

ROBOWARS – RULEBOOK

GENERAL RULES

- ❖ Contestants will have to register online. Registrations can also be done on the spot.
- ❖ Every member of the participating teams **must** carry valid student ID or Company ID cards of their college/company which they will be required to produce at the time of registration.
- ❖ A team may comprise a maximum of **five** participants.
- ❖ A team can comprise of students from different colleges/teams.
- ❖ A team is **NOT** permitted to compete with more than one bot.
- ❖ There are no restrictions on number of teams from a college.
- ❖ The contestants are requested to comply with the organizers in this regard, violation of which will lead to an immediate disqualification.
- ❖ 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.

EVENT FORMAT

- ❖ The competition will be played on knock-out basis.
- ❖ The machine would be checked for its safety during registrations.
- ❖ In case of unsafe robots, the teams will be allowed to modify the robot before the registrations close.
- ❖ Only one person can control the robot and one person can stay near the arena for monitoring the robot.
- ❖ Each team will have a maximum time period of 10 minutes to repair their robot after each battle round.
- ❖ The organizers reserve the right to change any or all of the above rules or add any rules as they deem fit.
- ❖ Violation of any the above rules will lead to disqualification.
- ❖ Judges' decision shall be treated as final and binding on all.

EVENT RULES

- ❖ The maximum duration of each battle would be **10 minutes** except for the finals which is going to be a **15-minute** battle. Each battle would consist of three rounds of 3 minutes each (5 minutes for the finals).
- ❖ Any time allotted to you will be strictly enforced and no extra time will be allotted.
- ❖ A robot that is deemed unsafe by the judges after the match has begun will be disqualified. The match will be immediately halted and the opponent will be awarded a win.
- ❖ In case of immobility of any of the bots, both the bots will start again from their start points.
- ❖ Any team that is not ready at the time specified will be disqualified from the competition and the opponent robot will be declared the winner.

JUDGING CRITERIA AND SCORING

- ❖ Points will be awarded by the judges to a robot only if it has a considerable impact/damage on the opponent's robot. (Definition of damage will be decided by the judge and will be binding to all. **NO discussion will be entertained.**)
- ❖ Points can be won by immobilizing (**pinning**) the opponent robot for a period of **10 seconds**. Only two pins are allowed per round.
- ❖ Points will be awarded for the team for using the offensive mechanisms provided by the organizers.
- ❖ **Winning the match: The robot winning the maximum of the three rounds will be declared the winner.**

ARENA SPECIFICATIONS

- ❖ The arena will be a square concrete platform of side 17ft x 17 x 8 ft.
- ❖ **Important:** Any damage to the arena will result in deduction of points and if the same bot continues causing further damage after that (irrespective of different matches) it will be **immediately disqualified**.
- ❖ 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.



MOBILITY

- ❖ All robots must have easily visible and controlled mobility in order to compete.
- ❖ Any machine component should not be detached (intentionally) during any point of the war. Eg: arrows/bullets cannot be shot at the opponent.
- ❖ However, there is no power limitation for attack mechanism.
- ❖ Methods of Mobility include:
 - Rolling (wheels, tracks or the whole robot).
 - Walking (linear actuated legs with no rolling or cam operated motion).
 - Shuffling (rotational cam operated legs).
 - Jumping and hopping is **not allowed**.
 - Flying (air foil using, helium balloons, ornithopters, hovercrafts etc.) is **not allowed**.

BOT SPECIFICATIONS

- ❖ Initial dimension of the robot should not exceed 75cm x 75cm x 100cm (l x b x h). The external device used to control the machine or any external tank is not included in the size constraint.
- ❖ *Weight of the robot should not exceed 15kg (10% tolerance is allowed) (Excluding remote control and control wires).*
- ❖ If the robot uses external pneumatic / hydraulic source tank, its weight would not be considered.
- ❖ The bot should contain an attack mechanism. Attack mechanism **should be independent of the motion of the bot i.e., it should work even if the bot is motionless.** A separate check of the attack mechanism will be conducted when the bot is immobile.
- ❖ The robot should have a small ground clearance such that the arena is not damaged at any point of time. **The bot which causes any damage to arena will be disqualified.**
- ❖ A robot check may be performed at any time during the event based on the discretion of the judges.

PNEUMATIC/HYDRAULIC SYSTEMS

- ❖ Participants can use pneumatic and hydraulic weapon systems.
- ❖ The outlet pressure of the source/tank **should not exceed 8 bars.** The used pressure should be indicated by means of temporarily fitted pressure gauge or there should be a provision to measure the cylinder pressure on the bot.
- ❖ Robots can use pressurized, non-inflammable gases/liquid to initialize their pneumatic mechanisms.
- ❖ Teams have to bring their own cylinders. Organizers will not provide any kind of refilling.
- ❖ Weights of the external cylinders are not taken into account.

BATTERY AND POWER SUPPLY

- ❖ Both on and off board power supplies are allowed. Batteries must be sealed, immobilized-electrolyte types (such as gel cells, lithium, NiCad, NiMH, or dry cells).
- ❖ The voltage between any two terminals in the robot **should not exceed 37V.** There is no restriction on the power consumption of the bot.
- ❖ 230V AC power will be provided.
- ❖ Participants can make use of one or more DC/Stepper motors.
- ❖ Use of an IC engine in any form is not allowed.

WEAPON SYSTEMS

- ❖ **The bots must have at least one kind of attack mechanism.**
- ❖ Robots can have any kind of magnetic weapons, cutters, flippers, saws, lifting devices, spinning hammers etc. as weapons with following exceptions and limitations:
 - Liquid projectiles.
 - Any kind of inflammable liquid.
 - Flame-based weapons.
 - Electro-Magnetic Pulse.

- Any kind of explosive or intentionally ignited solid or potentially ignitable solid.
 - Nets, tape, glue, or any other entanglement device or adhesives.
 - High power magnets or electromagnets.
 - Radio jamming, Tasers, tesla coils, or any other high-voltage device.
 - Un-tethered projectiles.
- ❖ Tethered projectiles in any direction with each having a maximum tether length of 1m are allowed.
 - ❖ 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. Violation of this rule will lead to immediate disqualification.

SAFETY RULES

- ❖ 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.
- ❖ If you have a robot or weapon design that does not fit within the categories set forth in the above said rules or is in some way ambiguous or borderline, please contact the event organizers.
- ❖ Safe innovation is always encouraged, but surprising the event staff with your brilliant exploitation of a loophole may cause your robot to be disqualified before it even competes.
- ❖ Each event has safety inspections. It is at the judge's sole discretion that your robot is allowed to compete. As a builder you are obligated to disclose all operating principles and potential dangers to the inspection staff.
- ❖ Proper activation and deactivation of robots is critical. Robots must only be activated in the arena, testing areas, or with express consent of the event coordinators.
- ❖ All weapons must have a safety cover on any sharp edges.
- ❖ All participants build and operate robots at their own risk. Combat robotics is inherently dangerous. There is no amount of regulation that can encompass all the dangers involved.
- ❖ Please take care to not hurt yourself or others when building, testing and competing.
- ❖ Maximum of 3 members per team will be let inside near the arena accounting the manpower required to control the bot and battery. Whosoever chooses to be near the arena **MUST** wear a helmet. **(PLEASE NOTE THAT HELMETS WILL NOT BE PROVIDED, IMPLYING THAT THE TEAM MUST CARRY HELMETS AS REQUIRED.)**
- ❖ Team members as well as the spectators are requested to stay alert throughout the contest for safety purposes.

In case of any queries, contact:

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