robotix Iran

TECHNOXIAN WORLD ROBOTICS CHAMPIONSHIP IRAN

WORLD'S BIGGEST ROBOTICS CHAMPIONSHIP TECHNOXIAN

Robo Sumo

TECHNOXIAN IRAN

The 12th National Student and Open robotics Competition RobotixIran

First TechnoXianIran International Competition

KISH-IRAN-2025

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WWW.ROBOTIXIRAN.COM
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Sumo Robot - smart combat robots

1. Introduction

At the heart of the Sumo Robot competition is a mix of mechanical design and programming skills. Teams work to improve their robots by focusing on weight balance, traction and pushing power. They also create smart control systems to help their robots predict the moves of opponents and use careful strategies to push them out of the arena.

The main goal of the competition is a face-to-face battle between two robots, where each robot tries to push the other out of the field. Inspired by traditional human Sumo wrestling, the contest does not allow weapons, so teams must rely on clever design and smart strategies.

This competition is a great chance for learning and growth. Participants can use the ideas and experiences of others to build their skills, solve problems and boost their creativity.

2. Robot Class

Only intelligent robots are allowed to compete in this league. (not controlled by operators)

3-Competitions

3.1 Introduction

Each team can have up to three members. Both participants have to follow the competition's rules as announced by the referee. The conditions of the competition and victory criteria are predefined.

3.2 Match Format

The format and number of rounds depend on the number of participants and are determined by the organizing committee. Each team must bring a printed report documenting the mechanical, electronic, and programming processes of their robot, including designs of boards, modules, and PCBs.

After the competition, the team leader or a team member must sign the score sheet.

1. Matches are held in multiple rounds lasting three minutes each. The first team to score two points wins. Points are earned by pushing two wheels of the opponent's robot out of the white boundary.
2. If only one point has been scored by the end of the round, the team which has achieved that point will be declared the winner of the match.
3. **Extra Time**: In the case of a tie, an additional one-minute round is conducted. If still tied, the lighter robot is declared the winner.
4. Participants have a maximum of 1 minute during each round, in case of robot malfunction, to repair and restart their robot, as determined by the referee.
5. At the start of the match, only one team member is allowed to be near the arena. Upon the referee's command to start the match and activate the robot, the individual must leave the competition area within 5 seconds.

6. The winning team's technical report and documentation will contribute up to 20 points to their total score, with an additional 10 points awarded for interviews with the team members. Based on the total scores, the top five teams will be ranked. Teams failing the technical interview may be disqualified if the technical committee decides.

3.3 Age Groups

This competition is open to all age groups.

4. Competition Field

- The competition field is a black circular platform with a diameter of 120 cm.
- There are two designated starting positions for robots on the field.
- The edge of the field is surrounded by a 5-cm-width white strip, which robots must detect and avoid crossing.
- Beyond the white strip, the field can be of any color.
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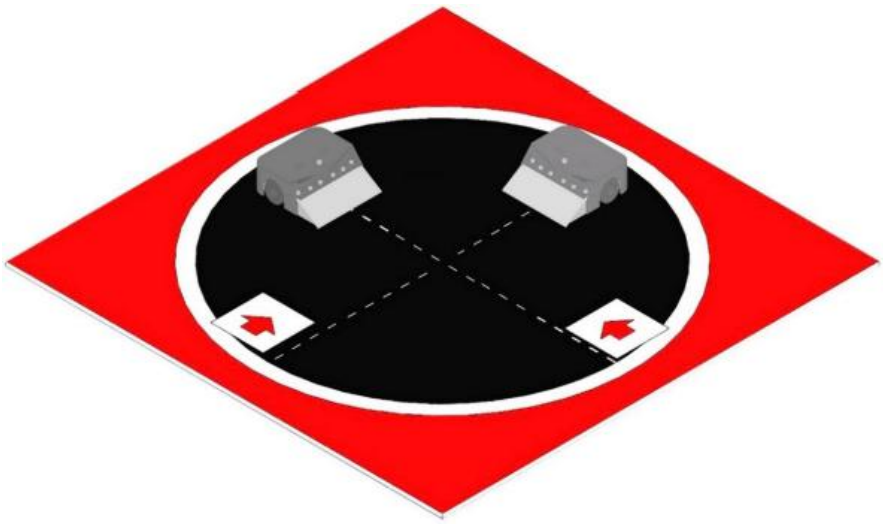
- The field material is made of MDF.



5. Robots

5.1 Requirements

Robots must comply with size and weight restrictions:

Class	Weight Limit	Length	Width	Height
Sumo 3KG	3 kg	20 cm	20 cm	No restriction

- A robot may adjust its size after the start of the match within the defined dimensions but cannot split into multiple parts.
- Robots must fit within the specified dimensions with a tolerance of 2 mm.
- Participants must use a specific robot throughout the competition and are not allowed to switch robots in different rounds.

5.2 Inclined Surfaces

- Using a stable inclined surface is allowed.
- Robot cannot use detaching components while movement or hitting other robots.
- The inclined surface must not damage the competition field. Any damage caused by the robot to the field will result in its removal from the competition

5.3 Power Supply

Maximum voltage is **14.8V**, with no current limitations.

5.4 Robot Movements

- The movements of the robot must be designed in such a way that it detects the opponent's actions and responds appropriately by attacking or reacting. If there is any doubt or suspicion regarding whether the robot is intelligent or not, the referee has the right to review its intelligent algorithm. If it is determined that the robot is not intelligent, it will be disqualified from the competition.
- The robot must have a start button to activate it.
- The robot must begin its movement within 5 seconds of the referee's start command.

5.5 Prohibited Components

1. Components disrupting opponent functionality (e.g., flashlights or Infrared LEDs).
2. Any component that may damage the surface of the field, except during collisions between robots.
3. Any component as a weapon that may harm the opponent.
4. any usage of liquids, powder, or gas as a weapon to harm the opponent is **prohibited**.
5. Flammable substances.
6. The robot must not include any launching mechanism (e.g., traps or levers that operate independently of the robot's movement to harm the opponent).
7. The robot must not have any part that anchors it to the field (e.g., adhesives, vacuum pumps, etc.).
8. The use of adhesives to enhance traction is not allowed. Tires and other components of the robot that come into contact with the ground must not exceed the standard of being able to lift and hold an A4 sheet (80 grams per square meter) for more than two seconds.

6. Match Repeats

A round is repeated if:

- Robots are locked for 20 seconds.
- Both robots simultaneously leave the main area.

7. Robot Status Between Rounds

During the time between rounds, robots must remain in the designated area (quarantine) and are only allowed to leave for the duration of the match. Leaving the quarantine area is prohibited for the Smart Warrior League robots, except when authorized by the referee, such as when the robot requires repairs. The purpose of these regulations is to ensure the smooth conduct of the competition.

If a robot is not placed in the designated area on time, or if team members fail to present themselves, that round will be considered lost.

8. Rule Violations and Infractions

8.1 Warnings

A participant receives a warning in the following cases. If a team receives two warnings, one point will be awarded to the opponent:

1. If a robot cannot continue the match for any reason before the round finishes.
2. If a robot starts moving before the referee's start command or changes its shape.
3. Any behavior from team that violates the rules.

8-2 Violations

A point will be awarded to the opponent in the following cases:

1. If the robot exceeds the weight limit by more than 5 grams.
2. If the robot does not move.
3. If the robot starts moving before 5 seconds after the referee's start command.
4. If the participants decide not to continue the match (in this case, the opponent will be declared the winner of that round).

8-3 Loss Due to Rule Violations

Participants will lose the match if they violate the following rules:

1. If participants fail to place their robot in the main area on time or exceed the allocated time for repairs.
2. If participants deliberately disrupt the game or damage the field, such as intentionally causing harm to the competition area.
3. If the robot is not intelligent.
4. If participants fail to comply with the requirements outlined in Clause 7.

8.4 Disqualification

Teams will be disqualified and cannot participate in the competition in the following cases:

1. If the robot does not meet the requirements mentioned in Clause 5-1.

2. If participants behave inappropriately (e.g., insulting the referee, unsportsmanlike conduct, etc.).
3. If the team deliberately harms the opponent.

9. Suspension

Competitors may request a break due to unforeseen damages. The referee decides whether to continue or award a win to the opponent.

10. Robot Identification

Robots must be marked with identification stickers by the referee. Stickers should not interfere with robot functionality

11.Objections

- Objections must be submitted in the specified forms immediately after the competition or during the round. Late objections will not be considered.
- The final decision on disputes lies with the referees and the organizing committee.
- After the results are announced, no objections will be accepted.

Organizational Chart

- Teams are responsible for staying updated on any rule changes up to one week before the competition.
- Teams must register within the specified timeframe and submit a 1–5-minute video (max 100 MB) showcasing their robot's functionality and their motivation for participating. Videos should be emailed to technoxian.iran@gmail.com.
- Robots will undergo technical inspections before the competition.

Attention: Only one trophy and cash prize will be awarded to the winning team, not to individual members.

GOOD LUCK!