NATIONAL AERO GENIUS COMPETITION - 2026

Soccerbot

Competition Rules and Requirements

Organized by

Department of Avionics Engineering
Aviation & Aerospace University, Bangladesh

Competition Date: 30-31 Oct 2026 | Venue: AAUB Campus, Lalmonirhat
Registration Link: https://event.aaub.edu.bd

Introduction

A SoccerBot robotics competition is an exciting event where autonomous or manually controlled robots are designed to play soccer on a miniature field. Participants build and program robots capable of detecting, chasing, and kicking a ball into the opponent's goal while following specific competition rules. These competitions combine principles of robotics, electronics, and artificial intelligence to simulate real-game strategies in a controlled environment.

SoccerBot competitions typically involve sensors such as infrared, ultrasonic, or cameras to detect the ball, field boundaries, and other robots. The robots use motors and control algorithms to navigate, defend, and attack effectively. Teams must focus on both hardware design and software programming to achieve optimal performance.

Such competitions are widely used in educational institutions to promote teamwork, problem-solving, and innovation. They provide hands-on experience in robotics and inspire students to develop practical engineering skills while engaging in a fun and competitive atmosphere.

NOTE: Items critical to safety and rule compliance are mentioned throughout this document. It is the responsibility of all teams to know and follow all provided rules.

This rule book will provide all the guidelines for this competition.

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1. Team Formation

- The competition is open to high school and undergraduate students from universities or institutions across the country, as well as hobbyists.
- Each team must consist of a maximum of 4 members.
- Any additional members beyond 4 will incur a fee of 500 tk each.
- Each team must appoint a team leader who will act as the official representative.
- Teams formed with participants from several different institutions are allowed.
- A participant cannot be a member of multiple teams.
- Each team is allowed to use only one soccer robot during the competition.

2. Physical Specification

- Maximum robot dimension: 25 cm (L) × 25 cm (W) × 20 cm (H) with ±5% tolerance.
- Maximum robot weight: 3 kg.
- The robot must use its own onboard battery. Wired external power sources are not allowed.
- Motor operating voltage must be within 12V to 24V.
- Grabbing mechanisms are strictly prohibited. Robots may only push the ball.
- The use of weapons, fire, water, or chemicals is strictly prohibited.
- Ready- made LEGO kits and internal combustion engines are not allowed.
- Ready- made gear assemblies are allowed.
- Soft or pillow- like materials that could deflect an opponent's robot are not allowed.

3. Bracket Information

- All bracket shapes are allowed.
- Maximum bracket length: 20 cm.
- The angle between the bracket and the robot must be greater than or equal to 90°.

4. Control System.

- The robot must be controlled through wireless communication.

5. Arena

- The arena dimensions are 10 feet in length and 6 feet in width.
- The arena will be surrounded by protective walls approximately 5 inches high.
- Two goalposts will be placed on opposite sides of the arena.
- Each goalpost measures approximately 18 inches in width and 6 inches in height.
- Arena markings include starting points, free- kick points, and free- kick lines as shown in the official arena layout diagram.

6. Ball Specifications

Property	Specification
Shape	Round
Weight	200 g
Maximum Diameter	7 cm

7. General Rules

- A match will be played between two teams.
- Match fixtures will be determined based on the number of participating teams.
- Teams will compete against randomly assigned opponents.
- Each team will have 3 minutes before the match for setup and test.
- A match consists of two halves, each lasting 3 minutes, with a 1- minute break between halves.
- Touching the robot during a match will be considered a foul.
- Robots must start the match from the designated starting point.
- If two robots become stuck together for more than 10 seconds, the referee will reset them.

- A foul occurs if a robot intentionally collides with an opponent while not contesting the ball.
- If both robots remain locked while pushing the ball for more than 7 seconds, the referee will reset the game.
- Only two team members may stay in the restricted area around the arena during a match.
- Teams will switch goal sides after halftime.
- The team with the highest score at the end of the match will advance to the next round.
- If the match ends in a tie, an overtime round will be played.

8. Free Kick

- If a team commits a foul, the opposing team will be awarded a free kick.
- Only pushing the ball is allowed during free kicks or penalties.
- The front wheel of the robot must not cross the designated line during a free kick.
- Lifting the opponent's robot without ball contact will result in a free kick.
- Intentional pushing of the opponent without contesting the ball is considered a foul.
- The free- kick team places the robot at the free- kick point while the opponent starts from their half.

9. Penalty

- If a robot remains inactive for more than 15 seconds, the opponent will receive a penalty shoot- out.
- Repeated fouls exceeding five times will result in a penalty kick.
- For penalty shoot- outs, the ball will be placed at the opponent's free- kick point.
- If the ball is not pushed within 10 seconds after the whistle, the penalty will be cancelled.

10. Scoring

- Each goal scored earns +10 points.
- Each foul results in −1 point.
- If a robot malfunction occurs, teams may repair the robot for up to 3 minutes with a penalty of −1 point for every 10 seconds.

11. Disqualification

- Damaging the arena or equipment may lead to disqualification.
- Any disrespectful behavior toward judges, referees, or other teams will result in disqualification.
- Failure to arrive at the scheduled match time may result in disqualification.

12. Format Requirements of Technical Reports

- Maximum length: 500 words.
- Font Name: Arial
- Line spacing: 1.15
- Minimum font: 11-pt Arial
- Page size: 8.5 in × 11 in.
- The team name and the institution/institutions name shall appear on the title page.
- Recommended filename format: 2026_Aero_Genius_Soccerbot_[Team Name]_[University Name/Institution/Individual].pdf.
- Should mention all the requirements/specifications of the soccer robot following the rule book.

13. Winner Declaration Process

The final score will be calculated using the formula:
Points = (Goals × 5) − (Fouls × 1.5) − (1 point for every 10 seconds of repair time).
If the match ends in a tie, a sudden-death overtime round will be conducted. If the winner cannot be determined, a penalty shoot-out will take place. If necessary, the team with the lowest number of fouls will be declared the winner.

14. Schedule and Registration Information

Item	Date / Requirement
Registration Deadline	1st Oct 2026
Pre-Registration Date	1st Aug 2026
Competition Date	30-31 Oct 2026
Registration Fee	2000 tk

15. Prize Money

Place	Prize
1st Prize	BDT 60,000
2nd Prize	BDT 40,000
3rd Prize	BDT 30,000

16. Contact Information

Air Cdre Dr. Mohammad Akhter Jamil, PhD
Chairman
Department of Avionics Engineering
Contact: +8801769995064
email: jamil8703@aaub.edu.bd

Dr. Mohammad Mostafizur Rahman Biswas, Ph.D
Assistant Professor
Department of Avionics Engineering
Contact: +8801850073622
email: mostafizur@aaub.edu.bd

Md Samin Rahman
Assistant Professor
Department of Avionics Engineering
Contact: +8801672552024
email: samin@aaub.edu.bd

Md. Zahid Hassan
Lecturer
Department of Avionics Engineering
Contact: +88 01750548251
email: zahid@aaub.edu.bd