



THE ROBOTICS CLUB
Integrating Knowledge...

SARVAAGAMI



SREENIDHI'S ANNUAL TECHNICAL FEST

ROBOVEDA'25

EXPLORE THE UNWRITTEN LORE...



R U L E B O O K

SARVAAGAMI

1. GAME AND RULES:

Starting with designing and building a bot that moves through the curves of the track might be easy, but making it run on terrains, hurdles, and being an early bird is a tough task. So are you up for the challenge?

1.1. PROBLEM STATEMENT

1.1.1. Design a manually controlled bot to crack the arena in the least amount of time, avoiding penalties. The arena consists of hurdles that downturn the robot's speed.

2. GAME FIELD AND OBJECTS:

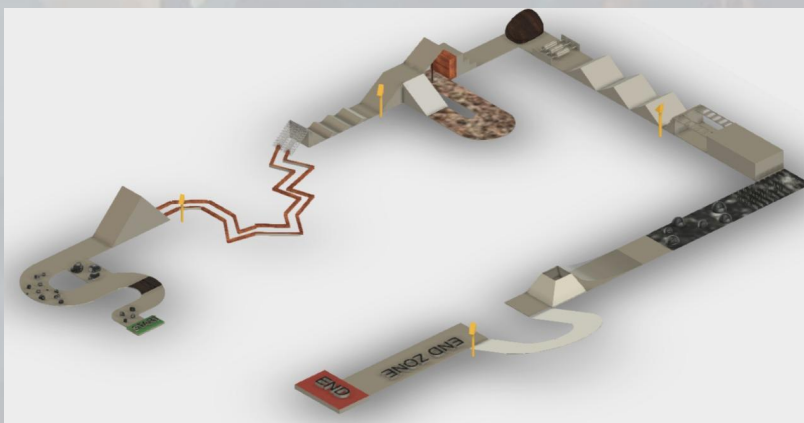
2.1. ARENA

2.1.1. The arena is placed on the ground, there may be obstacles at certain points in the racecourse.

2.1.2. Minimum track width of the arena is 200mm.

Note: The design is not drawn to scale. The orthographic view of the arena is shown below.

2.1.3. In the brick path zone, robots with four wheels may proceed without penalty. Robots with two wheels are permitted, but penalties will apply for each traversal.



2.2. CHECKPOINTS

- 2.2.1. There are 4 checkpoints in the arena.
- 2.2.2. One after the wedge (zone 2), the other after the speed breaks (zone 3) and another after the three mountain wedge (zone 4), and another at the end of the semi-circular path (zone 5).
- 2.2.3. At any stage of the arena, if the bot is stuck then it will be repositioned at the most recently traversed checkpoint.
- 2.2.4. Checkpoints are indicated by flags in the arena.

3. TEAMS:

- 3.1. There is no team limit.
- 3.2. Only 2 members of a team are allowed to stay around the arena (one for controlling and one for assisting) and a team is allowed to play with one robot only.
- 3.3. Members of different institutions can form a team.
- 3.4. Students who are pursuing any course upto post graduation can participate.
- 3.5. Any assistant who wants to act as a controller must register separately.
- 3.6. Exchanging ID cards is strictly prohibited.

4. ROBOTS:

4.1. ROBOT SPECIFICATIONS

- 4.1.1. Robots can be wired or wireless; if wired, the cable length must be a minimum of 3 meters.
- 4.1.2. If batteries are on the robot, then they will be considered for weight.
- 4.1.3. If batteries are not on the robot, then they will not be considered for weight.
- 4.1.4. 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.



4.1.5. Robots should not damage any part of the arena. If the robot damages any part of the arena, it will be disqualified.

4.1.6. The robot should not expand or compress during the run. A technical timeout can be taken in case of any part detachment of the robot.

4.1.7. Use of IC engines is not allowed.

4.1.8. Lego kits are not allowed.

4.1.9. The robot must incorporate a shock absorption system to maintain stability and prevent damage while traversing uneven terrain and obstacles.

4.2. ROBOT DIMENSIONS

4.2.1. Dimensions of the robot should not exceed **30cm x 30cm x 25cm** (l*b*h). (Tolerance of 5% is allowed in this regard).

4.3. POWER SUPPLY FOR ROBOTS

4.3.1. The potential difference between any two points should not exceed a limit of 12V and the robot should be powered only using batteries. (A tolerance of 5% is allowed).

4.3.2. If the robot suddenly stops in the arena due to any technical problem, you will be allowed to take a technical timeout. After taking one technical timeout, the timer will not be stopped if the robot suddenly stops in the arena due to any technical problem.

4.3.3. The power supply may be ON or OFF the board (i.e., one of the team members can hold the power supply).

4.3.4. Changing the battery or battery polarity is not allowed during the race.

4.3.5. No external power supply will be provided at the time of the event.

4.4. WEIGHT

4.4.1. The maximum weight of the robot should not exceed 5 kgs.

5. SAFETY

5.1. All the required accessories should be brought by the participants.

5.2. Team Roboveda is not responsible for any damage to the robot.

5.3. Technical assistance will not be provided by coordinators or technical team.



6. THE COMPETITION AND MATCHES: There are two rounds

I. Qualifying Round

II. Final Round

6.1. MATCHES

6.1.1. A qualification round will be there on the first and second day of the event.

6.1.2. Only the participants completing the qualification round will be shortlisted for the final round.

6.1.3. There will be a final round for participants qualified in the qualification round.

6.2. QUALIFICATION ROUND

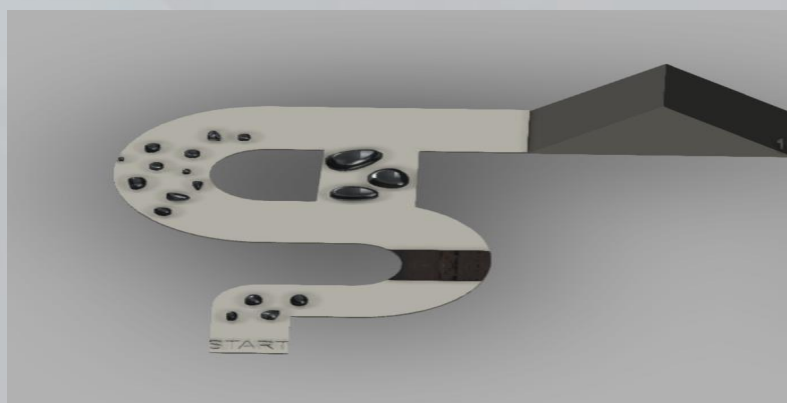
6.2.1. This round consists of 5 zones.

6.2.2. To qualify, the robot has to traverse these zones in a minimum amount of time.

6.2.3. In every zone dimension of properties there might be 5% of tolerance.

6.2.4. ZONE 1

Zone 1 is a curved track with variable terrain intended to assess bot precision and control. The track starts with scattered small rocks, followed by a mud patch requiring careful navigation. Next there are two segments one with small rocks and other with large rocks choose any segment. The rocky section transitions into an inclined ramp ($\sim 45^\circ$), leading to a declination with additional obstacles.

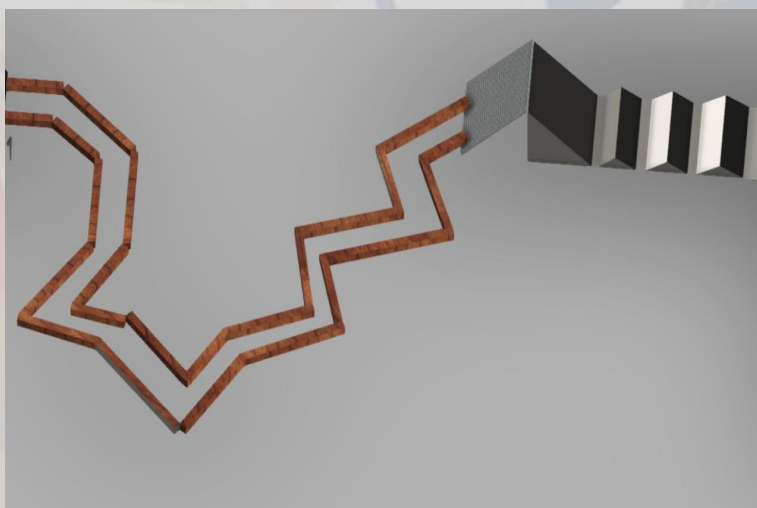


6.2.4.1. Dimensions

The inclination runs 700mm approximately (up to 5% of tolerance) and the same follows with the declination. The height of the zone is approximately 350 mm.

6.2.5. ZONE 2

Zone 2 features a zigzag v-shaped brick path, followed by an inclined net ramp, a downward slope, and three speed breakers. This sequence is designed to test precise navigation, traction, descent control, and obstacle handling in rapid succession.



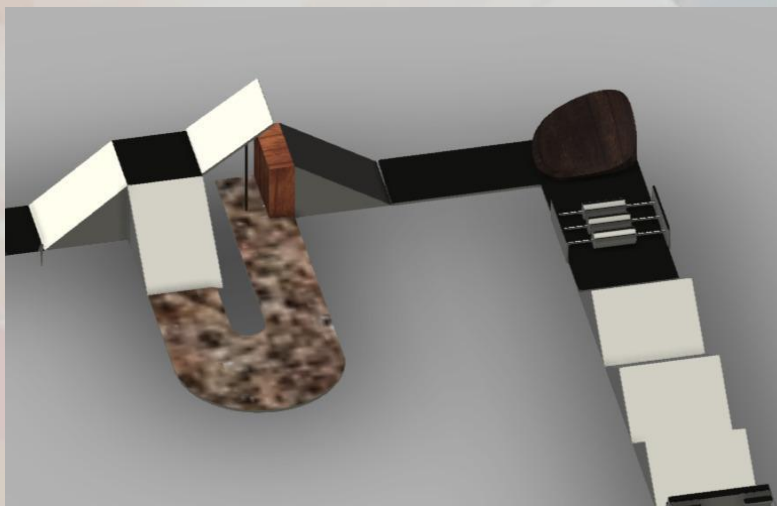
6.2.5.1. Dimensions

The gap between two bricks at either side of the track is approximately 200mm. The speed breaker has an inclination of 30 degrees and a declination of 45 degrees.



6.2.6. ZONE 3

Zone 3 begins with an inclined ramp, followed by a side declination. The bot then traverses a sand and rock path. Next, the bot must push a stick mechanism and return along the same sand and rock path, re-ascending the incline once the stick clears the way (support rests on the bricks). The track continues through a mud mountain, three rollers, and three mountain wedge obstacles.

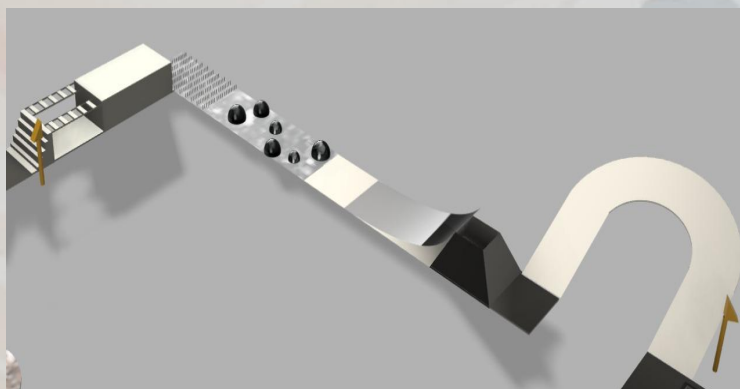


6.2.6.1. Dimensions

The stick mechanism consists of a base measuring $150 \text{ mm} \times 500 \text{ mm}$ with an inclination of 15° and a declination of 17° , with support on the stick measuring $350 \text{ mm} \times 500 \text{ mm}$, followed by a mud mountain with an outer radius of 21.5 cm and inner radius of 10.3 cm , and three mountain wedge obstacles with a total base length of 132 cm , side segments of 62 cm and 49.7 cm , left and right vertical heights of 49 cm and 49.5 cm , angled zigzag segments of 69 cm and 49.7 cm , and internal widths for the zigzag turns of 19.5 cm , 19.7 cm , and 18.7 cm .

6.2.7. ZONE 4

Starts with a set of steps, followed by a hanging bridge that is attached to a box; after crossing the bridge, the robot must jump onto the nail trap, then proceed over a tray fitted with coconut shells, traverse a polycarbonate sheet, ascend a square ramp with a central hole, and finish on a semi-circular disc.



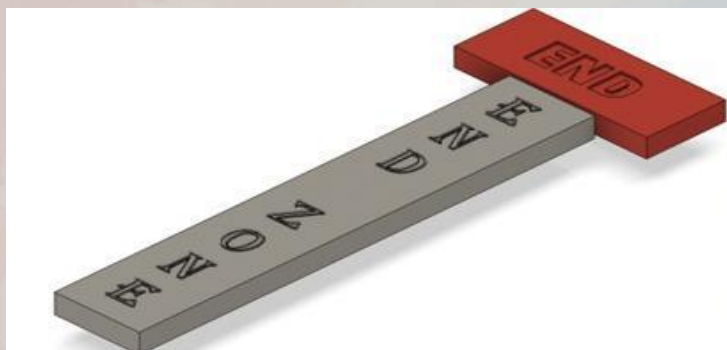
6.2.7.1. Dimensions

The hanging bridge measures 680 mm × 400 mm, followed by a nail trap of 835 mm × 600 mm, a coconut tray of 350 mm × 800 mm, a square ramp with outer dimensions 76.5 cm × 76.5 cm, a central square section measuring 31.3 cm × 31.5 cm, angled outer segments with widths of approximately 28.7 cm to 38.5 cm, a total length across of 96.8 cm, a topmost span of 78 cm, a semi-circular disc, an inclination of approximately 30°, a bottom point of the crest-trough path at approximately 255 mm from the ground, a topmost point of the crest at approximately 360 mm with a top angle of approximately 120°, and a declination of approximately 44°.

6.2.8. ENDZONE

This is going to be revealed on the day of the event.





6.2.8.1. Skipping properties or obstacles is strictly prohibited in the End Zone.

6.3. FINAL ROUND

6.3.1. Details about the Final round will be disclosed on the same day it is conducted.

6.3.2. The specifications for the robot in the final round are identical to those of the qualifying round.

6.3.3. The robot participating in the final round should be the same one that participated in the qualifying round. Modifications will be allowed for the robot (only if previously used parts are damaged) in between the rounds only if the following conditions are satisfied:

- The participant must show both the damaged part of the robot (wheels, chassis, motors) and the replaced part of the robot (wheels, chassis, motors) on the day of the final round.
- Heads or coordinators of the event will allow the modified robot only if the damaged part and replacement part are the same/similar.

7. COMPETITION RULES:

7.1. TECHNICAL TIMEOUTS

7.1.1. A technical timeout of 1 minute can be taken by a team.

7.1.2. After the finishing of the technical timeout, the timer will start again and will not be stopped under any circumstances.

7.1.3. No technical assistance will be provided by the event coordinators or heads during the event.



7.2. SCORING & PENALTIES

- 7.2.1. The score will be calculated based on the time taken to complete the track.
- 7.2.2. Based on the violations and penalties the changes in the score are made.
- 7.2.3. The maximum time for each participant is 12 minutes for track completion.
- 7.2.4. The team which completes the qualification round in the least amount of time with the least no. of penalties is eligible for the next round.
- 7.2.5. Scoring schema (including penalties) will be disclosed on event day by heads and coordinators.

7.3. BASIC RULES

- 7.3.1. Human interference can be only done during skip, technical timeout, and checkpoints.
- 7.3.2. Lending or making the robot participate in the same event with a different team will not be entertained.
- 7.3.3. No practice runs will be provided.
- 7.3.4. If the robot engages in a place without any further movement, then it would be repositioned at the nearest checkpoint traversed.
- 7.3.5. In the case of wired robots, the wired should be slacked throughout the game.

8. DISQUALIFICATION:

- 8.1. If a participant does not comply with the rules of the event, the robot will be disqualified from the event.
- 8.2. Robots should not damage any part of the arena. If the robot damages any part of the arena, it will be disqualified.
- 8.3. Human interference (e.g. touching the robot) during the game will be disqualified (exception during technical timeout).
- 8.4. Misbehavior of any kind will not be tolerated and the team will be subjected to disqualification from RoboVeda.
- 8.5. A robot with the base of a toy car and its gearbox as a machine part will be disqualified.



- 8.6. Also, Lego kits are strictly prohibited and will lead to disqualification.
- 8.7. Robot unable to complete the track traversal within time (12 minutes) is considered disqualified.
- 8.8. Using any of the checkpoints more than 3 times (total) is considered disqualified.

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 both a college ID card and an event ID card.
- 9.4. Participants are allowed to participate once again if they satisfy rule 4.1.4.
- 9.5. Participants are not allowed to use their own Stop watches.
- 9.6. Lending or making the robot participate in the same event with a different team will not be entertained.
- 9.7. The dimensions, weights, etc., of the field, facilities and equipment described in this document have a margin of error of plus or minus 5% unless otherwise stated.
- 9.8. Team Roboveda is not responsible for any kind of damage to your robot.
- 9.9. We request the participants not to assume anything that is not mentioned in the document without contacting the Coordinators or Technical team.
- 9.10. 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. We also request you have a copy of this rule book handy during the event.
- 9.11. In case of any discrepancies, the decision of co-ordinators and heads shall be final and no further argument will be entertained.
- 9.12. 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.
- 9.13. Any kind of misbehavior will not be tolerated and will lead to disqualification of the team.
- 9.14. If you choose our hospitality, the payment must be made on the day you check-in.
- 9.15. 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.

EVENT COORDINATORS:

CHIRANJEEVI: +91 6302529167

NISHMITHA: +91 8712265857

TEJASRI: +91 6301574684

EVENT HEADS:

A. TEJASWI: +91 8317580631

KOUSHIK: +91 8019129629



www.roboveda.org



Sreenidhi Institute of Science and Technology, Yamnampet