



THE ROBOTICS CLUB
Integrating Knowledge...

YANTRAA



SREENIDHI'S ANNUAL TECHNICAL FEST

ROBOVEDA'25

EXPLORE THE UNWRITTEN LORE...



R U L E B O O K

YANTRAA

1. GAME AND RULES:

1.1. PROBLEM STATEMENT

1.1.1. Design and develop a Manually controlled RC car that can navigate a predefined racing track, avoid obstacles, and complete the race in the shortest time possible.

2. GAME FIELD AND OBJECTS:

2.1. ARENA

2.1.1. There will be two rounds in the event. The first round will be a qualifying session with each team getting 3 laps.

2.1.2. The arena for the second round will be disclosed on the day of the event.

2.1.3. The top teams from the qualifying round will be eligible to be part of the second round.

2.1.4. The track will have checkpoints at regular intervals. If a machine tumbles, or halts, or goes off the arena at any point on the track, one of the team members is allowed to lift it up and place it at the nearest checkpoint behind that point. The time shall still be running in the meantime.

2.1.5. If any of the machines starts off before the flag is waved, the counter will be restarted, and the machine will get a second chance. However, if any machine starts off before the waving of the flag (or countdown) for a second time, it will be disqualified. No re-match will be held for the second time.

ARENA MODEL



TOP VIEW:



2.1.6. The team should set up their robots within the setting time before the game begins.

2.1.7. All the team members are allowed to participate.

2.1.8. Once the team has completed the setting up process, the team can start their robot with the permission of the referee. If the team fails to set up the robot in the given time, they can only continue after the game starts.

2.2. START THE GAME

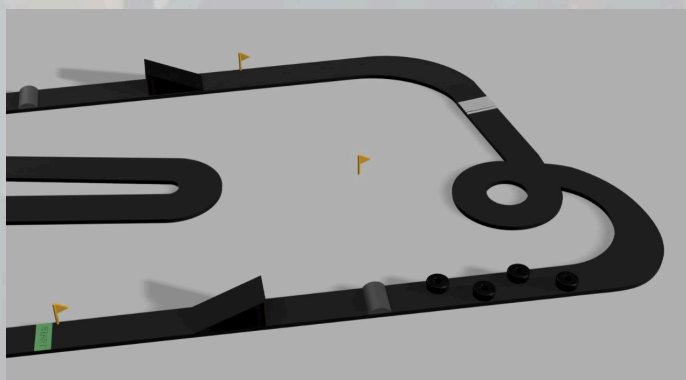
2.2.1. The robot must start at the starting zone.

2.2.2. Except for one team member who is operating the bot, the other team members have to stay outside the field.

2.2.3. The operator is not allowed to run around the game field.

2.2.4. The operator has to stand in the place allotted to them.

2.3. STAGE 1



2.3.1. The robot will be placed in front of the start line in the start zone.

2.3.2. The robot has to navigate through the path which includes two ramps, two speed breakers, tyres and pipes.

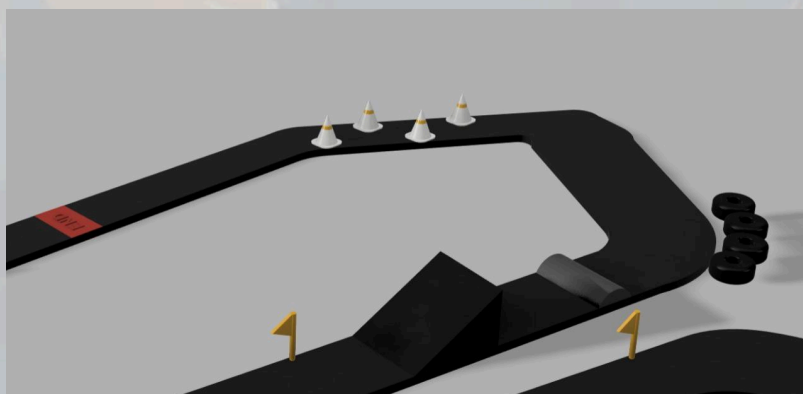
2.3.3. The inclinations will have a base of 1m, and a height of 0.5m with an inclination of 30 degrees and a downward inclination of 60 degrees. The track will have a width of around 1 meter.

2.4. STAGE 2



2.4.1. A mystery stage will be revealed on the day of the event.

2.5. STAGE 3



2.5.1. The robot should navigate along the given path, which includes ramp, speed breaker and cones.

2.5.2. The robot should avoid touching the cones/tires, every cone/tire touched will lead to a penalty.



NOTE: There could be minor changes in the arena on the day of the event. If any major changes are made, they will be updated on the website. As the event will be taking place outdoors, the arena design can have major changes if the weather is not favorable on the day of the event.

3. TEAMS:

- 3.1. There is no team limit.
- 3.2. All the team members can help in setting up the robot.
- 3.3. Only one member is allowed to operate the robot, and the other members have to stand outside the arena.
- 3.4. The members can belong to different institutions.
- 3.5. Yantraa is an open event. There is no academic criteria to participate.

4. ROBOT:

4.1. ROBOT SPECIFICATIONS

- 4.1.1. The machine should be controlled by a wireless remote-control mechanism throughout the race.
- 4.1.2. The machine can have ready-made parts, but self-assembly is preferable.
- 4.1.3. The machine may be roughly classified into structural and functional parts: Functional parts-Gears, differential gear, engine, springs, shock absorbers, servo motors (non-propulsion purposes only), batteries, wheels, wheel hub are allowed to be used as available in the market. Structural parts: Chassis, steering mechanism, shock towers and suspension (excluding upper suspension arm, suspension spring and shock absorbers) have to be preferably self-assembled.
- 4.1.4. The tires used must have a minimum diameter of 70mm. You are advised to use tyres of good width for better performance on dirt tracks.
- 4.1.5. Brake Mechanism: It is compulsory to incorporate a braking mechanism in the car. Any other part used in the braking mechanism (including the brake disk) can be ready-made.
- 4.1.6. Wheel Hub: Any part rigidly attached to the wheel hub will be considered as a part of it and hence can be ready-made. An example here is that of the ball stud.
- 4.1.7. There could be some wet areas on the track, so ensure your robot can go on a slightly wet track.



4.1.8. An error tolerance of up to +5% or -5% is allowed in the specifications of the bot.

4.1.9. All teams are requested to carry a specification sheet during the event day, to help speed up the inspection round.

4.1.10. There shall be a countdown preceding the start of the race. No participant is allowed to touch the machine during the countdown period.

4.1.11. Readymade wheels are allowed.

4.1.12. Providing a clutch mechanism between the engine and the wheel would prove useful, as it would prevent the engine from dying out at any stage of the race.

4.1.13. Participants are advised to use a proper cooling mechanism to prevent overheating of the engine.

4.1.14. Participants are advised to use sway bars for better control and stability.

4.1.15. The participants are advised to use proper air filters as dirt might cause serious problems to the engine.

4.1.16. The machine can use mechanical power generated by an internal combustion (IC) engine.

4.1.17. A robot is allowed to participate only once in the event. The robot can participate once again with the same team if it satisfies the following conditions:

- The team has to register once again with a modified old robot/new robot before registrations close and a maximum of 3 registrations will be accepted.
- Wheels or motors or chassis materials should be changed to consider an old robot as a new one.

4.2. ROBOT DIMENSIONS

4.2.1. Machine should fit in a box of dimensions **500 mm x 400 mm x 250 mm** (l x b x h) at any moment of time during the race. The external device which is used to control the machine is not included in the size constraint.

4.3. WEIGHT

4.3.1. There is no weight limit for the robot.



5. SAFETY

- 5.1. All robots must be designed such that they don't pose any danger to any person, robot or the arena. If a robot is not designed in such a way, it will be disqualified.
- 5.2. The usage of explosives, fire and dangerous chemicals is not allowed.

6. THE COMPETITION AND MATCHES: There are two rounds

I. Qualifying Round

II. Final Round

6.1. QUALIFYING ROUND

- 6.1.1. There will be one qualifying round followed by the final round. The final round will be held on the last day.

6.2. FINAL ROUND

- 6.2.1. It is mandatory for the robot to clear the qualifying round to take part in the final round.
- 6.2.2. Every robot has to complete three laps in both rounds.

7. COMPETITION RULES:

7.1. BASIC RULES

- 7.1.1. Before the round starts, there will be an inspection round where the bot will be checked by the event coordinators.
- 7.1.2. The inspection round will be done after the setting up of the bot.
- 7.1.3. After the inspection round, the bot should be placed in the start zone. The team members are not allowed to touch the bot once it is placed on the start zone.
- 7.1.4. If setting up is not completed, the members can only work on the bot after the round starts.
- 7.1.5. Any team found to be posing a danger to another team's bot will either face a serious penalty or disqualification.
- 7.1.6. All the rules declared in this rule book are final, and arguing with the event coordinators on the day of the event will not be entertained.



7.2. SCORING & PENALTIES

7.2.1. Scoring schema(including penalties) will be disclosed on event day by heads and co-ordinators.

7.3. VIOLATION AND DEDUCTION OF POINTS

7.3.1. The robot must stay within the marked boundaries at all times or it will be counted as a violation.

7.3.2. The robot has to follow the determined path, or else it will be counted as a violation.

7.3.3. Every violation will lead to a deduction of points.

8. DISQUALIFICATIONS:

8.1. If a team intentionally damages the arena, equipment, or another team's bot, they will be disqualified.

8.2. If the robot enters the arena during another team's lap, it will be disqualified.

8.3. If a team performs any acts that are not in the spirit of fair play, they will be disqualified.

8.4. If the team fails to follow the instructions of the event coordinators also they will be disqualified.

8.5. If a team makes a false start twice in the same match, they will be disqualified.

8.6. Team members are not permitted to touch either their machines or those of their opponents once the race begins. The penalty for doing so is disqualification.

8.7. The machines are not allowed to leave any loose parts on any part of the arena. Any machine disintegrating during the race will be disqualified.

8.8. Execution of these rules will be subjective and relies completely on the judge's discretion.

9. COMPETITORS AND BEHAVIORAL RULES:

9.1. All participants will be given a Certificate of Participation.

9.2. Winners and Runners will be given a Certificate of Merit.

9.3. All Participants must bring their respective college ID cards.

9.4. Participants are allowed to participate once again if they satisfy rule 4.1.17.

9.5. Team Roboveda is not responsible for any damage to your robot on or off the event.



9.6. We request the participants not to assume anything that is not mentioned in the document without contacting the coordinators or Technical Team.

9.7. It's our sincere request to all the participants to go through this rule book thoroughly and not a single point mentioned in the rule book will be compromised under any circumstances.

9.8. We also request you have a copy of this rule book handy during the event.

9.9. Make sure you visit our official website on a daily basis so that you will get to know if there are any changes made in the event.

9.10. Any kind of misbehavior will not be tolerated and will lead to disqualification of the team.

9.11. If you choose our hospitality, the payment must be done on the day you check in.

9.12. In unforeseen circumstances, team Roboveda abides by the decision of the institution regarding the conductance of the event. Only registered participants will be informed about the change in event dates or cancellations. In that case, the registration fee will be refunded.

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