ROBOSOCCER

CATEGORY

FINAL STAGE RULES

BAKU 2025

1. Introduction

1.1. **Purpose**: The main goal in determining the category noted in the festival is to develop skills such as creative thinking, problem-solving, collaboration, teamwork, and implementing projects according to the given tasks among participants aged 10-16.

1.2. **General Description of the Category**: The task for this category is provided to participants in advance to participate in the festival. Participants must prepare their robots according to the given task and carry out the task on the competition day.

1.3. **Festival incorporates**: Teams must complete the task in the first stage of the competition, and get points. In the second stage, they must select an alliance team according to the total points and participate in the RoboSoccer competition.

1.4. **Theme**: The theme of the first stage of the category is transporting specific objects to designated locations in a specially allocated competition area. In the second stage, based on the results of the first stage, a robot soccer game will be held among the teams according to the alliances formed.

2. Application Requirements (Eligibility)

2.1. Each participant must carefully and completely read the provided PDF instructions. Participants are responsible for any mistakes made due to not fully knowing the rules

2.2. Teams must consist of one mentor over 18 years old and two participants aged 10-16.

2.3. Participants can be from different educational institutions.

2.4. Each team member can join a maximum of one team.

2.5. The mentor does not need to be affiliated with any school or institution to lead the team.

3. Attention to the participants

3.1. Participating teams must adhere to the principles of fair competition, refrain from engaging in arguments with other participants, avoid insulting others, and abstain from physical confrontations or provocative behavior. They must not intentionally damage other teams' projects or take their belongings without permission. In case of rule violations, penalties will be determined based on the nature and severity of the misconduct.

3.2. Participating teams must be informed about safety regulations and avoid any actions that could endanger the safety of their own team or that of other participants.

3.3. During the competition, team leaders and accompanying persons are prohibited from entering the competition area or interfering in any way from the outside. If a team leader or accompanying person provides unofficial support to their team or interferes with other teams' performances, the referee has the authority to issue a warning, disqualify the team, and apply appropriate disciplinary measures.

3.4. Each participant is allowed to compete in only one category. Duplicate registrations, false registrations, falsification of participants' age, unauthorized replacement of competitors, and similar

actions are strictly prohibited. If such cases are identified and officially confirmed, the participant will be disqualified from the competition.

3.5. In the event of force majeure situations not covered by the rules, decisions will be made by the organizers.

4. Registration

4.1 Applications will be accepted through SAF's official website. (https://saf.steam.edu.az/)

5. Requirements for Teams

5.1. Participating teams must arrive at the competition area five minutes before the scheduled time and wait in the designated area. Otherwise, the delay will be recorded as a defeat for both teams in the alliance.

5.2. Teams and mentors engaging in unethical behavior will result in penalties or disqualification.

5.3. During the competition, only participants will be allowed in the competition area.

5.4. Each participant can only participate in one category of the festival.

5.5. To replace a participant for any reason, contact saf@steam.edu.az.

6. Robot Specification

6.1. The robot **must meet all the requirements** listed below to participate in the competition.

6.2. The robot must only be built on the **Arduino** board (platform).

6.3. The robot's dimensions must not exceed the specified maximum limits:

- **Length**: Must be a maximum of 25 cm. *(* - forward movement direction)*
- **Width**: Must be a maximum of 17 cm..
- **Height**: Up to a maximum of 25 cm.

The robot's dimensions will be verified by fitting into a frame with the above-mentioned dimensions.

6.4 The robot's body must not be made of metal. Any body can be assembled electronically or manually in any shape.

6.5 The robot's weight must be less than **1000 grams**, measured accurately using a scale.

6.6 The robot must be controlled **wirelessly**. Any kind of wired controller is forbidden.

6.7 If the robot's wireless connection is via Bluetooth, the Bluetooth module's MAC address must be written on the robot (in the format XX:XX:XX:XX:XX:XX).

Attention! Due to potential instability in the Bluetooth connection, if the robot is controlled solely via Bluetooth and the connection is lost, this technical issue will be the responsibility of the team. As an alternative, FlySky or other RF modules can be used.

6.8 The robot can only have the specified electronic components: wireless control module, Arduino board, parts ensuring motor operation, portable power source, various types of lights, LED screen, and sound devices.

6.9 The robot must be powered by an **autonomous energy source** (battery, accumulator, etc.). The robot must not be connected to any power source during the competition.

6.10 The maximum voltage of the robot's autonomous power source can be **15 volts**.

6.11 The robot must be started using only **a single switch**.

6.12 Garbing mechanisms are not allowed. It has to control the ball only by pushing with its body.

6.13 Motors installed in the robot should only be used to move the robot. No motor can be used to interfere with the ball or other robots.

6.14 The wireless controller should have its own power supply.

6.15 The ball has to remain outside the perimeter of a robot's body all the time. It cannot cover the ball with part of its body.

6.16 The robot must play only through the mechanical movement of its body during the competition.

6.17 Participants can join the competition with both ready-made kits and custom-designed robots. In any case, the **robot must meet all the above-mentioned technical requirements**.

6.18 Organizers will attach identification stickers to the robots during the competition.

7.Competition Rules

7.1. The competition will consist of two stages.

7.2. In both stages, robots will be controlled remotely and wirelessly.

7.3. First Stage(Delivering Objects to Assigned Points Within the Maze Area)

7.3.1. In this stage, participants must use their **RoboSoccer-built robot** to deliver four different-shaped objects to their designated locations within a specially designed maze-like arena.

7.3.2. Each object will differ in shape, size, and color.

7.3.3. Each team member will be responsible for delivering two objects to the target areas.

7.3.4. **Arena Dimensions**:

Total area size: 4.5 x 4.5 meters
Distance between inner walls: 32 cm
Height of outer walls: 25 cm
Height of inner walls: 8 cm
Thickness of outer walls: 2–3 cm
Thickness of inner walls: 1 cm
 (Figure 1.)

7.3.5. The performance in this task will be **measured by completion time**. The timer stops once all objects are placed in their correct locations.

7.3.6. The completion time will also be used to determine the alliances for the second stage.

7.4. Forming Team Alliances

7.4.1. For the second stage of the competition to proceed, alliances must be formed between teams.

7.4.2. Based on the results of the first stage, the team with the best time gets the first opportunity to propose an alliance to any other team of their choice.If the chosen team accepts, the two teams will continue the competition as a permanent alliance.If the chosen team declines, the proposing team loses its turn and moves to the end of the queue. The opportunity to propose then passes to the next team in the rankings.

7.4.3. This process continues until all teams have formed alliances.

7.4.4. If, after two complete rounds of proposals, there are still teams without alliances, the organizers will randomly assign remaining teams into alliances via a lottery system.

7.5. Second Stage(RoboSoccer Match)

7.5.1. Once alliances are confirmed, the second stage begins. Allied teams will compete in RoboSoccer matches against other alliances.

7.5.2. The competition will have four phases: Group stage, Semifinals, Third-place match, Final match

7.5.3. Each RoboSoccer match will last 8 minutes, divided into two halves.Each half (or "half-time") lasts 3 minutes.

7.5.4. Before each match, alliances will be given 2 minutes for final preparations.

7.5.5. There will be a 2-minute break between halves.During the second half, alliances will switch sides (goal sides), just like in standard football.

7.5.6. Each alliance must follow a substitution rule:Each team has 2 members, and each member can only play in one half. **No participant is allowed to play in both halves**.

7.5.7. Match time starts with the referee's signal.

7.5.8. If a participant starts before the referee's signal, they will receive a verbal warning the first time.If repeated, the participant will be suspended for 10 seconds, and the remaining teammate must continue alone.Repeated violations may result in match termination and automatic loss.

7.5.9. At the start of the match, robots must be positioned in their designated zones.

7.5.10. If a robot malfunctions during the match, the team is given a 2-minute technical pause for repairs.If the robot is not fixed within this time, the remaining robot must continue alone.

7.5.11. Each alliance is allowed a maximum of 2 technical timeouts during the entire tournament.

7.5.12. It is not allowed to intentionally block another robot or the ball.If such blocking lasts for 10 seconds, the offending robot will be sent to the start zone and given a warning.A second offense will result in the robot being removed from the field for 20 seconds.

7.5.13. Any attempt to intentionally damage the field or other robots will result in immediate disqualification from that match.

8.Scoring Description

8.1. The alliance that scores more goals in the game will be declared the winner.

8.2. In the group stage, each victory will earn 3 points, and a draw will earn 1 point.

8.3. The two alliances with the most points in the group stage will advance to the next stage.

8.4. If the points are equal at the end of the group stage, the goal difference will be considered, and the alliance with the higher goal difference will advance to the next stage. If the ball difference is the same, the alliance that missed fewer balls will move on to the next stage. If all parameters are the same, the alliance with less penalty will advance to the next stage.

8.5. **The semifinals, third-place match, and final match** will be played among the alliances that advanced from the group stage until a winner is determined. If there is no winner at the end of regular time, two extra periods of 1 minute and 30 seconds each will be played. If the score is still tied, the game will continue until one alliance scores (*Golden Goal rule*).

9.Special Cases (Exceptions)

9.1. During the games held in the competition, the decisions of the referees are final and cannot be disputed. If participants or mentors protest the referee's decision in a manner that disrupts the competition schedule, the team may be disqualified from the festival.

9.2. If a robot fails for any reason during the game, the team will be considered defeated, and no additional attempt will be provided for that team.

9.3.   Participants must never touch the competition area or other teams' robots.

9.4. During the competition, participants can only touch their robots with the referee's permission.

9.5. A team that violates sections 5.3 and 5.4 during the competition will be disqualified from the field.

9.6. If a deliberate strike aimed at damaging another team's robot, rather than interfering with the ball, is recorded, the game will be stopped, and the offending alliance will be recorded as the losing side.

9.7. During the festival, no team can use another team's robot.

9.8. If any short-term force majeure event occurs, the alliance's game schedule can be changed to a later game with prior notification to the organizing committee.

9.9. During the entire festival, the robot can be re-inspected by the referee. If it is found that the robot violates the technical specifications, the team will be disqualified.
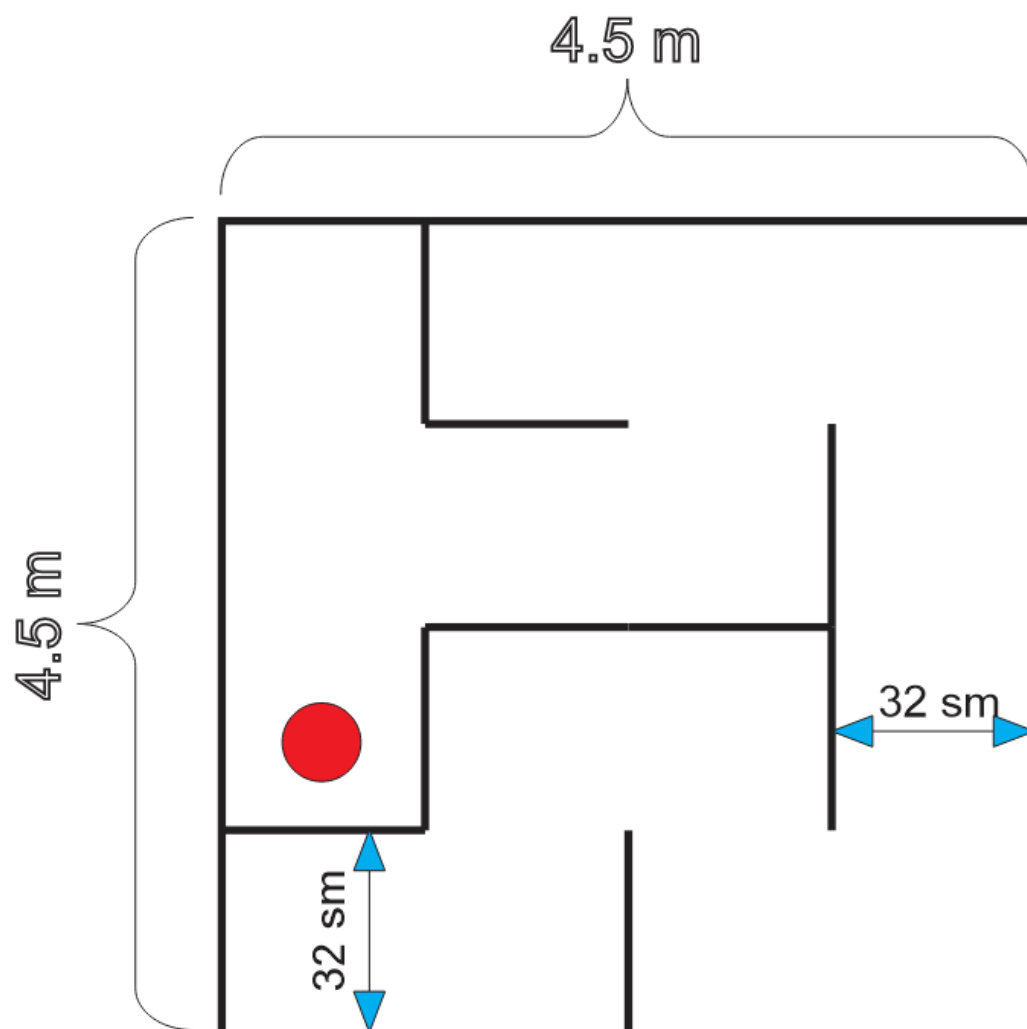
10.Arena Layout

Figure 1. Example of the First Stage Competition Area
(The **dimensions** shown in the image are **correct**, but the **layout and arrangement** of the area are **provisional** and may change during the competition.)
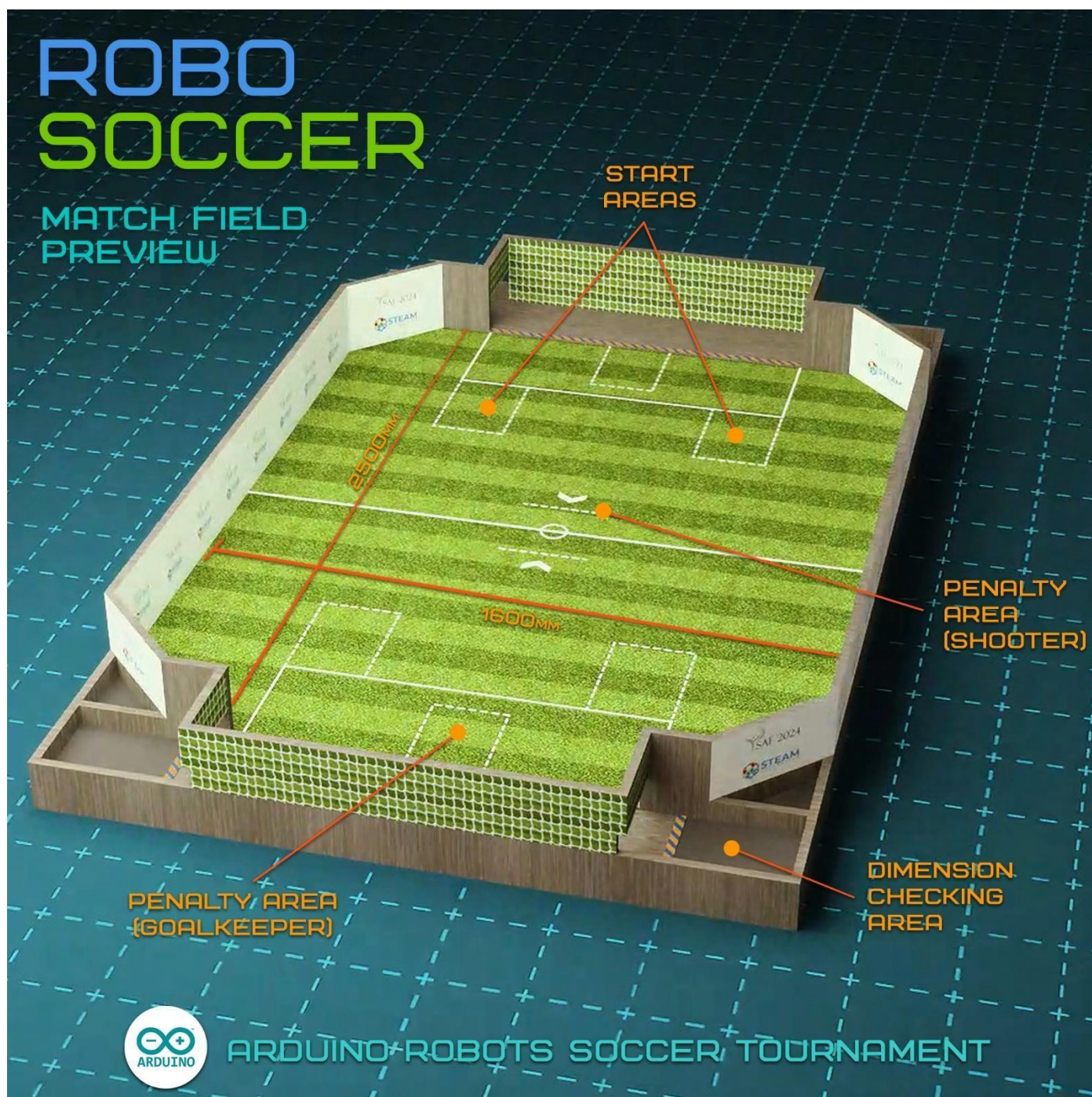

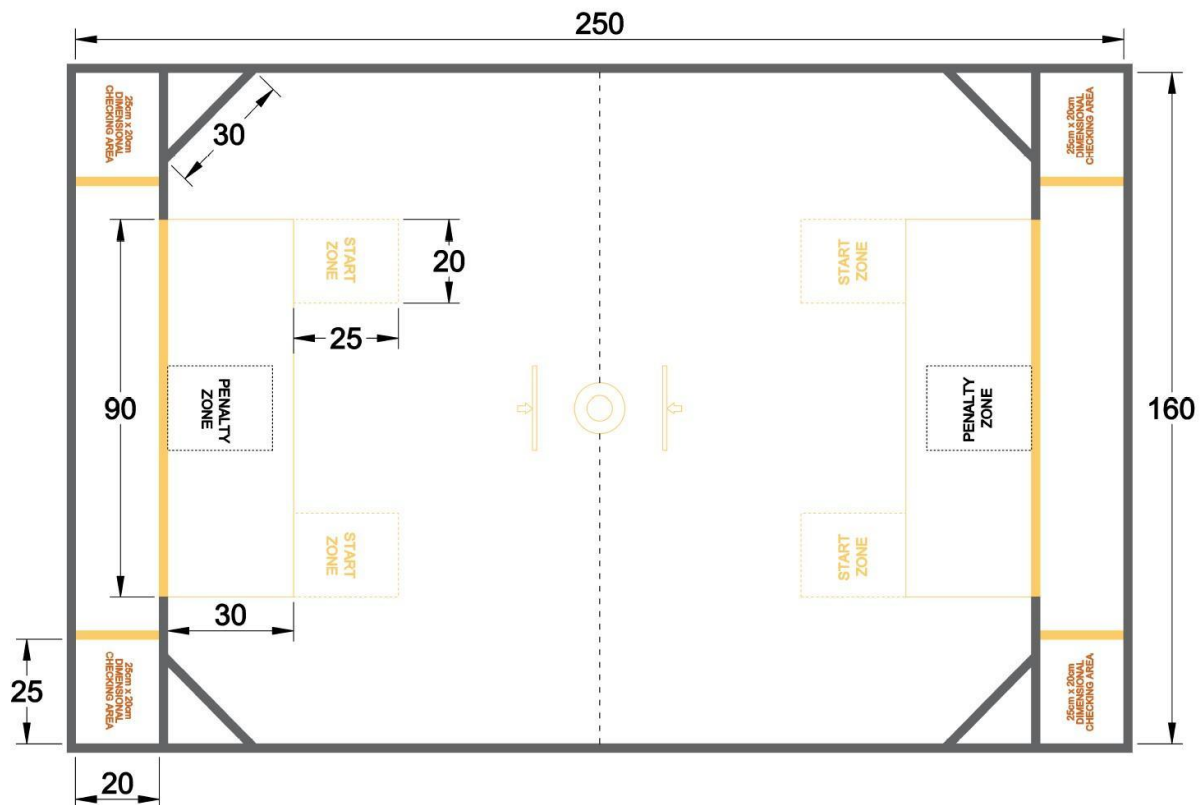**Figure 1. General view of the field.**
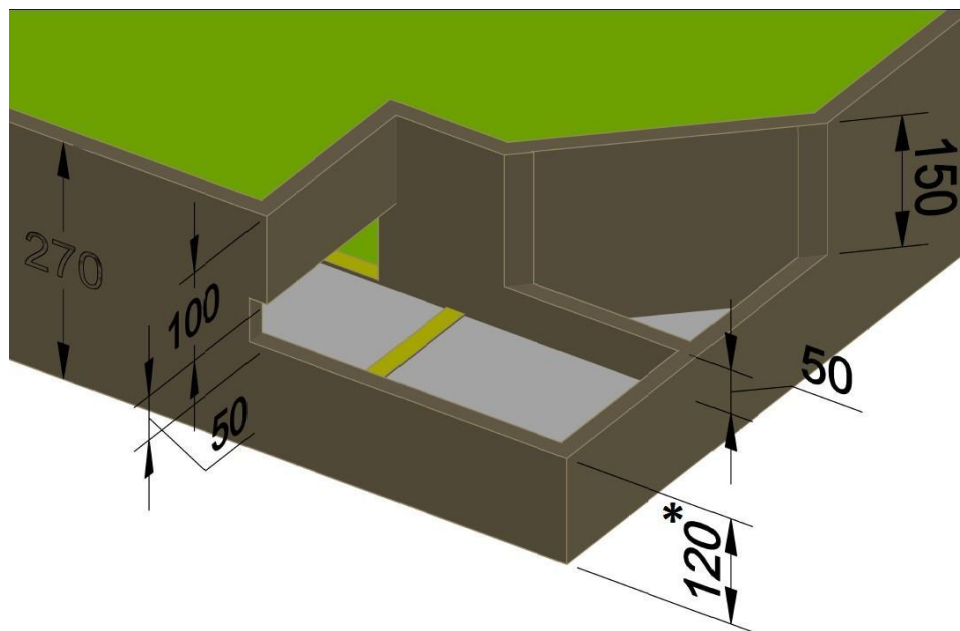
Figure 2. Dimensional plan of the field.

Figure 3. Dimensions of the corner section.
120mm = 50mm bottom platform + 20mm material thickness + 50mm top section

NOTE: The organizing committee reserves the right to change the rules at any point in time. The change will however be highlighted on the website https://saf.steam.edu.az.