

Robot Battles 3.0

Iron League

Official Rules & Guidelines

1. Introduction

1.1. Event Overview

The Robot Football Championship is a competitive event organized under the “Robot Battle 3.0: Iron League” initiative by the Department of Science and Technology, Uva Wellassa University. It features a fast-paced, team-based game in which participants control radio-controlled robots within a structured arena to simulate a football match. The event provides an engaging platform for students to apply engineering concepts in a real-world setting while experiencing a dynamic and technology-driven competition environment.

1.2. Competition Objective

The primary objective of the competition is to evaluate the performance, control, and effectiveness of participant-built robots in achieving match success through goal scoring and defensive play. The event is designed to develop technical competencies in robotics design and control, while encouraging strategic decision-making, collaboration, and compliance with established rules and safety standards.

1.3. Game Overview

The Robot Football Championship is a team-based competition modelled after the traditional game of football. Each team uses a remote-controlled robot to compete on a designated playing field, with the main objective being to score the most goals by kicking the ball into the opposing team's goal and defending their own goal. Each match consists of two halves, in which teams use strategy, team coordination, and precise robot control to gain control of the ball and attempt to score goals. The team with the most goals at the end of the match is declared the winner. If the match ends in a draw, penalty kicks will be used to determine the winner in accordance with these rules and regulations.

2. Participant Eligibility

2.1. Eligibility Criteria

To be eligible to compete in “UWU Robot Battles 3.0 : Iron League”, entrants must pass a technical inspection.

Technical Inspection

The technical inspection shall include (but is not limited to):

- Eligibility compliance with “UWU Robot Battles 3.0 : Iron League” Competition Rules & Guidelines.
- Weight and size check.
- Appearance suitability for competition.
- Functionality Test:
 - A functionality test will be conducted to confirm that the robot can be operated safely.
 - A simple “driving” test may be conducted as part of the technical inspection.

3. Team Composition

- 3.1. Each team must have at least two (2) robots and no more than four (4) robots.
- 3.2. Each team is permitted to bring one additional spare robot, which may be used in the event of a failure of any primary robot.
- 3.3. Each team must consist of a maximum of six (6) members.

4. Registration

- 4.1. Teams are required to complete their registration prior to the deadline. All registrations will be subject to verification and approval by the organizing committee.

5. Robot Specifications

General Requirements

- 5.1. The robots must be self-made or custom-made.
(Modified or factory-made vehicles are not permitted.)
- 5.2. The robots must operate as fully remote-controlled systems.
- 5.3. No tools, equipment, or technical materials will be provided; participants are solely responsible for bringing all necessary resources for the competition.
- 5.4. No robot shall, under any circumstances, pose a hazard to judges, spectators, or opposing operators.
- 5.5. All robot cars will be subject to a technical inspection prior to the match. Failure to disclose the robot's operating principle will be grounds for immediate disqualification.

6. Size and Design

- 6.1. Each robot, including any expanding or movable parts, must remain within the maximum allowable dimensions of 30 cm × 30 cm × 30 cm at all times.
(Length × Width × Height)
- 6.2. The maximum allowable weight of the robot is **3 kg**.
- 6.3. The power supply must be internal (no external power is allowed).
- 6.4. The use of internal combustion engines will not be allowed.
- 6.5. The maximum voltage between any two points within the robot shall not exceed **24 V** at any time.
- 6.6. All power sources must be fully and safely enclosed within the robot and appropriately secured to withstand the expected impacts during competition. As robots may flip or operate in any orientation, all batteries must be safe to use in any position.
- 6.7. Robots must not use any weapons or mechanisms that can damage the ball, the arena surface, or other robots. This includes sharp objects, cutting tools, high-impact devices, harmful attachments, or any form of signal jamming or wireless interference devices.
- 6.8. Robots are allowed to use only ball-handling mechanisms such as pushing, guiding, or controlling devices, provided they are safe and do not cause damage. Robots shall not catch, grab, or hold the ball using arms or similar mechanisms; the ball may only be pushed or guided during play.

6.9. The ball must remain visible and free to move at all times. Any bucket, pushing plate, or similar mechanism shall not be designed to fully contain or capture the ball. Teeth, prongs, or other protrusions used for ball control shall not exceed **50 mm** (5 cm) in length.

6.10. All entries must comply with the rules of the facility and the event.

Note: All power sources must be adequately protected (e.g., enclosed or guarded) to withstand the expected impact and stress during the competition.

Participants are advised to bring fully charged batteries and spare batteries to the competition. If additional charging is required, a limited number of charging bays will be available.

Battery charging shall only be conducted at the designated charging bays for safety reasons. Any violation of this rule may result in team disqualification to prevent potential hazards.

7. Prohibited Actions

7.1. The robot must operate without causing any damage to the arena.

7.2. Competitors shall not enter the arena without the referee's permission during the match.

8. Competition Arena Specifications

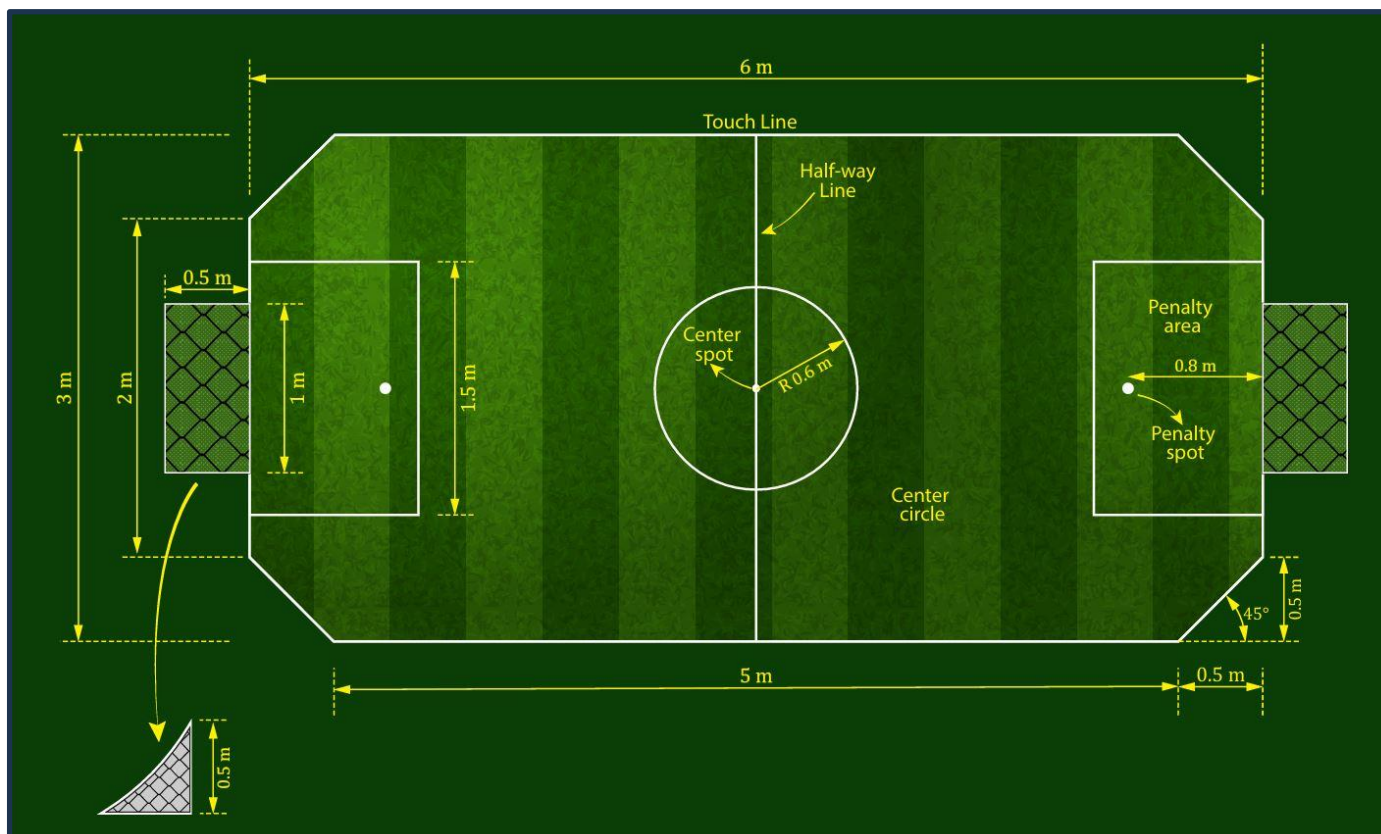


Figure 01



Figure 02

Arena floor : Polypropylene loop pile floor carpet

Note : A gap of up to **5 mm** may be present at the joints between carpet sections of the arena floor. The arena boundary is enclosed by rigid walls of 15 cm (± 1 cm) in height.

9. Ball Specification

- Weight : 40 g (± 5 g)
- Diameter : 12.4 cm (± 0.5 cm)
- Material : Plastic

10. Lighting and Environment

- 10.1. The competition may take place under varying ambient conditions, including temperature ranges of 7°C to 35°C and humidity levels from 60% to 90%. Participants should be prepared for possible variations in lighting, temperature, and humidity during the event.

11. General Rules

- 11.1. All participants must adhere to the Event Rules & Guidelines to ensure fair competition.
- 11.2. Any team failing to abide by the competition rules may be disqualified.
- 11.3. Any violation of these rules will result in immediate disqualification from the competition and loss of eligibility for any associated prizes.
- 11.4. For the match, the number of participating teams cannot be predetermined. Therefore, the final competition format (knockout or league system) will be decided based on the total number of registered teams. The organizers reserve the right to select and implement the most suitable format to ensure fair play and efficient completion of the tournament. All participants will be informed of the final match structure prior to the commencement of the competition.
- 11.5. Each match consists of two halves (First half, Second half).
- 11.6. The team that wins the toss can choose only one option: either select their side of the arena or take the kick-off.
- 11.7. In the second half, the teams will switch sides, and the team that did not take the kick-off in the first half will start the second half with the kick-off.
- 11.8. At the start of the match (initial stage), each team may field a maximum of four robots.
- 11.9. If the scores are equal at the end of both halves, or if neither team scores during regular play, each team shall be awarded **three (3)** penalty kicks to determine the winner.

12. In-Game Rules and Regulations

- 12.1. A goal shall be awarded when the entire ball has completely crossed the goal line between the goalposts and beneath the crossbar, provided that no infringement of the rules has been committed by the attacking team at the time the goal is scored.
- 12.2. Robots are permitted to push opposing robots during the match; however, deliberately overturning (flipping) an opponent's robot is prohibited. If a robot is overturned due to the action of an opposing robot, at the referee's discretion, the opposing team shall be penalized, and a penalty kick shall be awarded to the affected team. If a robot is overturned while attempting to gain possession of the ball from an opposing player, the referee shall, at their discretion, decide whether or not to award a penalty.

- 12.3. A team may assign one of its field robots to act as the goalkeeper robot during the match. This decision may be changed during the match, provided it is within the maximum number of active playing robots allowed per team.
- 12.4. Each team is allowed a maximum of two technical breaks per match, with only one timeout permitted in each half. A timeout may be requested by the team leader, but it may only be taken when the ball is not in active play or with the referee's permission. During this time, the team is allowed to:
- Remove the robot from the arena
 - Repair the robot
 - Replace the robot (with referee approval)
- 12.5. During a technical break, no gameplay actions shall be permitted. If a team fails to resume play when the match restarts, its robot shall be removed from the arena, and the match shall continue.
- 12.6. During the match, if a robot is completely destroyed or becomes inoperable, and the number of active robots in a team falls below the required minimum, the team may choose to continue playing with the remaining robots or withdraw from the competition.

13. Penalty Kicks

- 13.1. To determine the winner, each team shall be awarded three penalty kicks. Each penalty kick shall be taken by a different robot on the team.
- 13.2. If a team has only two active robots remaining, one robot shall take two penalty kicks, while the other robot shall take one penalty kick.
- 13.3. If a robot is overturned during the match, the penalty kick awarded at the referee's discretion shall be executed by the same overturned robot.
- 13.4. The ball shall be placed on the designated penalty spot. Only two robots—the penalty kicker and the goalkeeper—shall be permitted inside the penalty area. All other robots shall remain outside the penalty area and shall not interfere with play.
- 13.5. The goalkeeper robot shall remain on the goal line, between the goalposts, until the penalty kick is taken. The penalty kick shall be taken only after the referee's signal. The attacking robot shall be allowed only one attempt to score.
- 13.6. A goal shall be awarded if the ball completely crosses the goal line within the goal area.

14. Match Structure and Scoring

First Half

- 14.1. A goal shall be awarded 1 point.

Second Half

- 14.2. A goal shall be awarded 1 point.

- 14.3. Each penalty opportunity shall be awarded 1 point.

15. Time Limit

- 15.1. **First Half:** 7 minutes
- 15.2. **Interval Between the First Half and the Second Half:** 5 minutes
- 15.3. **Second Half:** 7 minutes
- 15.4. **Technical Break:** 2 minutes per break

16. Adjustments and Repairs

- 16.1. Participants may make adjustments or replacements to the robot only in accordance with the competition rules and regulations.
- 16.2. All adjustments must be reviewed and approved by the referees prior to implementation.

17. Referees' Authority

- 17.1. The referees have the authority to inspect robots at any time during the competition. They may stop the match, issue penalties, or disqualify teams when necessary.
- 17.2. All decisions made by the referees regarding penalties, disqualifications, and match results are final and binding.

- **The organizers shall not be responsible for any damage to robots or any other equipment that may occur during the competition.**