ROBO WAR:

Introduction:

From all corners they come through flame and fear, flipping, cutting, hurling maces-the messiahs of destruction, all fighting for the crown...

The carnage will be veiled, the damage catastrophic...

All at the Inter-Collegiate Combat Robotics Championship, promising a wilder, fiercer competition this year. You could be forgiven for thinking that the machines you'll see are from outer space or the depths of hell, but they're the wild, weird and wacky creations of skillful roboteers from all around the country. Equipped with the fiercest weaponry and toughest armor, gears will grind and sparks will fly, much more is at stake as the robots battle it out in a bid to be the best. Robowars is manufactured mayhem of the highest order.

Team Specification:

A team may consist of a maximum of 4 participants, all from the same institute or may be from different institute.

General Rules:

The competition will be played on a **knock-out basis** consisting of 2-3 players at a time **.**

The maximum duration of each round will be 5 minutes. Any team that is not ready at the time specified will be disqualified from the competition automatically.

1. The machine would be checked for its safety before the competition and would be discarded if found unsafe for other participants and spectators.
2. The organizers 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.
3. Violation of any the above rules will lead to disqualification.
4. Judges' decision shall be treated as final and binding on all.

Criteria for Triumph:

1. A robot is declared victorious if its opponent is immobilized or out of the arena.
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**. A bot with one side of its drive train disabled will not be counted out if it can demonstrate some degree of controlled movement.
1. If both robots survive the five minutes at that point, the robot with the higher hitpoints wins.
4. The winner moves on, the loser is eliminated from the tournament.

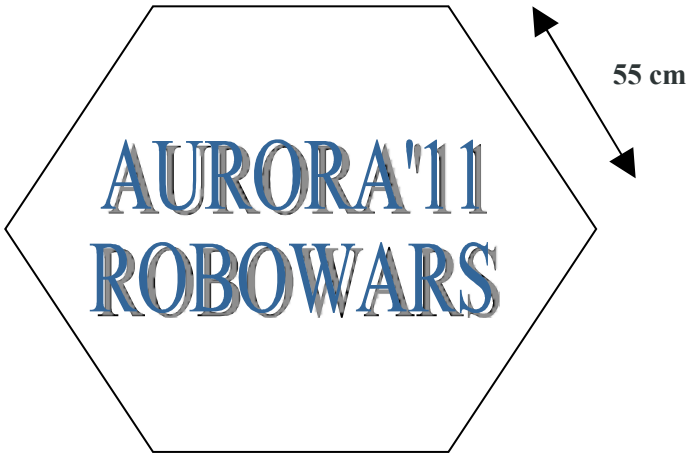
Safety Rules:

1. Compliance with all event rules is mandatory. It is expected that competitors stay within the rules and procedures of their own accord and do not require constant policing.
2. If you have a robot or weapon design that does not fit within the categories set forth in these rules or is in some way ambiguous or borderline, please contact the event organizers.
1. All weapons must have a safety cover on any sharp edges

Arena and hazards:

The arena is a **hexagon of 55 cm side length** with a wooden surface.

The teams bring their robots. The drivers control their machines from outside the arena.



Specifications:

Problem statement:

Design and construct a **remote or wired** controlled **bot** capable of fighting a one on one tournament.

Dimensions and Fabrications:

- The bot should fit in a box of dimension **35cm x 35 cm x 35 cm** (lxbxh) with all mechanisms fully executing motions. Length and width is measured to the extremities of the Robot, i.e. includes any overhanging bodywork, weaponry or protrusions. The external device used to control the bot is not included in the size constraint.

Mobility:

All **bots** must have easily visible and controlled mobility in order to compete. Methods of mobility include:

- Rolling (wheels, tracks or the whole robot).
- Jumping and hopping is not allowed.
- Flying (using airfoil, helium balloons, ornithopters, etc.) is not allowed.

Robot Control Requirements:

- If the bot is wired then the wire should remain **slack** under all circumstances during the competition. All the wires coming out of the bot should be stacked as a **single unit**. The wires should be properly **insulated**. Teams are suggested to use only **rated wires** such as ISI marked. Loose connections or improper wiring may lead to direct disqualification even before the event.
- If the bot is controlled wirelessly, the bot must at least have a **four frequency remote control circuit or two dual control circuits** which may be interchanged before the start of the race to avoid frequency interference with other teams. The case of any interference in the wireless systems will not be considered for rematch or results.
- Remote control systems from toys might be used. Remote control systems available in the market may also be used.

Battery and Power*:*

- The machine can be powered electrically only. Batteries must be sealed, immobilized-electrolyte types (such as **Li-ion, NiCd, NiMH or dry cells**).
- Working voltages must not exceed 24V DC (mean voltage) at any point of time.
- All power connections must be of an adequate grade and adequately insulated. Cables must be routed to minimize the chances of being cut.
- 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.
- Battery Eliminators are allowed and power source would be available at the venue for the eliminators.

Motors:

The robot should move as fast as possible around the arena with the help of motors.

- DC motors and stepper motors (12V-24V) can be used as per the design of bots.

Pneumatics:

All gases in pneumatic systems must be inert or non-inflammable - e.g. air, carbon dioxide (CO2), argon (Ar), or nitrogen (N2).

- Maximum allowed outlet nozzle pressure is **4 bars**. The storage tank and pressure regulators used by teams need to be certified and teams using pneumatics are required to

produce the Safety and Security letters at the Registration Desk at the venue. Failing to do so will lead to direct disqualification.

- Participants must be able to indicate the used pressure with integrated or temporarily fitted pressure gauge. Also there should be provision to check the cylinder pressure on the bot.
- You must have a safe way of refilling the system and determining the on board pressure.
- All pneumatic components on board a robot must be securely mounted. Particular attention must be made to pressure vessel mounting and armour to ensure that if ruptured it will not escape the robot. The terms 'pressure vessel, bottle, and source tank' are used interchangeably.

Hydraulics:

- Bot can use **non-inflammable liquid** such as **water-glycol mixtures , water-synthetic base mixtures ,oil** etc. to actuate hydraulic devices
- All hydraulic components on-board a bot must be securely mounted. Particular attention must be made to pump, accumulator mounting and armour to ensure that if ruptured direct fluid streams will not escape the bot.
- All hydraulic liquids are required to be non corrosive and your device should be leak proof. Maximum allowed pressure is **8 bars.**
- Participant must be able to indicate the used pressure with integrated or temporarily fitted **pressure gauge**.

Weapons Systems:

Robots can have any kind of magnetic **weapons, cutters, flippers, saws, lifter, clamper, crusher, rammer, wedge like structure of bot, spinning hammers** etc. as weapons with following **exceptions and limitations:**

- Visual obstruction.
- Radio jamming.
- High voltage electric discharge.
- Liquids (glue, oil, water, corrosives…)
- Open combustion (fire, explosives…)
- Any kind of explosive or intentionally ignited solid or potentially ignitable solid.
- High power magnets or electromagnets.
- Spinning weapons which do not come in contact with the arena at no point of time are allowed.

In no case should the arena be damaged by any bot.
The competition will be played on a knock-out basis.

Contacts

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