DEPARTMENT OF ARTIFICIAL INTELLIGENCE

ADITYA DEGREE & PG COLLEGE(A), KAKINADA

ROBOFEST 2K25

ROBO FOOTBALL LEAGUE

Game Description, Rules and Scoring

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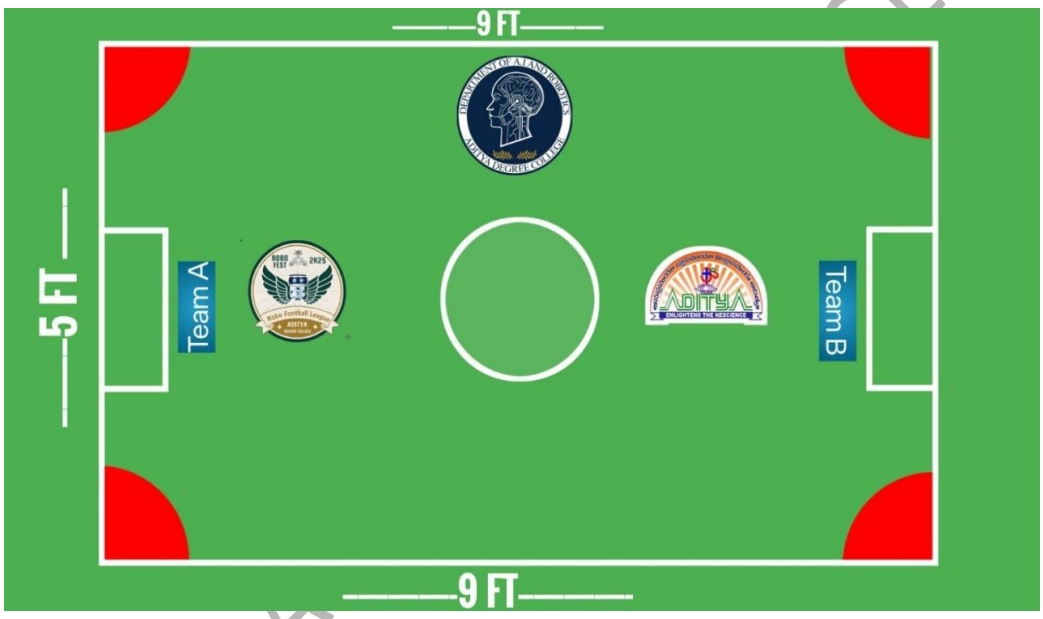
Game Description:

ROBO FOOTBALL LEAGUE aims, to reflect the game of human football with robots. It is a technical competition where student-built robots compete to score goals by pushing a ball into the opponent's goal post. The robots can be either autonomous or manually controlled using Bluetooth, remote control, RF, Wi-Fi, or hand-gesture systems. Matches are played in a defined arena within a fixed time. The team scoring the maximum points wins the match. The event promotes creativity, teamwork, and practical robotics skills.



Rule Changes:

If the current Football Challenge appears to be mastered, the rules will undergo minor modifications.

Rules and Regulations:

1. Teams

1.1 Teams will consist of two robots in Double's category.
1.2 Team consists one robot in single's category.
1.3 Any substitution of robots is strictly forbidden and any team substituting robots will be disqualified from the tournament.
1.4 Teams will have three human participants.

2. Scoring

2.1 A goal is scored when the ball crosses the goal line.

2.2 The team scoring the highest score will win the game.

Colour of balls	**Total No. of balls**	**Score**
Red	1	30(30 for each ball)
Green	5	100(20 for each ball)
Blue	7	70(10 for each ball)
Total	13	200

2.3 Fouls:

Negative Score for Balls in the Red Zone:

Red ball	-15
Green ball	-10
Blue ball	-5

Each team must clear their red zone within the allotted time otherwise foul rules will be applied.

3. Game Time

3.1 Game will consist of 4 minutes.

3.2 The game clock will run without stopping throughout the game

3.3 It is a team's responsibility to be present before a game starts.

3.4 If time permits, finals games can be run over 4 minutes.

4. Game Play

4.1 At the start of the game the judge will blow a whistle.

4.2 The game will start on the judge's command. All robots must be started immediately. Robots can be running, but must be held in a stationary position above the field.

4.3 Any robots that are started or released before the judge's command will be moved to initial position.

4.4 Any robots that are not on the field or started immediately, will be ruled as “damaged” and removed from the field for one minute.

4.5 If two opposing robots are tangled with each other, the judge can choose to separate them with minimal movement.

4.6 Team Captains are not permitted to touch robots at any time without the judge’s permission. If a scoring opportunity has been affected by the robot’s removal or incorrect replacement, that goal will not be awarded.

4.7 If a ball strikes the end wall beside the goals, play will not be stopped and the ball will be returned immediately to the centre spot on the field. If a robot occupies that spot, the ball will be placed as close as possible to the centre, but not directly in front of a robot.

5. Play Reset

5.1 “Reset” will be called if the ball is stuck between multiple robots for a reasonable amount of time and has no chance of being freed, or if no robot has any chance of approaching the ball in a reasonable amount of time.

5.2 Any stuck robots will be immediately taken to their defensive penalty box. Some part of the robot must be in the penalty box.

5.3 Robots are permitted to remain running and held by the handle.

5.4 Any robot that cannot start within the given time will be considered as “damaged”.

6. Damaged Robots

6.1 A robot will be considered damaged by the judge if it has serious breakages, it does not move correctly or respond to the ball.

6.2 Players can only remove robots from the field after being given the judge’s permission following the Team Captain’s request. This robot will be classified as damaged.

6.3 A damaged robot will be withdraw from competition as per team’s request.

6.4 If a robot is touched or removed without the judge’s permission penalty will be incurred.

6.5 A damaged robot must be repaired before it is returned to the field. If a robot is not, or cannot be repaired, it will be excluded from the remainder of the game.

6.6 A damaged robot can be returned to the field after being given the judge's permission. The robot is to be placed in the team's own penalty area and not in a position that advantages that robot .i.e. Facing the ball.

6.7 If a robot turns over on its own accord or from a collision with its own team's robot, it will be considered damaged.

6.8 If a robot turns over as a result of a collision with an opposing robot, it will not be considered as damaged and can be righted by the judge and play.

7. Rule Clarification

7.1 **"The Judge's decision is considered as final during game play!"**

7.2 If competitors require a rule clarification they must do it immediately by requesting a "Judges Time Out". The game clock will be stopped.

7.3 Mentors must not be involved in any rules discussion.

7.4 Video evidence will not be accepted.

7.5 Once the Head Judge and the game judge have come to a decision, no more discussion will be accepted.

7.6 Any further argument will result in a Yellow Card being issued, followed by a Red Card if the Team Captain or Mentor continues to argue.

7.7 A Red Card will result in that person being required to leave the competition area for the rest of the tournament.

7.8 Failure to respect a Red Card will result in permanent exclusion of the person from entire competition.

7.9 Touching the robot without the judge's permission is not allowed. After **two warnings**, any further violation will result in a **–5 score penalty**.

7.10 The Head Judge may be required to modify rules as a result of local conditions or circumstances. Participants will be notified of this at the earliest available opportunity.

8. Robot Specifications

8.1 Construction and Programming of robots must be done exclusively by the students.

8.2 ROBOT CREATION GUIDELINES

- The robot must be student-built.
- Robot can be Autonomous or wireless controlled- Bluetooth / hand-gesture/remote -control.
- Wired control robots will not be permitted.
- Robot size should not exceed 25 cm × 25 cm × 25 cm.
- Robot weight should not exceed 5kg including battery.

8.3 CONTROLLER OPTIONS (ANY ONE CAN BE USED)

9. Teams may use any controllers Example (Arduino (UNO / Nano / Mega), ESP32 / ESP8266, Raspberry Pi (any model))

8.4. *CONTROL METHODS ALLOWED*

- Teams are permitted to use any one of the following control methods:
- Bluetooth control (HC-05 / HC-06)
- Remote Controller (RC)
- RF modules (NRF24L01 / 433 MHz)
- Wi-Fi control
- Hand Gesture Control (using accelerometer sensors)
- Vision Sensors
- Depth Sensors
- Any proximity sensors

8.5. *MECHANICAL & ELECTRICAL PARTS ALLOWED*

- DC gear motors
- Servo motors (for kicking or pushing mechanism)
- Motor drivers (L298N, L293D, BTS7960, etc.)
- Wheels (rubber or plastic)
- Chassis (metal, acrylic, or DIY)
- Jumper wires, PCB, breadboard
- Switches, LEDs (optional)

8.6. *POWER SUPPLY*

- Rechargeable batteries only
  (Li-ion / Li-Po / Power bank, Ni-Cd / Alkaline)
- Teams must bring their own chargers.
- External power supply during match is allowed.

8.7 *SAFETY RULES*

- No sharp edges on robots
- Batteries must be properly insulated
- Any robot causing damage may be disqualified.

8.8 *FINAL NOTE*

- All teams must bring their own robots, controllers, batteries, and charging equipment. The hosting college will provide the area and basic power supply.

9.Robot Assembly

9.1 Robots can be modified during venue open or competition times. i.e. there is no quarantine before or between game.

9.2 Robots should not leave the competition area at any time until they have finished competition.

10. Robot Control

10.1 Robots must be able to be started manually.

10.2 The use of remote control any kind is allowed.

10.3 Robots must be able to move in all directions.

10.4 Bluetooth communication between robots is acceptable as long as it does not interfere with the performance of other robots.

11. Finals Selection

11.1 Teams will be selected for finals on the following criteria:

- Points scored
- Number of Goals Scored
- Goal Difference

- The winning team if the two tied teams competed against each other.

12. Tied Elimination Finals

12.1 If the scores are tied in an elimination final, a "**GOLDEN GOAL ROUND**" of 1 extra minute will be conducted, and the team which scores highest will be declared the winner.