



Geethanjali College of engineering and
Technology



Robo sumo



Robotica' 25

RULE
BOOK



1. GAMEANDRULES:

1.1. PROBLEM STATEMENT

1.1.1. Design and build a robot manually pushing an opponent's robot out of a circular ring (dohyo) while staying within the ring itself.

2. GAMEFIELDANDOBJECTS:

2.1. AREA:

2.1.1. The arena consists of a match circle and the outer layer area of the Arena.

2.1.2. The rest of the space (outside the arena area) is surrounded by volunteers.

2.1.3. The arena is a circle that is covered with a black colour coating.

- Height– 3 cm-
- Diameter–160 cm
- Court material-Wood
- Width of White line– 5cm(Part of the Arena)

3. TEAMS:

- 3.1. One team can have a maximum of 3 members
- 3.2. Members of different institutions can form a team.
- 3.3. Only 2 members of a team are allowed to stay around the arena (one for controlling and one for assisting).
- 3.4. Students who are pursuing any course up to post graduation can participate.

4. ROBOTS:

4.1. ROBOT SPECIFICATIONS

- 4.1.1. Robots can be wired or wireless.
- 4.1.2. If batteries are on the robot, then they will be considered for weight.
- 4.1.3. If batteries are not on the robot, then they will not be considered for weight.
- 4.1.4. A robot is allowed to participate only once in the event. The robot can participate once again with the same team if it satisfies the following conditions:
 - The team has to register once again with a modified old robot/new robot before registrations close and a maximum of 3 registrations will be accepted.
 - Wheels or motors or chassis materials should be changed to consider an old robot as a new one.

- 4.1.5. Ground clearance of the robot should be maintained, and the robot ramp should not touch the arena.
- 4.1.6. Use of IC engines is not allowed.
- 4.1.7. Lego kits are not allowed.coating.

4.2. ROBOT DIMENSIONS

- 4.2.1. Dimensions: Length– maximum 30cm, Width– maximum 30cm, Height– No restriction.
- 4.2.2. Tolerance of 5% on the dimensions will be allowed.

4.3. POWER SUPPLYFORROBOTS

- 4.3.1. Maximum voltage in the circuit should not exceed 12v DC at any time.
- 4.3.2. Tolerance of 5% on the power supply will be allowed..

4.4. WEIGHT

- 4.4.1. Weight restriction– maximum 5 kg.

4.5. REQUIREMENTSFORBLADEUSE

- 4.5.1. Double blades can be used.
- 4.5.2. It is forbidden to use any components that may separate from the robot when it moves or comes into contact with another robot.
- 4.5.3. For Mega Sumo robots, all edges except the front scoop, must not be sharp enough to damage the ring (the exception is when the robots collide), other robots, or players

5. SAFETY:

- 5.1. All the required accessories should be brought by the participants.
- 5.2. Team Roboveda is not responsible for any damage to the robot.
- 5.3. Technical assistance will not be provided by coordinators or technical team.

6. THE COMPETITION AND MATCHES:

NOTE : The competition format is established by the tournament organizers, depending on the number of participants. If the number of participants is high, sub-groups will be used in order to decide who enters the final tournament.

I. Qualifying Round

II. Final Round

6.1. QUALIFICATION ROUND:

- 6.1.1. This level consists of three rounds each of 90sec.
- 6.1.2. To qualify for LEVEL 1, one must clear two rounds

6.2. FINAL ROUND:

- 6.2.1. Will be disclosed on event day by heads and co-ordinators.
- 6.2.2. The robot participating in the final round should be the same one that participated in the qualifying round. Modifications will be allowed for the bot in between the rounds only if the following conditions are satisfied :--
 - The participant must show both the damaged part of the robot (wheels, chassis, motors) and the replaced part of the robot (wheels, chassis, motors) on the day of the final round.
 - Heads or coordinators of the event will allow the modified robot only if the damaged part and replacement part are the same/similar

7. COMPETITION RULES:

7.1. MOVEMENTS OF AUTONOMOUS ROBOTS:

- 7.1.1. The movements of the robot should be designed to detect the movements of the opponent and respond/attack accordingly. If there is any doubt in the autonomy of the robot, the coordinators and head have the right to inspect the control logic of the robot.

7.2. USE OF REMOTE CONTROL DEVICES WITH AUTONOMOUSROBOT:

7.2.1. During the competition (round), the remote control devices must be placed in a previously designated area. The devices may only be used to stop the robot when the referee(coordinators or head) gives a corresponding command. The official infrared remote control device is held by the referee (coordinators or head).

7.3. PROHIBITED COMPONENTS OF THE ROBOT

- 7.3.1. Any components that may disturb the operation of the opponent (for example, flashlights or jamming devices such as IR LEDs intended to saturate the opponent's IR sensors)
- 7.3.2. Any components that are designed to damage the opponent.
- 7.3.3. The robot must not include any parts, which fix it onto the Arena (for example glues, suction cups, etc.). Magnets that improve the grip of the wheels are allowed.
- 7.3.4. Any components that may damage or scratch the surface of the Arena. An exception is when the robots collide.
- 7.3.5. It is forbidden to use any liquids, powders or gas as a weapon against the opponent.
- 7.3.6. It is not allowed to use any inflammable materials in the robot.
- 7.3.7. The robot must not include any throwing devices (for example throwing a net at an opponent).

7.4. STARTING THE MATCH:

- 7.4.1. Before each round and with the signal from the referee(coordinators or head), the contestants place their robots. The participants leave the arena after they have placed their robots there. The robots may start moving after they have received the start command.
- 7.4.2. The referee(coordinators or head) stops the robots by sending a stop command. Additionally, the operators of the robots can use their own methods to stop the robot. The match ends officially after a corresponding signal from the referee (coordinators or head). The participants must take their robot from the arena and leave the area of the arena.

7.5. REPEAT OF THE ROUND

- 7.5.1. The round is repeated in the following situations.
 - Both robots are facing each other, and their movement is hindered, or they do not move at all.
 - Both robots fall out of the Arena at the same time.
 - Other situations in which it is not possible to determine who has won or lost.
 - If it is not possible to announce the winner after a repeat round, the referee. (coordinators or head) may place the robot himself or herself and continue with the match within the allocated time

7.6. MARKINGS ON THE ROBOT:

7.6.1. The robots must be marked with numbering. The numbering cannot be given on any other component, where it may disturb the work of opponents' sensors.

7.7. CHANGES AND CANCELLATIONS IN THE RULES:

7.7.1. Changes and cancellations made to the rules are adopted by the main organizer of the competition according to the regulation of the regulatory committee of the competition

7.8. SCORING AND PENALTIES

7.8.1. Scoring schema will be disclosed on event day by heads and coordinators.

7.8.2. Situation where one or several wheels of the robot roll out of the Arena and the robot is able to return to the Arena. In this case, that team will earn one penalty point(i.e. 15 sec).

7.8.3. If the contestant gets two warnings, that team will earn one penalty point(i.e. 10sec).

7.8.4. Arena damages-one penalty point (i.e. 10 sec).

8. DISQUALIFICATION:

In the following cases, the participant will be disqualified—he or she must leave the competition and is not added to the list of competition results.

- 8.1. If the participant's robot does not comply with the requirements provided in the Rule Book.
- 8.2. If the participant behaves in an undignified manner. For example, swears or offends the opponent or the referees(coordinators or head).
- 8.3. If the participant deliberately injures the opponent.

9. JUDGINGCRITERIA:

9.1. The decisions of the referees are not subject to appeals. Complaints must be submitted during or immediately after the match. Any later complaints will not be accepted. In case of any conflicts or disputes, the final word will be said by the referees(coordinators or heads).

10. WARNINGS:

A contestant who acts as indicated below gets a warning. If the contestant gets two warnings, that team will earn one penalty point.

- 10.1. If the operator or some item of the operator (for example, remote control) ends up in the area of the Arena before the round ending signal of the referee (coordinators or head).
- 10.2. If the robot moves before the beginning of the round (movement or changing its shape).
- 10.3. If the participant violates the requirements for the use of remote control.
- 10.4. If the robot is replaced after it is placed on the Arena.
- 10.5. If the participant does not comply with the safety requirements.
- 10.6. In case of any other action that is considered unfair

11. VIOLATIONS:

The participant who violates the following rules loses the match due to violation.

- 11.1. If the contestant breaks or deforms the Arena.
- 11.2. If the participant violates the requirements provided for “The Robot”.
- 11.3. If the robot makes any autonomous movements.
- 11.4. If the robot does not move.
- 11.5. If both robots move, but do not collide.
- 11.6. In case of any other action that is considered unfair

12. THE WINNER IS ANNOUNCED IN THE FOLLOWING SITUATIONS:

- 12.1. If the opponent has been pushed out of the Arena (the robot touches the area outside of the Arena).
- 12.2. If the opponent falls out of the Arena and touches the area outside of the Arena.
- 12.3. If there is a case of violation.
- 12.4. A situation where one or several wheels of the robot roll out of the Arena and the robot is unable to return to the Arena.

13. COMPETITORS AND BEHAVIORAL RULES:

- 13.1. All participants will be given a Certificate of Participation.
- 13.2. Winners and runners will be given a Certificate of Merit.
- 13.3. The same member cannot be a member of two different teams for the same event.
- 13.4. Participants are allowed to participate once again if they satisfy rule 4.1.4.
- 13.5. In case of any discrepancies, the decision of the coordinator and the event head shall be final, and no further arguments shall be entertained.
- 13.6. All participants must bring their registration receipts to the event compulsorily.
- 13.7. In case of any discrepancies, the decision of co-ordinators and heads shall be final and no further argument will be entertained.
- 13.8. We request the participants not to assume anything that is not mentioned in the document without contacting the Coordinators or Technical Team.

- 13.9. Make sure you visit our official website on a daily basis so that you will get to know if there are any changes made in the event.
- 13.10. Any kind of misbehavior will not be tolerated and will lead to disqualification of the team.
- 13.11. If you choose our hospitality, the payment must be made on the day you check-in.
- 13.12. In unforeseen circumstances, Team Roboveda abides by the decision of the Institution regarding the conductance of the event. Only registered participants will be informed about the change in event dates or cancellations. In that case, the registration fee will be refunded.

EVENTCOORDINATORS:

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