

Controlled Robots Football RoboFinist competition rules

Version 8.0 dated August 19, 2024

1. General Provisions

The match is played between two teams. Each team sets 4 robots: 3 robot-field players and 1 robot-goalkeeper.

It is allowed to have one declared reserve robot.

1.1. Task Description

To score a goal against the opponent.

1.2. Restrictions

A team must meet the following requirements, unless otherwise specified by the Organizing Committee of a particular Event:

- the number of participants in the team corresponds to the number of controlled robots: 4 or less (the number of coaches/team managers is not limited)
- the oldest member of the team is 15 years old or less in the year of the competition.

2. Robot Specifications

The following requirements apply to robots:

- diameter no more than 220 mm (in any position of the moving parts of the robot);
- height not limited;
- weight not more than 5 kg.

Measurements are taken in the game state of the robot (maximum possible dimensions).

A cylinder-shaped measuring structure is used to check if the robot's size meets the restrictions.

Control must be from the outside via any wireless communication channel. Any wireless control devices may be used.

Any software and hardware that automates or assists the operator in controlling the robot is allowed.

Each robot must have a vertical flagpole in the form of an axle or a spoke (with a minimum of 100 mm reach) with an elastic flag attached, which contains the team designation and the robot



number. The flags of the robot-field players must have the same color, the flag of the robotgoalkeeper must be different in color from the flags of the robot-field players. At the beginning of the half the robot-goalkeeper takes its position in the goal.

Each robot must have a structural element for carrying it (optional: handle, loop, etc.), as well as protection against running over the ball.

The robot must execute the commands of an operator located both near and at a distance of 6 meters, with a delay of no more than 1 second.

The structural elements of the robot (especially wires) must not interfere with the movement of other robots or cling to them. It is recommended to equip robot with the external casing with the holes for the kicking mechanism.

All robots must be equipped with a kicking mechanism that allows a robot when not moving to kick the ball from the center of the field beyond the center circle.

Robots must not capture the ball in the process of playing. Capture means covering more than 50% of the ball with the robot projection in the horizontal or profile projection plane on both sides at any given time.

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Fig. 1. Examples of the captured ball

3. Field Specifications

The field is a flat rectangular surface with gates and pitch markings (see Fig. 2).

The following requirements apply to the field:



- playground color is green;
- playground material is a green abrasion-resistant material with a low pile;
- marking line color is white;
- marking line width is 15+/-5 mm;

Joints and irregularities of up to 5 mm are allowed on the field.

3.1. Field

Dimensions of the field:

- length of the touchline is 6000 mm;
- distance from the edge of the field to the touchline is at least 500 mm;
- length of the goal line is 4000 mm;
- distance from the edge of the field to the goal line is at least 500 mm;
- diameter of the center circle is 1000 mm;
- the goalkeeper area is 1500mm x 500mm.





3.2. Goal

The goal consists of two posts and a crossbar, as well as a supporting structure (see Fig. 3). The entire goal structure must be firmly attached to the field.



Internal dimensions of the goal:

- height 160 mm;
- width 1000 1200 mm;
- depth 180 mm.
- cross-section diameter of the posts and crossbar 20+/-5 mm (any cross-section profile is acceptable).



Fig. 3. Goal

3.3. Ball

The ball (golf ball is recommended) must meet the following characteristics:

- colour is white, orange or pink;
- diameter is 43 mm;
- weight is 46 g.

4. Procedure of the Competition

The game is played according to the all-play-all or Olympic system (see General Competition Rules).



All operators must stay out of the field behind their goal during the match. The operator can remove his robot from the field, as well as perform minor repairs or replace the battery during the halftime break.

Each robot of the team must be controlled by a separate operator, alone. It is forbidden to delegate control of the robot to another participant.

A team will be technically defeated if the participants have failed to place at least one robot on the field by the scheduled start time.

In case of a technical defeat, the opponent is awarded a 2:0 victory in the match.

4.1. Game Duration

The match consists of two halves of 3 minutes each. There is a 2-minute break between the halves.

In the final matches of the Olympic system, the half time is 5 minutes.

The half ends at the referee's signal. The referee may extend the duration of the half by the time required to complete an attack launched by one of the teams.

4.2. Additional half

The extra half is played until one of the teams gets an advantage.

Each team fields one robot.

At the start of the extra half, the robots are placed in their goalkeeper area. The ball is placed in the center of the field.

The game starts on the referee's whistle.

When the time equal to the time of the main half expires, the game stops, the teams change field sides and make substitutions for the robots that have not yet participated in the extra half, placing them and the ball in their starting positions.

In the case of a Game Moment (see clause 4.10) or a Violation (see clause 5), game is stopped and the ball is set according to the Game Moment that occurred or at the place where the Violation occurred.

The robot that created the Game Moment or received the Violation must be at least 500 mm away from the ball during ball entry.

The ball is put into play by the opposing team's robot on the referee's whistle. It can be put in without hitting the ball.



4.3. Referee's signals

During the game referee signals with the whistle.

Single whistle - start, suspension or resumption of play.

Double whistle - end of the half/match.

4.4. Goalkeeper area

Only the goalkeeper can be in the goalkeeper area during the game.

4.5. Game Start

Before the game starts, either the field side or the kick-off shall be decided by the toss of coin. The team that wins the toss shall be allowed to choose either to pick the field side in the first half or to kick off.

In the second half teams change the field sides and the kick-off right.

Robots are placed on their halves of the field between the goal line and the center line.

The ball is placed in the center of the field.

Opponents of the team that kicks off must be outside the central circle until the ball is kicked off.

The game starts after the whistle of the referee.

The ball is considered to be in play if a robot kicked it with its kicking mechanism, and the ball is moving.

The robot kicking the ball first must not touch the ball until any other robot touches the ball, or the ball goes out of play.

The goal scored immediately after the first kick counts.

4.6. Goal

A goal is scored when the ball has completely crossed the goal line between the posts and under the crossbar.

After the goal the ball is placed in the center of the field. The team that missed the goal gets the right to kick it off.

4.7. Substitution

The substitutions can be made during the game by the referee's clearance.

To substitute a robot, the operator asks the referee by voice to substitute the robot by calling its number and the name of the team.



After the substitution is authorized by the referee, the robot being substituted must cross its own goal line, if the robot has not been removed from play. Then the substitution robot must enter the field at the same point on the goal line.

The substitution robot must have its own flagpole installed. If the goalkeeper is being substituted, it is allowed to change the flagpoles of the substituted and rsubstitution robots.

The game doesn't stop.

There is no limit on the number of substitutions.

4.8. Robot Out Of Play

The robot is removed from the game in the following cases:

- it has lost the connection with the remote control;
- the battery is low;
- the robot is damaged
- the robot turned upside-down spontaneously.

The operator requests by voice that the robot be removed from the game, calling its number and the team's name. After the operator's request, the robot is removed from the field by the referee and given to the operator for troubleshooting.

The game doesn't stop.

After troubleshooting, the robot returns to the game from behind its goal line with the permission of the referee.

The robot removed from the game can be substituted.

4.9. Clinch

In the event of a clinch lasting more than 5 seconds when the robots are standing or moving as a unit, the referee may separate the robots, turn them 180 degrees and place them at arm's length.

The game does not stop.

4.10. Game Moments

Kick off

The ball is considered to be in play if a robot kicked it with its kicking mechanism, and the ball is moving.

The robot kicking the ball first must not touch the ball until any other robot touches the ball, or the ball goes out of play.



The robots of the opposing team must stay at least 500 mm away from the ball until the ball is put into play.

Corner Kick

A corner kick is awarded when the ball touches the robot and crosses its goal line completely, without a goal having been scored.

For a corner kick, the ball is placed in the corner of the field nearest to the place where the ball crossed the goal line.

The ball is put into play by the opposing team's robot from outside the field on the referee's whistle.

Goal Kick

Is awarded in the following cases:

- when the opposing team's robot kicked the ball and it crossed the goal line, without a goal having been scored;
- the robot has crossed the goalkeeper area of the other team and the ball was inside the goalkeeper area;

For a goal kick, the ball is placed on the goalkeeper area line.

The ball is put into play by the goalkeeper after the whistle.

During the goal kick the goalkeeper cannot cross the border of the goalkeeper area with any of its part.

Out

Is played if the ball left the field through the touch line.

The ball is placed in the point where it crossed the line and is kicked off by the opposite team after the referee's whistle.

Robot during throwing the ball in cannot cross the touch line with any of its part.

5. Penalties

5.1. Free Kick

Violations penalized by a free kick:

- violation of kick-off rules;
- violation of goal kick rules;
- violation of penalty kick rules;



- violation of throw-in rules;
- violation of free kick rules.

The free kick is taken from where the violation occurred, but not closer than 500 mm from the goalkeeper area. The ball is put into play on the referee's whistle by the opposing team's robot.

A goal scored from a free kick is counted.

5.2. Penalty Kick

Violations penalized by a penalty kick:

- a robot field-player was completely in his team's goalkeeper area when the ball was there;
- a goalkeeper has captured the ball.

The ball is placed in the center of the field. On the referee's whistle, the robot of the opposing team starts the attack by dribbling the ball alone.

All other robots, except the goalkeeper of the defending team, must stay behind the center line and outside the center circle on the attacking team's side until the ball crosses the goalkeeper area.

5.3. Foul

Violations penalized by a foul:

- robot that has been removed from the game has entered the field of play without the referee's permission;
- robot crossed the goalkeeper's area with its projection;
- robot tcaptured the ball;
- robot touched other team's robot and its movement was not directed towards the ball;
- robot in the other team's half of the field touched a robot of its own team in possession of the ball.

The last robot to touch the ball is considered to be in possession of the ball.

When a foul is called, the referee moves the robot recieved the foul to the touchline nearest to the place of the violation within 10 seconds.

The game does not stop.

A goal scored by a robot that receives a foul is not scored.

5.4. Warnings

Violations punishable by a warning and a yellow card:

- operator touched the robot on the field without referee's permission;
- operator entered the field;



- delay of the game resuming (more than 5 seconds of no reaction of the robots after the referee's whistle);
- robot touched the opposing team's goalkeeper who is fully inside the goalkeeper area;
- exceeding the prescribed number of the robots on the field.

When a warning is issued, play is stopped on the referee's whistle.

After the card is shown, the ball is put into play with a free kick or a goal kick if the violation occurred in the goalkeeper area.

5.5. Match penalty

Violations punishable by match penalty of the robot and a red card:

- two warnings in the same game;
- aggressive behavior of an operator.

The offending robot is immediately removed from the field by the referee. The match penalty lasts until the end of the play.

After the offending robot has been removed, the ball is put into play with a free kick or a goal kick if the violation occurred in the goalkeeper area.

If a team has no robots left on the field, the game ends and that team is considered to have lost with a zero score. The opposing team will be scored with the number of goals already scored, but not less than two.

6. Scoring

A team gets 1 point for each goal scored.

7. Procedure to Determine the Winner

The team that has scored more goals at the end of the game is the winner.

If necessary, an additional half-time is assigned to determine the winner of the game.

The winner of the competition is the team that took the first place according to the results of the tournament.