

RoboWar

Problem Statement

Arena

The arena will be a square platform with dimensions 6 ft x 6 ft. The arena base will be either wooden or metallic/concrete with 4 mm thick polycarbonate sheets all around it for safety purposes. The arena will stay closed and protected during the match and will only open during the entering and exiting of a robot.

Introduction & Aim

The flagship event of any Robotics competition, Robowars, sees the age old entertainment of two robots battling it out in the center to be the last one standing. This presents a chance for the challenger to show their robotic acumen, intellect, and fighter spirit. Teams are encouraged to equip their bots with high torqued industrial motors, protective armour sheets, and well designed weapons to take down the enemy bot. Design and construct a remote controlled robot capable of fighting a one on one tournament.

Gameplay

The event is organised in an elimination style tournament. Each match of the tournament will be played as a one-on-one match in which the winner of the match will proceed to the next round / match. The losing team will be eliminated from the competition. The process will continue until a single team captures the winner's title.

Criteria for Victory

1. A robot is declared victorious if its opponent is immobilised.
2. A robot will be declared immobile if it cannot display linear motion of at least one inch in a timed period of 30 seconds.
3. A robot that is deemed unsafe by the judges after the match has begun will be disqualified and therefore declared the loser.
4. Robots cannot win by pinning or lifting their opponents.
5. Points will be given on the basis of aggression, damage, control and strategy.

Dimensions and Fabrications

1. The machine should fit in a box of dimension 350mm x 350mm x 350 mm (l x b x h) at any given point during the match. The external device used to control the machine is not included in the size constraint.
2. The machine should not exceed 20kg including the weight of the batteries on board. Weight of remote controller will not be counted.

NOTE: Qualification of a robot to next level is subjective and totally on the decision of the judges. A robot winning in a round against its opponent doesn't guarantee its entrance into the next round. If the judges found the winner robot incompetent to enter into the next round, it may get disqualified. Judges can disqualify both the robots of a match from advancing to the next round. All the decisions taken by the judge will be final and binding to all. Any queries afterwards will not be entertained.

Abstract

The written abstract should be prepared on the following lines:

The weapon systems and power supply method should be explained in detail.

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Picture(s) showing these should be attached.

In case of wireless remote, functioning of wireless remote and the frequency or any other wireless module used for wireless remote must be explained in detail.

Description of any unusual advantageous mechanism used.

The specifications of all the components used, including motors, suspension springs, remote controller, wires, battery etc. have to be mentioned.

You can email the portfolio minus the video and send the video later.

This will make sure that at least the abstract part of your portfolio reaches us before the deadline.

An email will be sent to the team leader confirming the receipt of the entry.

Match Rules and Regulations

1. The aim of every match is to demolish and immobilise the other bot completely.
2. Duration of each match will be 4 minutes.
3. Maximum of 2 time outs of 30 seconds each are allowed during which teams can relocate their bots, but are not allowed to make any changes in the bot.
4. Striking should be done to the body parts only, communication cable or motor should not be attacked. Direct hit to the motors and communication cable of the opponent's bot is not allowed.
5. If communication cables of both bots get entangled and both bots can't move, then time out will be given to both teams to straighten wires and bots will be placed back in same positions.
6. If after completion of both the rounds, no bot is able to demolish the other bot, winner will be selected after evaluating the damage incurred to both the bots.
7. Any change in the rules by the judge shall be intimated to the teams in the event arena.

Bot Specifications

Robot Control Requirements

- 1) The machine can be controlled through wireless remote or a wired remote only.
- 2) Power supply will be provided only if the bot is not wireless. Refer below for further details on battery and power.
- 3) In case of wireless control participants should have their own battery, there should be binding capability between transmitters and receivers and they must connect between polycarbonate (6mm), metal bars barriers. The remotes with such facility will only be allowed.

Weapons

Robots can have any kind of magnetic weapons, cutters, flippers, saws, lifting devices, spinning hammers etc. as weapons with following exceptions:

- 1) Any kind of inflammable weapon
- 2) Spinning weapons which come in contact with arena floor.

In no case should the arena be damaged. Also, they should come to stop within 60 seconds of power disconnection using self-contained braking system.

Mobility

All robots must have easily visible and controlled mobility in order to compete.

Methods of mobility include:

- 1) Rolling (wheels, tracks or the whole robot).

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- 2) Jumping and hopping is not allowed.
- 3) Flying (using airfoil, helium balloons, ornithopters, etc.) is not allowed.

Team Specifications

- 1) A team can consist of 4-6 members.
- 2) All team members must be of the same educational institute.
- 3) Two teams from the same educational institute are allowed.

Eligibility

All students with a valid identity card of their respective educational institutes are eligible to participate in the event.

General Rules

- 1) The bots will be checked for safety before the run and will be disqualified if found unsafe.
- 2) Measurements and verdicts made by an officiating judge will be deemed final.
- 3) The organisers reserve the rights to change any or all of the above rules as they deem fit. Change in rules, if any will be highlighted on the website and notified to the registered teams.