IIT INDORE'S FLUXUS 2020 AN ARCHAIC INSURGENCE

Robo-Wars

Weight Category - 30 Kgs

Content:

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1. Task

Structure and build a remote-controlled robot equipped for battling a competition against another robot(s).

2.Design Specifications

A. Basic Specifications:

1. Dimensions of your bot ought to be under 3ft x 3ft x1.5ft (l x b x h).

2. The weight of the machine ought not to surpass 30 Kgs (66.138 Lbs), which incorporates the weight of any pneumatic source/tank. Every single pneumatic tank/source and batteries must be on board. Just the weight of the remote controller won't be checked.

3. A bot can be in a "Cluster Bot" development. Every bot must meet the necessities depicted in this problem statement. The total weight of all the bots and the dimensions of the combination of bots must satisfy the above two points.

B. Mobility:

All robots must have easily visible and controlled mobility to contend. Strategies for mobility include:

1.Rolling (wheels, tracks, or the entire robot).

2. Jumping Mechanism is not allowed

3. Flying isn't permitted.

4. The robots should not secure itself on the ring surface by using suction cups, diaphragms, sticky treads, glue, or other such devices.

C. Robot Control Requirements:

1. The robot must be controlled uniquely through a remote, while all power supply must be on board.

2. There ought to tie capacity among transmitters and receivers, and they must be able to connect between polycarbonate sheet(3-5mm), metal bars, and barriers. Only the remotes with such a facility will be permitted.

3. A remote control system from toys might be utilized. Remote control system accessible in the market may likewise be utilized, while nonstandard or independent remote-control frameworks can be utilized simply after endorsement from the coordinators.

4. The group should combine up the remote with the machine before placing it into the arena. No additional time will be provided this once the machines are put inside the field, and not interfacing the remote with the machine before that may draw penalty on the group.

D. Battery and Power:

1. The machine must be powered electrically. The utilization of an IC motor in any form isn't permitted. Installed batteries must be fixed, immobilized-electrolyte types, (for example, gel cells, lithium, NiCad, NiMH, or dry cells).

2. The electric voltage between any 2 on the machine ought not to surpass 36V DC anytime.

3. Members must shield the battery terminals from an immediate short and causing a battery fire; inability to do so will cause direct disqualification.

4. Utilization of harmed, non-airtight batteries may prompt exclusion.

5. Unique consideration ought to be taken to secure the locally available batteries. On the off chance that the judges find that the battery is inadequately ensured, the group will be disqualified right away.

6. Change of battery won't be permitted during the match.

7. only bots with onboard batteries will be permitted.

8. The supply from the battery to every one of the weapons and power systems ought to qualify the accompanying safeguards:

    a. A manual disconnect (switch) that can be turned off without harming the person doing it, i.e., No body parts or weapons, should come in the way of the switch.

    b. Manual emergency stop that can be triggered through the radio controller

NOTE: The teams are suggested to have at least one extra battery ready and charged up during competition so that on advancing to the next level, they won't have to wait or suffer due to the uncharged battery. If teams do not show up during their allotted slot, they will be disqualified.

E. Weapon Systems:

1. Robots can have any kind of magnetic weapons, cutters, flippers, saws, lifting devices, spinning hammers, etc. (if they qualify the criteria mentioned below) as weapons.

2. Following weapons cannot be used:

a. Liquid projectiles (Foam, liquefied gases)

b. Any kind of inflammable liquids c. Weapons are causing invisible damage (Electrical weapons, RF jamming weapons, and others).

d. Weapons causing opponents' weapons (spinners) to entangle in them (Chains, Ropes, or loose Fabrics).

3. Spinning weapons:

a. The weapon must come to a full stop within 60 seconds of the power being removed using a self-contained braking system.

4. Spring-loaded or flywheels:

a. Under no circumstances must a large spring be loaded when the robot is out of the arena or testing area.

b. All springs, flywheels, and similar kinetic energy storing devices must fail to a safe position on loss of radio contact or power.

3. COMPETITION RULES AND SPECIFICATIONS

A. Team Specifications:

1. Any team can take part in Robowars, TechGnista. A team may comprise of a limit of 6 members. These members can be from the equivalent or various organizations.

2. Group Name: Every group must have a remarkable name.

3. There must be a name for your warrior.

4. Team Representative: Each group must determine their group delegate (pioneer) at the hour of registration on the site. All the significant correspondences between TechGnista Organizers and the enrolled groups will be done through their group delegate. The team leader must submit valid contact subtleties (telephone no., email ID and so on.) at the time of registration.

NOTE: During any sort of discussion, enlistment, correspondence, messages or entries the group must distinguish themselves by their Team ID just gave at the time of registration and not by your team name. Kindly DO NOT utilize your team name as your recognizable proof in any sort of correspondence with us.

B.Registration:

Each team has to register strictly before 28th January with an abstract containing:

Written abstract (.pdf format or docx format)

1. The weapon systems and power supply method must be explained in detail, along with proper diagrams and pictures.

2. The functioning of wireless remote or any other wireless module used for wireless remote, and its frequency, must be explained in detail.

3. A description of any unusual advantageous mechanism used must be given. The specifications of all the components used, including motors, suspension springs, remote controller, wires, battery etc. have to be mentioned.

Video Abstract

The video should be of at least 1 minute with the unedited clip showing the machine performance to the fullest. All destructive mechanism(s) being used must be shown with their working.

Participants are not required to explain the mechanisms in the video.

NOTE: Please send your abstract to **fluxus@iiti.ac.in**

NOTE: If you are not able to meet the requirements asked in the portfolio, please send us the portfolios based on the current state of your machine before the deadline. That is, even if your machine is incomplete, please send the portfolios anyway, instead of not sending them or sending them late.

On the basis of these teams will be selected for the encounter at TechGnista Fluxus, IIT Indore.

Teams will be informed via contact number and email of team leader on 29th January.

After the results of round 1(registration) , **teams must have to pay the registration fee by 2nd feb**. Not paying the registration fee before the deadline will lead to immediate disqualification, and other teams will be given a chance.

C. Match Duration and Type:

1.)Matches will consist 5-minutes of active fight time.

Hence, it is not binding but advisable to keep battery capacity, power usage, and machine defenses such that they can sustain a 5- minutes fight.

2.)Matches will be between two robots.

A detailed document of rules regarding the format and rules to be followed during the event days shall be uploaded later, and the participants will be informed.

D. Match Frequency:

A team is allowed to prepare for the next match for a period of 30 minutes. This time is calculated from the time the robot leaves the post-match staging area of its previous match. In extreme cases, the 30-minute time period may be lengthened at the discretion of the event organizers.

E. Criteria for Victory:

1. A robot is declared victorious if its opponent is immobilized.

2. A robot will be declared immobile if it cannot display the linear motion of at least one inch in a time period of 10 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. In case both the robots remain mobile after the end of the round, the winner will be decided subjectively.

3. 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.

4. If a robot is thrown out of the arena, the match will be stopped immediately, and the robot inside the arena will automatically be declared as the winner.

5. If a bot gets stuck inside the arena due to the deformity of the arena itself. The timer will be stopped and the bot will be released by the safest means.

6. Focuses will be given based on Aggression, harm, and control.

a. Aggression: Aggression is made a decision by the recurrence, seriousness, strength and viability of assaults purposely started by the robot against its rival. If a robot appears to have accidentally attacked an opponent, that act will not be considered when judging for aggression.

b. Control: Control is made a decision regarding the capacity to assault a rival at its weakest point, utilizing weapons in the best way, and limiting the harm brought about by the rival.

c. Harm: Through the intentional activity, a robot either straightforwardly or in a roundabout way lessens

The usefulness, viability or solidness of a rival. Damage isn't considered relevant if a robot coincidentally hurts itself. Also, if a pressure vessel or a rapidly spinning device on a robot fragments, any damage to the opponent will not be considered "deliberate".

NOTE: A robot winning in a round against its opponents doesn't ensure its entry into the following round. On the off chance that the judges found the champ robot incompetent to go into the following round, it might get disqualified. Judges can disqualify both the robots of a match from progressing to the next round. Every one of the choices taken by the judge will be conclusive and authoritative to all. Any inquiries a while later won't be engaged.

F. Occasion Specific Terminology:

1. Disabled: A robot isn't working accurately due to either an inward breakdown or

contact with the contradicting robot or Arena Hazard.

2.Disqualification: A robot is never again allowed to contend in the current Robowars competition.

3. Immobilized: In the judges' supposition, a robot isn't responsive for a predetermined time of

time.

4. Knockout: Occurs when the assault or consider activities of one robot causes its rival to become immobilized.

5. Lifting: Occurs when one robot controls a rival's translational movement by lifting the drive instrument of the rival off of the Arena floor.

6. No Contact: Neither robot makes contact with the other for a specified period of time.

7. Sticking: Occurs when one robot, through sheer power, holds a rival stationary in request to immobilize it.

8. Radio Interference: Refers to a circumstance where at any rate one robot gets lethargic or then again non-controllable because of the impact of the other robot's remote-control signal.

9. Non-Responsive: In the judges' supposition, the robot can't show some sort of controlled translational development along the field floor.

10. Restart: Occurs after an issue or a break has been pronounced and the contending robots are prepared to proceed.

11. Stuck: A robot is hung-up in a piece of the field, a field risk or a rival, such that it is viably non-responsive.

12. Tap-Out: Occurs when a robot's administrators conclude that they never again need to proceed the match and surrender the success to the rival group.

13. Technical Knock Out: Occurs when a robot wins because of immobilization of its adversary despite the fact that, in the judges' sentiment, no activity of the triumphant robot caused the rival's immobilization.

14. Timeout: A transitory stopping of a match. Timeout is normally called to isolate robots however, can be called for different reasons too.

G. Safety Rules:

1. On the off chance that you have a robot or weapon structure that doesn't fit inside the classes set out in these principles or is somehow or another vague or fringe, if it's not too much trouble, contact the event organizers. Safe development is constantly empowered in TechGnista, ROBOWARS.

2. Special care should be taken to protect the on-board batteries, robot without proper protection will not be allowed.

3. Each event has safety inspections. The judge will ask the team members to disclose all the features of the robot.

4. Groups can test their robot in a secure place (Crowd-less region)

5. All weapons must have safety covers on any sharp edges.

6. If there were an occurrence of any assistance, it would be ideal if you don't hesitate to ask the coordinators.

7. When the robots have gone into the field, no team members can go into the arena at any time of time. In case if a fight has to be halted in between and some changes have to be done in the arena or condition on the robot(s), it will be done by organizers only

4. ARENA SPECIFICATIONS

Safety Precautions:

The battle area available to the robots for motion during the match is approximately 2ft inside the polycarbonate walls, to prevent direct impact. The arena is protected by polycarbonate walls of 3mm to 5mm thickness* at four sides (excluding the top). The top is protected by a 2mm polycarbonate sheet.

The out-to-out dimension of the arena will be 20ft x 20ft x 8ft (l x b x h).

*These figures/parameters are subject to change. The arena size is also subject to the infrastructure. Polycarbonate thickness may be increased.

5. PRIZES.

1. Certificate of Participation will be given to all the Teams who are going to perform in Robowar, TechGnista, IIT Indore.

2. Participation of excellence will be given to top 2 teams.

The prize money will be awarded to winners via NEFT and will be processed within 90 Working days after receiving the prize money from our sponsors. The winners will have to mail the following information(immediately after the announcement of results) to fluxus@iiti.ac.in, strictly in the following format:

1. Subject: Competition Name, Team ID - your position (example- Robowars, TRW-1 3rd Position)

2. Body of mail:

a. Account Holder's Name

b. Account Number

c. Bank name and Branch name.

d. IFSC Code

6. Contact us

Email Id:

fluxus.techgnista@gmail.com

Event Coordinator:-

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