



ROBOWARS

Champions are made in the ring

INTRODUCTION

Robo-wars is a major combat robotics event that focuses on designing and manufacturing robots made to annihilate their opponents and keep themselves as safe as possible. The winner is decided based on the destruction it has caused to its opponents. It will have two categories: 15 kg and 60 kg.

PRIZE MONEY

For the 15 kg Category:

1st prize: Rs. 40,000

2nd Prize: Rs. 25,000

3rd Prize: Rs. 15,000

For the 60 kg category:

1st prize: Rs. 60,000

2nd Prize: Rs. 35,000

3rd Prize: Rs. 25,000

PROBLEM STATEMENT

ROUND 1

- Teams will need to submit a proof of concept (POC) of the model.
- The design should be in .sldasm/. step format, preferably.

ROUND 2

It will be an on-site one-to-one fight. The two robots will be fighting in the arena. The track of points will be maintained for both teams and the team having the maximum points will be declared the winner for that round. This round can be further divided into sub rounds e.g. semifinals and final.

ARENA SPECIFICATION

- The arena is rectangular in shape with dimensions 17 x 17 x 8 foot.
- The height of side safety wall, which is made of M. S, has a height of 0.5m.
- The height above the safety plate is of polycarbonate plate with a cage. The top of the arena is covered with a cage.

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DIMENSIONS AND WEIGHT

- The bot should not exceed its category weight including the pneumatic/hydraulic (the components of the bot which will be out of the arena do not count in this weight).
- Robots must be wireless.
- Source, batteries (including external), and any other component excluding remote. The robot should fit in a box of 750mm x 750mm x 1000mm.
- At all times, the external device used to control the robot, or any external tank is not included in the size constraint.
- Bots can have zero ground clearance provided they do not damage the arena.

COMPETITION RULES

A. MOBILITY

- Rolling (wheels or whole bot).
- Linear actuated legs or cam operated motion or any non-wheeled drive system.
- Jumping or flying with the help of propellers or gas balloons is not allowed.

B. ELECTRICAL SYSTEM SPECIFICATIONS

- The bot can be powered electrically (DC) by batteries with electrolytes such as Li-ion, Li-Po, NiCad, gel cells, lead-acid, etc.
- The electric voltage between 2 points anywhere in the machine should not be more than 48 V DC at any point in time.
- Batteries should be charged up before advancing to the match.
- All efforts must be made to protect battery terminals from a direct short and causing a battery fire, failure to do so will cause direct disqualification.
- Internal combustion engines as a source of power will not be allowed.
- Any kind of inflammable liquid will not be allowed to use in the bot by any means.

C. PNEUMATICS AND HYDRAULICS

- Robots can use non-inflammable liquid to actuate hydraulic devices.
- Maximum pressure in the storage/source tank must not exceed 8 bars.
- There should be a provision to check the storage tank or source tank pressure with an integrated or temporarily fitted pressure gauge.
- All hydraulic liquids should be non-corrosive and leakproof.
- Special care must be taken while mounting the pump, accumulator, and armor to ensure that if ruptured direct fluid streams will not escape the robot.

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D. ATTACKING/WEAPON SYSTEM

- Robots can have any kind of cutters, flippers, saws, lifting devices, spinning hammers, Spinning drums, etc. as weapons.
- Following weapons or attacking systems are not permitted:
- Liquid projectiles and tethered or untethered projectiles.
- Any kind of inflammable liquid.
- Any kind of explosive or intentionally ignited solid or potentially ignitable solid.
- Nets, tape, glue, chains, or any other entanglement device.
- High-power magnets or electromagnets.
- Radio jamming, lasers, tesla coils, or any other high-voltage device.
- Spinning weapons that do not come in contact with the arena at any point in time are allowed.
- In any case, the arena should not be damaged by any bot.

GENERAL RULES

- If less than 5 teams register, then only the first prize will be given. If 5 to 10 teams register, only two prizes will be given. All three prizes will be given only if more than 10 team registers.
- Any damage caused to the arena at any time will lead to disqualification /penalty.
- A team member can't be a part of more than one team.
- Bring your college/student I-Card at the time of the competition.
- If any of the above-mentioned rules, if found violated, teams would not be allowed to participate in the competition.
- Decision Taken by Judges will be final and binding for all.
- Any misbehavior will lead you to disqualification from the competition.
- In case of any disputes, the decision of the organizer and the jury's decision will be final.

TEAM SPECIFICATIONS

- Members of a team may be from the same college/school or different (K12/UG/PG).
- Any number of teams can participate from one college/school.
- Participants can build a single robot or cluster of robots (according to the given rules).
- A team can have a maximum of 6 participants may be of the same or different colleges. But one participant cannot participate simultaneously in 2 or more teams.
- Once registered, the same team cannot register with another name or for another robot other than the previously registered one.

- Every team must have a unique name that should not be offensive conflicting or inappropriate.
- Organizers have the right to reject entries for any inappropriate team name.
- Organizers must be notified if a team's name has been changed.
- Team Representative: Each team must specify their Team Representative (Leader) at the time of registration on the website. All-important communications between the organizer and the registered teams will be done through their Team Representatives. The Team representatives must submit valid contact details (phone no., email id, etc.) at the time of registration.
- If teams don't show up on allotted slot, they will be disqualified.

SAFETY RULES

- Robots must be activated in the arena or with the expressed consent of the event coordinators.
- All participants build and operate robots at their own risk.
- Please take care you do not hurt yourself or others when building, testing, and competing.
- Organizers will not be responsible for any injuries to the operator or team members.
- Violation of any of the above rules will lead to the disqualification of the respective team.
- A robot that is deemed unsafe by the judges after the match has begun will be disqualified and therefore declared the loser. The match will be immediately halted and the opponent will be awarded a win.
- Robots intentionally damaging the wires of the opponent will be disqualified.
- Also, each team should keep its wires above the ground.
- Robots intentionally and/or extensively damaging the arena will be disqualified.
- If the wires of the robot are cut because of its own strategy and if fails to repair within match time then the team will be disqualified.
- Special care should be taken to protect the onboard batteries and pneumatics, robots without proper protection will not be allowed to compete.

JUDGING CRITERIA

- A bot is declared victorious if its opponent is immobilized.
- A bot is declared immobilized if it cannot move linearly/rotationally for more than 30 seconds.

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- A robot with one side of its drive train disabled will not be counted immobilized if it can demonstrate some controlled movement.
- In case both the robots remain mobile after the end of the round, then the winner will be decided subjectively.
- Points will be given based on aggression, damage, control, and strategy.
- Pinning occurs when one robot, through sheer force, holds an opponent stationary to immobilize it.
- Organizers will allow pinning or lifting for a maximum of 15 seconds per pin/lift then the attacker robot will be instructed to release the opponent.
- If a team fails to stop the pinning/lifting several times, that team can also be disqualified.

REGISTRATION DETAILS

- Fees - 15 kg Category: Rs. 200
60 kg Category: Rs. 400
- Register at: <https://mindbendsvnit.in/>

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