

Koshi Yantra 4.0
Innovate, Dominate, Create

Robot Soccer ThemeBook

Theme: *"Engineering the Game: Where Robotics Meets Football"*

Objective: Celebrate the fusion of robotics and soccer while fostering innovation, collaboration, and sustainability in the STEAM ecosystem.

Event Dates: Fagun 4th, 5th & 6th 2082 B.S.

Venue: [Reliance English Secondary School](#)

Miklajung - 7, Madhumalla, Morang

[\(Map: PMM7+3XC, Unnamed Road, Madhumalla 56600\)](#)

Event Details

Introduction:

RoboSoccer at Koshi Yantra 4.0 combines the thrill of soccer with cutting-edge robotics. Teams will build and operate robots to compete in soccer matches, promoting innovation and teamwork in an exciting, competitive environment.

Prizes and Recognition:

- **Robo-Goal Legend:** Rs. xx,xxx (Final price will determine)
- **Steel Scorers:** Rs. xx,xxx (Final price will determine)
- **Trophies** for outstanding teams
- **Digital** and **physical** participation **certificates** for all participants

Event Location:

[Reliance English Secondary School](#)

Miklajung - 7, Madhumalla, Morang

Task:

Design 1 wireless robot that can play soccer against other robot. It's like giving your bot superpowers for the match!

Rules and Guidelines

Eligibility Criteria

1. Open to students from **Grade 6 to 10** or **equivalent** of any streams.

General Rules

1. **Match Format:** Each match will be a **1 vs 1 competition**, with each team using only **1** robot.
2. **Team Composition:** Teams may consist of **individuals or groups of up to 5** members.
3. **Robot Verification:** Teams must **submit** photos, videos, and design abstracts of their robots two weeks prior to the event for **verification**.
4. **Fair Play:** Unsportsmanlike behavior, including but not limited to deliberate damage to opponents' robots, will result in penalties or disqualification.
5. **Identification:** Both the robots and their pilots must be clearly identifiable during matches.

Robot Specifications

1. **Control:** Robots must be **wirelessly controlled**.
2. **Dimensions:** Robots must fit within **24 cm × 24 cm × 24 cm** (+5% tolerance) and weigh no more than **3kg** (+5% tolerance).
3. **Voltage Limitation:** Maximum voltage of **14V** between any two points in the robot.
4. **Microcontroller Control:** Participants **must use a microcontroller** to program and control their bot **compulsory**.
5. **Remote Control Options:** You can use either an **RC remote** or a **Bluetooth module-based remote** to send serial commands and control your bot.
6. **Motor control Restrictions:** The use of **brushed or brushless ESCs** (Electronic Speed Controllers) for motor control is **not allowed**.
7. **Components:** Use of toy cars, Lego, or similar is prohibited.

8. **Motors:** Planetary, brushless, hybrid, or modified stepper/high-gear motors are not allowed.

(Note: your motor should not exceed 300 rpm in an unloaded situation.)

Gameplay Rules

1. **Match Duration:** Each match consists of two halves, with each half lasting 1.5 minutes, for a total match time of 3 minutes.
2. **Half-Time:** A 2-minute half-time break is provided between the two halves, allowing teams to perform quick repairs on their robots if needed.
3. **Extra Time and Penalty Shootout:** Extra time and penalty shootouts apply during the knockout phase, starting from the quarter-finals. Extra time lasts 2 minutes, divided into two halves of 1 minute each. If the match remains tied after extra time, a penalty shootout is held with no goalkeepers allowed during the shootout.
4. **Kick-Off:** Each half begins with a kick-off from the center circle. The team that wins the coin toss chooses which goal to defend and starts the game.
5. **Goal Scoring:** A goal is scored when the entire ball crosses the goal line between the goalposts and beneath the crossbar. The team with the most goals at the end of regulation time, extra time, or the penalty shootout is declared the winner.
6. **Out of Bounds:** If the ball goes out of bounds, the opposing team receives either a throw-in or a corner kick, depending on where it exited. The robot that last touched the ball before it went out must remain inactive until the ball is back in play.
7. **Pushing Goalkeeper:** At any given time, one bot at a time can push the goalkeeper. Pushing the goalkeeper simultaneously by two bots is not allowed.
8. **Fouls:** Standard soccer fouls such as pushing and tripping come into play. Subject to the placement and extent of the foul, the opposing side is awarded a free kick or penalty kick.
9. **Robotic Interference:** If a robot disrupts the movement or activity of an opposing robot in a way that affects gameplay, the referee can award a free kick or penalty kick to the team.
10. **Player Ejection:** For repeated or severe fouls or unsportsmanlike behavior, a robot may be shown a red card and removed from the match, as determined by the referee.
11. **Referee's Decision:** Decisions made by the event referees are final and binding.

Note: Certain Game rules for Robo Soccer may be subject to change on the event day. Please stay updated and follow official announcements during the event..

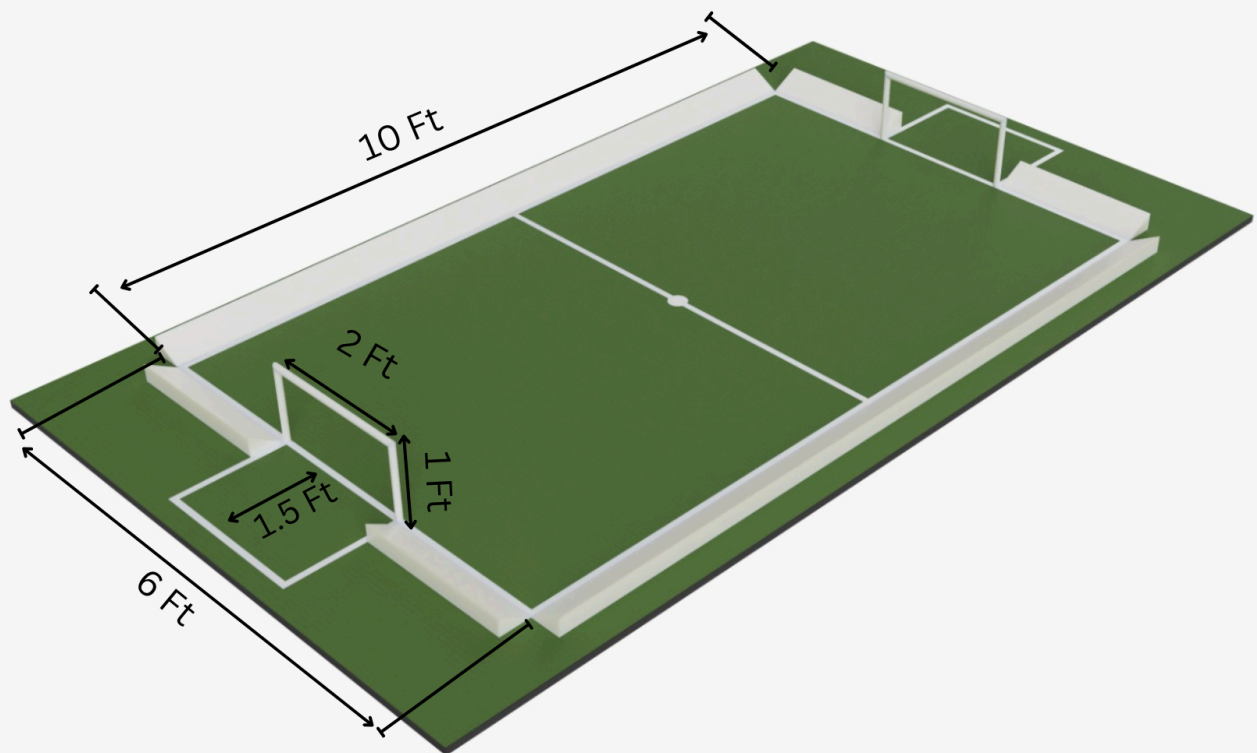
Event-Specific Rules

1. **Ball Handling:** Robots are not allowed to drag or pick up the ball.
2. **Ball Out of Arena:** If a robot throws the ball out of the arena, the opposing team will be awarded a throw-in or a corner kick, based on the location where the ball exited the field.
3. **Free Kick Distance:** During a free kick, the robot taking the kick must maintain a minimum distance from any defending robot. The exact distance will be determined by the referee based on the position of the kick.
4. **Penalty Kick:** Penalty kicks, awarded for fouls committed within the penalty (D) area, will be taken from the center of the field to ensure fairness for both the kicker and the goalkeeper.
5. **Penalty Shootout:** A robot will have 15 seconds to shoot for a goal during a penalty shootout. Robots take turns, and the team scoring the most goals wins.
6. **Yellow and Red Cards:** Yellow card is a warning for foul play. Repeated offenses or significant violations can lead to a red card, and the team or robot gets disqualified.
7. **Physical Damage:** A robot that causes physical damage to an opponent robot on the field will get disqualified immediately, it will be immediately disqualified. Safety is a top priority.
8. **Strict Adherence to Schedule:** Teams must arrive on time for scheduled games. A 5-minute grace period is allowed for delays in case of unavoidable situations. Delays after this duration will result in a warning for the first offense; repeated delays will have a 3-point deduction from the total score of the team.
9. **Disqualification for Persistent Violations:** Repeated violations of timing rules, failure to inform organizers of delays, or attempts to manipulate match timings may lead to immediate disqualification from the competition.
10. **Team Identification:** Bots and pilots must always be clearly identifiable through team tags, uniforms, or markings for effective smooth coordination and fair play.

Arena Specifications

1. **Size:** less than 10 ft × 6 ft.
2. **Markings:** Standard soccer field markings.
3. **Ball Size:** 7-10 cm diameter. (-+5% tolerance)
4. **Referee's Station:** A designated referee's station is set up adjacent to the playing arena.

Note: Certain Area Specs for Robo Soccer may be subject to change on the event day. Please stay updated and follow official announcements during the event..



Registration Process

1. Participants must complete the online registration form, available on the official website of Robotics Association of Nepal - East.
2. A registration fee of Rs. **3,000** per group is required. Payment details are provided in the registration form as well.
3. Registration fees are **non-refundable**.
4. Payment Method: **FonePay(online)**.
5. Key Dates:
 - Registration Opens: **Magh 8, 2082 BS.**
 - Registration Closes: **Magh 28 , 2082 BS.**

Register here:

Visit:  <https://raneast.ran.org.np/>

Contact Details

For any queries, feel free to contact the organizing team.

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