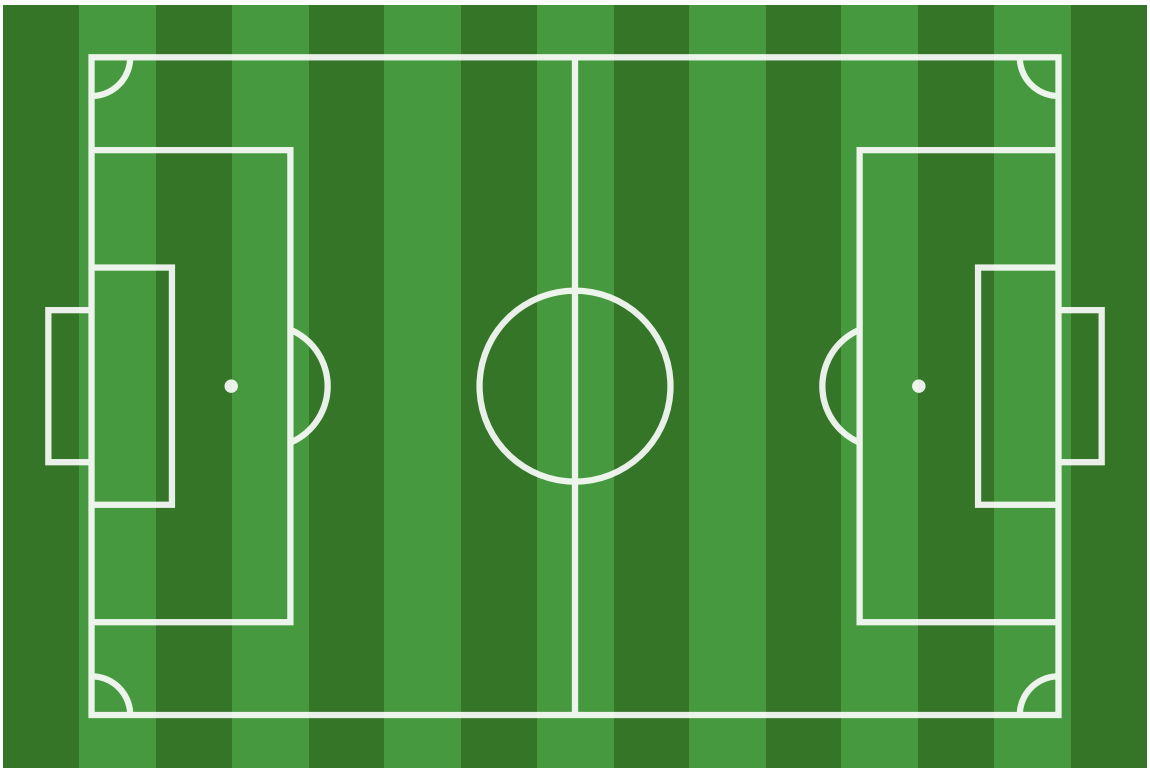
All robots must adhere to the following specifications to ensure fair competition:

1. **Size:** Robots must fit within a 35cm × 25cm × 15cm (L×W×H) cube at the start of each match.
2. **Weight:** Maximum weight is 2 kg.
3. **Power:** Robots must be powered by batteries. Maximum voltage is 24 V DC.
4. **Materials:** Robots may be constructed from any materials, provided they do not pose a safety hazard (like there should not be any sharp edges which may harm another team’s robot).
5. **Control:** Robots must be controlled remotely. Autonomous functionality is permitted but not required.
6. **Compliance:** All robots must pass a technical inspection before the competition.

Arena Details

The Robo Soccer arena will be a rectangular field with the following dimensions:

Size: Arena Dimensions: 210 cm × 150 cm (±10% tolerance).



1. **Surface:** Smooth, flat surface (e.g., plywood or plastic).
2. **Goals:** Goals will be located at each end of the field, measuring 45cm wide x 30cm high.
3. **Markings:** The field will be marked with lines indicating the center line and goal areas.
4. **Environment:** The arena will be outdoors, with no wet conditions.

Game Overview

The following rules govern the gameplay of Robo Soccer:

1. **Match Duration:** Each match will consist of two 5-minute halves with a 1-minute break.
2. **Start of Play:** Matches begin with both robots positioned in their respective halves of the field.
3. **Objective:** The objective is to score goals by maneuvering the ball into the opposing team's goal.
4. **Ball Handling:** Robots may use any means to control and manipulate the ball.
5. **Robot Interaction:** Robots may interact with each other, but intentional damage is prohibited.
6. **Penalties:** Penalties will be awarded for rule violations, resulting in a free kick for the opposing team.
7. **Restarting Play:** After a goal, play will restart from the center line.
8. **Rounds:** Rounds will be based on **“Double-Elimination method”**.

Scoring System

The scoring system for Robo Soccer is straightforward:

1. **Goal:** Each goal scored is worth 1 point.
2. **Winner:** The team with the most points at the end of the match wins.

3. **Tiebreaker:** In the event of a tie, a 3-minute **sudden death overtime** will be played. If the score remains tied, a **penalty shootout** will determine the winner.

Safety and Conduct

Safety is our top priority. All participants must adhere to the following safety guidelines:

1. **Robot Handling:** Exercise caution when handling robots, especially during operation.
2. **Emergency Stop:** Be familiar with the emergency stop mechanism for your robot.
3. **Respect:** Treat all participants, judges, and volunteers with respect.
4. **Unsafe Behavior:** Any unsafe behavior will result in immediate disqualification.

Disqualification Criteria

Teams may be disqualified for the following reasons:

1. **Rule Violations:** Repeated or flagrant violations of the game rules.
2. **Unsafe Robot:** Robots that pose a safety hazard to participants or the arena.
3. **Unsportsmanlike Conduct:** Any behavior deemed unsportsmanlike or disrespectful.
4. **Non-Compliance:** Failure to comply with the instructions of judges or event organizers.
5. **Robot Exceeding Specifications:** Robots that do not meet the specified size, weight, or power limits.
6. **Breakdown of Robot during match:** If a team's robot breaks down or becomes non-functional during the match due to a technical failure, the team will be given a short duration to fix the issue. If the robot is repaired within the allotted time, the match will resume from the point where it stopped. However, if the issue cannot be resolved within the given time, the team will be disqualified, and the opponent will be declared the winner.

Judging and Evaluation

The judging and evaluation process will consider the following factors:

1. **Gameplay Performance:** Scoring goals, strategic play, and overall match performance.
2. **Robot Design:** Innovation, functionality, and build quality.
3. **Technical Skills:** Programming, electronics, and mechanical design.
4. **Teamwork:** Collaboration, communication, and problem-solving.
5. **Sportsmanship:** Respect, fair play, and positive attitude.

Prizes and Recognition

Winning teams will receive prizes and recognition for their achievements:

1. **Champion:** The winning team will be crowned Robo Soccer champion and receive a certificate and cash prize.
2. **Runner-Up:** The second-place team will receive certificate and cash prize.
3. **Third Runner-Up:** The third-place team will receive certificate and cash prize.
4. **Participation Certificates:** All participants will receive certificates of participation.

Important Notes

1. **Rule Changes:** The event organizers reserve the right to make changes to the rules as needed.
2. **Updates:** Any updates or clarifications to the rules will be announced on the event website and event's whatsapp group.
3. **Contact:** For any questions or concerns, please contact the event organizers.
4. **Have Fun!** Remember to enjoy the competition and celebrate the spirit of robotics!