Robowars

Problem Statement:

The challenge is to create a robot (manually controlled / autonomous) whose sole purpose is to immobilize or otherwise move your opponent out of the arena within a stipulated time. This event aims to test your Robot against another in a field of combat where brute strength and cat-like reflexes hold the key to success.

Bot Specifications:

1. The bot should not exceed the dimension 500mm x 500mm x 750mm (l x w x h) at any point during the match.
2. The weight of the machine should not exceed 50 kg's.
3. In case of a wireless robot, weight will be counted as 0.8 x actual
4. For weight +/- 5% is allowed.
5. The weight of adapters and the remote controller will not be included in this constraint Mobility.
6. All robots must have easily visible and controlled mobility in order to compete.

Arena Specifications:

Will be updated soon….

Methods of mobility include:

1. Rolling (wheels, tracks or the whole robot).
2. Walking (linear actuated legs with no rolling or cam operated motion).
3. Ground effect air cushions (hovercrafts).

NOTE:
Pneumatic Devices, Hammers, Drums, spinners and other stuff is allowed. IC engines, Inflammable, chemical, and explosive weapons should not be used. Cutters and other sharp devices are not allowed. In case of any query in choosing weapon, contact Akhil Ashref-ee15btech11003@iith.ac.in

Control Requirements:

1. The bot can be controlled wirelessly or with wires.
2. In case of a wired bot, wires should be stacked into a single unit and should be slack at every moment of the competition.
3. All the robots with wireless control should be able to change frequencies (if required) or coded channels to prevent any radio conflicts, it may be changed before the start of the match to avoid frequency interference with other teams.
4. Remote controls available in the market can also be used.

Power Source:

1. Batteries should be on board, should not be damaged and non-leak proof as it may lead to disqualification.
2. Special care should be taken for protecting the onboard batteries. You won't be allowed to change batteries during the match.
3. It is suggested to have an extra battery ready and charged up during the competition so that the team, on advancing to next level, have their robots ready on time.
4. The machine can be powered electrically only. Use of an IC engine in any form is not allowed. Onboard batteries if used, must be sealed, immobilized-electrolyte types (such as gel cells, lithium, NiCad, NiMH, or dry cells).

Pneumatics:

1. The robot can use pneumatic devices actuated by pressurized non-inflammable gases. Maximum allowed outlet nozzle pressure is 8 bar. The storage tank and pressure regulators used by teams need to be certified.
2. Participants must be able to indicate the used pressure with an integrated or temporarily fitted pressure gauge. Also, there should be provision to check the cylinder pressure on the bot.
3. The maximum pressure in cylinder should not exceed the rated pressure at any point of time.
4. Entire pneumatic setup should be on-board, no external input (from outside the arena) can be given to the robot for the functioning of its pneumatic system.

Gameplay:

1. A robot is declared victorious if its opponent is immobilized.
2. A robot will be declared immobile if it cannot display linear motion (should be smooth/exactly straight) of at least two feet in a timed period of 15 seconds.
3. In case both the robots remain mobile after the end of the round then the winner will be decided based on the points (criteria for points allocation is mentioned below).
4. Every match will consist of 3 rounds of 3 min each and each subsequent round will have a time gap of 1 min.
5. If a robot is thrown out of the arena, that particular round will stop immediately, and the robot still inside the arena will automatically be declared as the winner of that round and the other rounds will continue as usual.
6. Robots cannot win by merely lifting their opponents. Organizers will allow lifting for a maximum of 20 seconds for each lift and then the attacker robot will be instructed to release the opponent. If, after being instructed to do so, the attacker is unable to release, they will be awarded -10 points.
7. If two or more robots become entangled due to any reason and becomes trapped within another robot, then the competitors should make the timekeeper aware and the fight should be stopped and the robots should be separated by the safest means.
8. Points will be given on the basis of attack and defense.

Aggression and attack:

Aggression is judged by the frequency, severity, boldness and effectiveness of attacks deliberately initiated by the robot against its opponent. If a robot appears to have accidentally attacked an opponent or if the attack doesn't have any impact on the enemy bot, that act will not be considered Aggression. For every attack, the bot will be given 15 points. Once a round is finished, whichever bot, the organizers feel is aggressive in that particular round, that bot is given 50 points.

Defense:

A good defense means, being able to escape or minimize the damage caused by the opponent or its weapons. For every successful defense performed, the bot will be given 10 points.

Rules and Regulations:

1. The maximum size of a team is 4.
2. A robot that is unsafe, as deemed by the judges, will be disqualified immediately and the opponent robot will be declared as the winner.
3. The bot is not allowed to leave anything behind during the run. It should not leave any mark on the arena. Any bot found damaging the arena will be immediately disqualified.
4. If there is any kind of ambiguity in the selection of weapon systems, please clarify the same with the event organizers to avoid further confusion.
5. The Victory if both bots remain mobile will be based on the judges at their discretion. The judge's decision will be final and the points will be kept confidential.
6. Changes in rules, if any, will be highlighted on the website.