भारतीय सूचनाप्रौद्योगिकी संस्थान,नागपूर – ४४०००६

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Information brochure for robo hunger games.

Category – small obstacle race bots.

All participants are advised to carefully go through this information brochure and should follow each and every instructions mentioned here.

Aim – to design a small obstacle race robot which is controlled by wireless remote control device.

BOT specifications-

1. **1) Robot must be waterproof.**
2. **It should be able to traverse on rough terrain.**
3. **It should be able to pass through a gap of 800mm width.**
4. **Flying (using airfoil, helium balloons, ornithopters, etc.) is not allowed.**

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

5. **maximum weight of bot must be 8kgs including on board batteries . Only weight of remote control will not be counted.**
6. **Autonomus bots with manual override feature and emergency stop are allowed, however these features must be on remote controller as well.**
7. **No weapons should be installed in robot.**

MOBILITY- 1) Rolling (wheels, tracks or the whole robot).
2)Walking (linear actuated legs with no rolling or cam operated motion).
3)Shuffling (rotational cam operated legs)
Jumping and hopping is not allowed.
4)Flying (using aerofoil, helium balloons, ornithopters, etc.) is not allowed.

battery specifications

1) **all power source must be on board only.**
2) **Robots must be powered electrically only. Use of IC engine in any form is prohibited.**
3) **Onboard batteries must be sealed and must be well protected ,so that it may not burst or catch fire, violation of this rule may lead to disqualification of team.**
4) **Batteries permitted are Ni-Cd, NiMH, Li, gel ,dry cells only.**
5) **Use of damaged and non leak proof batteries may lead to disqualification.**
6) **All effort must be taken to protect the battery from short circuit causing fire.**
7) **Change of batteries is not allowed till time out.**

8)The voltage difference between any two points in the machine should not be more than 24V DC at any point of time.

9) each bot must have failsafes

a) manual emergency-stop on bot as well as on remote controller to stop bot without harming anyone. And damage caused by this will be the responsibility of the team.

Remote controller

1) **In case of wireless operation each robot must have two remote control (or a dual frequency Remote control circuit) which can be switched to either frequency before the start of the race. This is done to avoid frequency interference between the two competing robots in the game.**

2) **remote controller must have transmission range of at least 10 meters.**

3) **Remote control system from toys can also be used and also those available from the market**.

4) **Teams must pair their wireless with their bots prior to the match, no extra time will be given for that.**

5) **Remote control must be capable of manually overriding and shutting down bot in case of emergency. this feature is compulsory.**

Inception and basic format of robo hunger games

Robo hunger games is not any traditional robowar or any sort of common college fest event,it is one of its kind and completely different from the conventional robo wars, it is the

ultimate survival test of robots. Inspired from the famous novel "the hunger games".

The thing that makes this event unique is its arena and its battle framework, it tests the ability of robot to survive against the hostile arena plus challenge from other opponents. The arena is designed in such a way that only one robo can survive and rest all are eliminated.

Basic format -

All the robos will start from same sector of the circular track ,and cover all the sectors of arena and have to overcome all the obstacles and survive them,in crossing so robos will encounter various difficult terrain and survive traps and the one who completes the entire course without recharging wins.

The arena is made in such a manner that only one robot can survive , but if more than one robot survives then the winner will be decided by having a fight of all the survivors in the central arena where the robots have to push one another out of the ring and can win by direct knock out.

The duration of this fight will be 2 min, and the duration of crossing the obstacle course will be 10 min.

For this fight of simple bot ,

After the completion of track the last surviving robots (if more than one robots finish the obstacle course) will be given a small break in which they can charge their batteries and replace some damaged parts with their identical ones only.

- **Note- no new parts, weapons, software can be installed in robots during this time. Violation of this rule can lead direct disqualification from event.**

Team specifications

Each team can have max 6 members. Members can be from different institutions. There should be one captain of team with whom all communication will take place.

Each team must have a unique name and must be given at the time of registration.

Registration fees per team is INR 1000/- and for other countries it is 100 USD.

Competition rules and guidelines

Read all of these very carefully

1) There will be water barriers on the track. Hence, make sure your robot is water-proof.

2) the terrain is tough and uneven so design robots according to it.

3) All the robos will start from same sector of the circular track ,and cover all the sectors of arena and have to overcome all the obstacles and survive them, in crossing so robos will encounter various difficult terrain and survive

traps and the one who completes the entire course without recharging wins. 10 min is the total time for the round.

4) Although the arena is designed such that only one survives after the round ,but if we have more than one survivors then winner will be decided by the following rules.

1) All the surviving bots will be given a 30 min break during which they can be recharged and only damaged parts will be replaced with identical one.

Note- no alterations to software, addition of weapons and any other changes to bots can be made during the break .violation of this policy will lead to direct disqualification.

2) after the break the surviving bots will be called for battle into the central arena where they will all battle against each other and winner among them will be the victor of the tournament. time for this duel is 2min.

(pls refer fighting rules at central arena).

7)It is to be noted that if any participant takes advantages of some loophole in the rules and surprises the judges, it will lead to immediate disqualification of the team.

8) **Teams that are not ready when called for battle will be considered to have declared a walkover, and will disqualified.**

9) It is mandatory for every team to sign a declaration mentioning your robot is safe and accident caused by it will be responsibility of the team.

10) robots should not damage the arena.

11) once in arena if a robot's battery is discharged or it is immobile due to obstacles ,it will be eliminated.

12) organizers will not be responsible for damage caused to bots due to traps and terrains of the arena.

13)every team must cooperate with organisers ,volunteers and must abide by their instructions and directions.

14) improper behaviour will not be tolerated and team can be disqualified. Organizing team of hunger games reserves all rights to disqualify a team.

criteria for victory

A bot is eliminated if it is immobile.

1. **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 drivetrain 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 then the winner will be decided subjectively.**

2. **If a bot completes the course in given time and is the only survivor then he will be the winner.**

3. **If more than one survivors are there then victor will be decided by battle in central arena as mentioned above in the rules section. Central arena rules are given below.**

CENTRAL ARENA RULES

1)Points can be obtained by pushing your opponent to the blue area, red area, or out of the central arena. Points can also be obtained by immobilizing your opponent.

2)Points for pushing your opponent to blue area every time is 10.

3)Points for pushing your opponent to red area every time is 20.

4)50 points will be awarded for immobilizing your opponent. Same points will be awarded for pushing the oppponent out of the central arena(ie beyond red area).

5) If a robot is thrown out of the central arena the match will stop immediately, and the robot still inside the arena will automatically be declared as the winner.

5)It is to be noted that immobilizing and throwing the opponent out of the arena will be a direct knock out.

6)Also if your robot accidently goes to the above mentioned areas points will be deducted accordingly and may even lead to elimination in case your robot goes out of the arena.

Registration

Registration and payment will be done through online portal of tantra fiests, keep checking website for regular updates.

In case of any query contact on tantra fiesta website,robo hunger games website .

All teams are required to send an abstract clearly and explicitly mentioning the working, power source, size and bot specification and any other relevant details. Also a short video showing specifications of robots, working should be sent at time of registration to the tantrafiesta and hunger games website.

It is mandatory to send abstract and video for participation in event.

Criteria for certification

1) **All participants will be given participation certificate.**
2) **Winner team will given certificate of excellence and prize money**.

Event Specific Terminology:

- **Disabled: A robot is not functioning correctly due to either an internal malfunction, or contact with the opposing robot or Arena Hazard.**
- **Disqualification: A Robot is no longer permitted to compete in the current Robowars Tournament.**
- ***I*mmobilized: In Judge's opinion, a robot is not responsive for a specified period of time.**
- **Knockout: Occurs when the attack or deliberate actions of one robot causes its opponent to become immobilized.**

- **Lifting: Occurs when one robot controls an opponent's translational motion by lifting the drive mechanism of the opponent off of the Arena floor.**
- **No Contact: Occurs when neither robot makes contact with each other for a specified period of time.**
- **Pinning: Occurs when one robot, through sheer force, holds an opponent stationary in order to immobilize it.**

Radio Interference: Refers to the situation where at least one robot becomes non-Responsive or non-controllable due to the effect of the other robot's remote-control signal.

- **Non-Responsive: In a Referee's opinion, the robot cannot display some kind of controlled translational movement along the Arena floor.**
- **Restart: Occurs after a Fault or a Timeout has been declared and the competing robots are ready to continue.**
- **Stuck: A robot is hung-up on a part of the Arena, an Arena Hazard or an opponent, such that it is effectively non-responsive.**

- **Technical Knockout: Occurs when a robot wins due to immobilization of its opponent even though, in the Judges' opinion, no action of the winning robot caused the opponent's immobilization.**
- **Timeout: A temporary halting of a Match. Timeouts are usually called to separate robots, but can be called for other reasons as well.**

NOTE- In case of ant discrepancy ,decision made by "tantrafiesta 2K17 is final.

Report 1 hour prior to event.

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HAPPY HUNGER GAMES

- **May the odds be in your favour**