



Sreenidhi's Annual Technical Fest

★ ISO 20121:2012 CERTIFIED

# ROBOVEDYA '23

explore the unwritten lore...



# SARVAAGAMI

RESEARCH ROOM

## SARVAAGAMI

### 1. GAME AND RULES:

“SARVAAGAMI is your canvas to design and test your robot’s endurance, might, and strategy on man-made and natural terrains which tests your skills.”

Starting with designing and building a robot that moves through the curves of the race 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 ?

### 2. PROBLEM STATEMENT:

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

### 3. TEAMS:

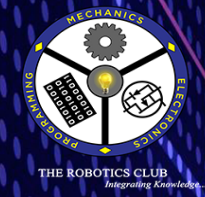
- 3.1 There is no team limit.
- 3.2 Members of different institutions can form a team.
- 3.3 At most two team members are allowed near the arena(one for controlling and other for assisting).

### 4. ROBOTS:

#### 4.1 SPECIFICATIONS:

- 4.1.1 Dimensions of the robot should not exceed 30cm x 30cm x 25cm (length x breadth x height).
- 4.1.2. The minimum track width of the robot should be 20 cm.
- 4.1.3. Robots can be wired or wireless and both traditional & modern controllers are allowed.
- 4.1.4. Ready-made chassis are not allowed.
- 4.1.5. Tolerance of 5% is allowed in dimensions and power supply.





## 4.2 POWER SUPPLY:

4.2.1 The robots should be powered only using batteries with a supply not exceeding 12V between any two points.

4.2.2 The power supply may be ON or OFF board (i.e. one of the team members can hold the power supply). An external power supply will not be provided.

## 4.3 WEIGHT:

4.3.1 Maximum weight of the robot should be 4 kgs.

## 5. SAFETY:

5.1 The robots must be designed and manufactured as to pose no danger of any kind to any persons in the venue.

5.2 The robots must be designed and manufactured as to pose no damage of any kind to the track.

5.3 The robots must be waterproof (The coordinators and organizers are not responsible for any damage caused to the robots).

## 6. THE COMPETITION AND MATCHES:

### 6.1 MATCHES:

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

6.1.2 Participants completing the qualification round arena are only forwarded to 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 in a curved zigzag manner.

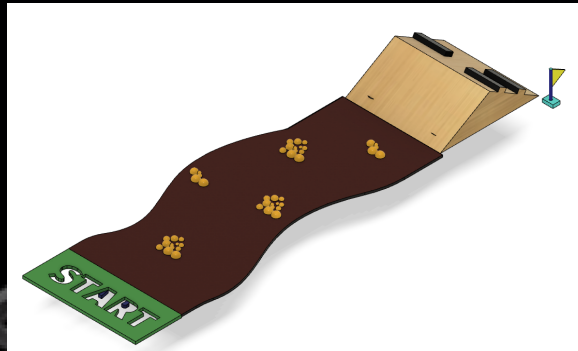
6.2.2 To qualify, the robot has to traverse these zones in minimal time.

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



### 6.2.4 ZONE 1:

After the start of the robot, there will be a sand path containing hurdles that the bot has to avoid and move forward simultaneously for a short distance. After which there is an inclination that is positioned at an angle of 45 degrees at the beginning which is followed by a declination with some obstacles on it.

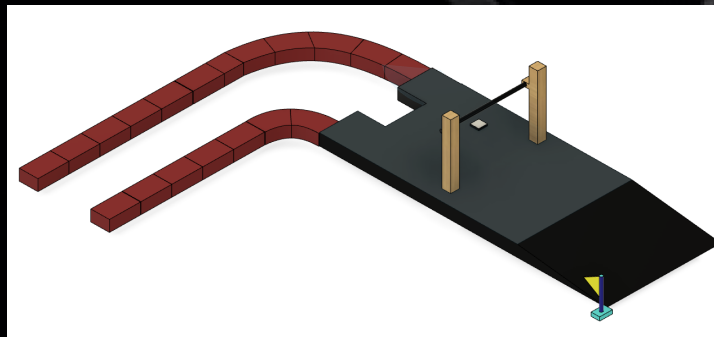


#### 6.2.4.1 Dimensions:

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:

This zone consists of a brick path on which the bot has to move forward. Thereafter, a gate is placed which opens manually by button mechanism. Next there is a declination positioned at an angle of 40 degrees at the end of the zone.

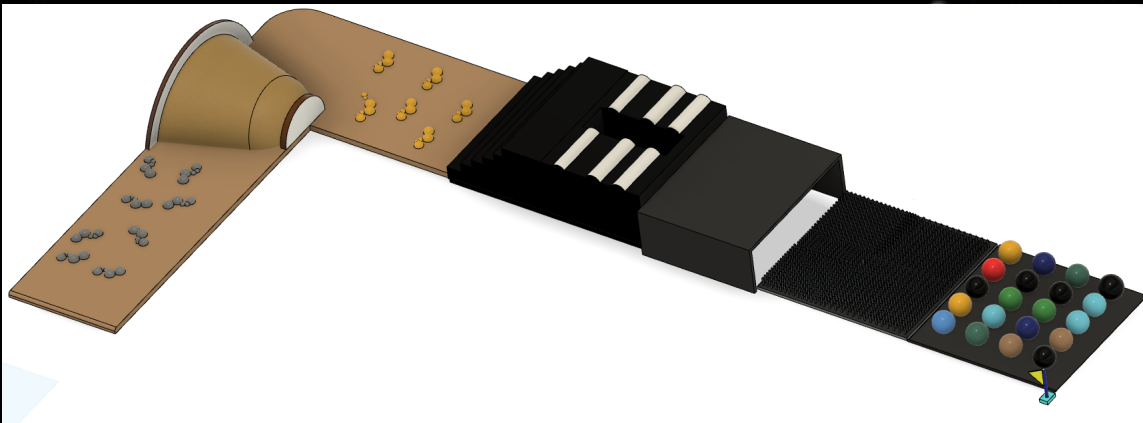


#### 6.2.5.1 Dimensions:

The gap between two bricks at either side of the track is approximately 200mm and the height of the declination ramp is 140mm.

### 6.2.6 ZONE 3:

This zone consists of a sandy/rocky path containing pebbles of different sizes followed by mud mountain which the bot needs to climb and make a turn. It is then succeeded by a series of steps that the bot needs to climb. After climbing the steps, the bot has to move across a horizontal plank which is rectangular cross-sectioned in the middle and has speed breakers with regular intervals on either side. Henceforth, there is a rectangular plank at height of 380mm which the bot has to jump onto the nail trap followed by a marble tray to complete the zone.



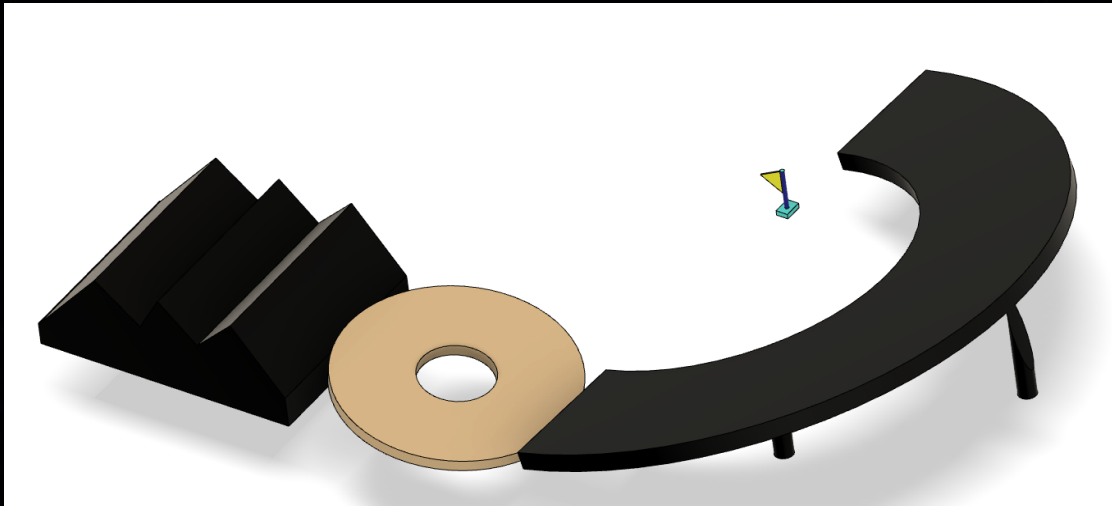
#### 6.2.6.1 Dimensions:

The outer and inner radius of the mud mountain is 10.3 cm and 21.5 cm respectively. The horizontal plank runs for about 825 mm approximately. The space between two-speed breakers is around 25mm wide. The rectangular cross-section has a breadth of 180mm. The hole trap runs for about 800mm approximately. The length and breadth of the nail trap is 835 mm and 600 mm respectively. Each marble is of size 15 mm diameter.

### 6.2.7 ZONE 4:

In this part of the track, there will be an inclination followed by a crest-trough path and followed by declination. Next, there is a circular ring followed by a parabolic path where the bot has to take a curve path to move forward.



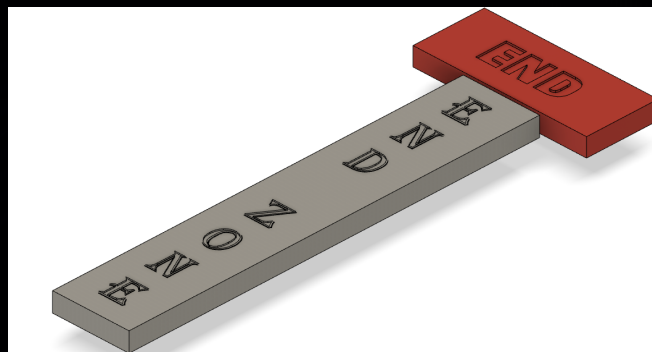


### 6.2.7.1 Dimensions:

Inclination 30 degrees (approximately) the height of the bottom point of the crest-trough path from the ground is 255mm (approximately). The height of the topmost point of the crest from the bottom point is 360mm (approximately) and the top angle is 120 degrees (approximately), declination 44 degrees (approximately). Inner radius and outer radius of the circular ring is 194mm and 388mm (approximately) respectively. The circular ring is placed at an angle such that the height is 214 mm. The parabolic path runs for a length of 1080mm.

### 6.2.8 ENDZONE:

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



## 7. COMPETITION RULES:

- 7.1 All the required accessories have to be brought by the participants.
- 7.2 Lending or making the robot participate in the same event with a different team will not be entertained.
- 7.3 No technical assistance will be provided by the coordinators during the time of the event.
- 7.4 No practice runs will be provided.
- 7.5 Use of an IC engine in any form is not allowed.
- 7.6 A technical timeout of 1min can be taken by a team.
- 7.7 Only the batteries and their connections can be changed but not the circuitry on the chassis and wheels.
- 7.8 Human interference (e.g. touching the robot) during the game will be disqualified.
- 7.9 Human interference can be only done during skip, technical timeout, and check posts.
- 7.10 If the robot engages in a place without any further movement, then it would be continued from the nearest checkpoint traversed.
- 7.11 No external power supply will be provided at the time of the event.
- 7.12 Participants with wired robots are strictly advised to get wires of length 3m or more.
- 7.13 In the case of wired robots, the wired should be slacked throughout the game.
- 7.14 Readymade PCBs are allowed.
- 7.15 This event is open for students up to undergraduates.
- 7.16 Potentiometers are allowed but speed regulation is strictly prohibited.

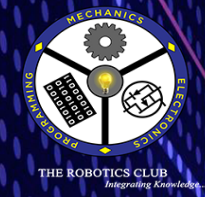
## 8. SCORING:

- 8.1. The score will be calculated based on the time taken to complete the track.
- 8.2. Based on the violations and penalties the changes in the score are made.
- 8.3. The maximum time for each participant is 12 minutes for track completion.
- 8.4. The team which completes the qualification round arena in the least time with the least no. of penalties is eligible for the next round.

## 9. CHECKPOINTS:

- 9.1 There are 4 checkpoints in the arena.





9.2 One at the starting of the zone, the other at before steps(zone2)and another at start of the nail path (zone 4), and another at the end of the crest-trough path (zone5).

9.3 The bot is only replaced at its nearest traversed checkpoint.

9.4 Checkpoints are indicated by flags in the arena.

## **10. DISQUALIFICATION:**

10.1 If a participant does not comply with the rules of the event, the robot will be disqualified from the event.

10.2 Misbehavior of any kind will not be tolerated, and in such cases that team will be subjected to disqualification from Roboveda.

10.3 The robot should not harm the field. Constantly harming the arena may lead to disqualification.

10.4 A robot with the base of a toy car and its gearbox as a machine part will be disqualified.

10.5 Also, Lego kits are strictly prohibited and will lead to disqualification.

10.6 Robot unable to complete the track traversal within time 12 minutes is considered as disqualified.

10.7 Using any of the checkpoints more than 3 times (totally) is considered as disqualified.

## **11. OTHERS:**

11.1 Maintain a physical distance of 1-2m from other persons, even if they don't appear to be sick.

11.2 Wear a properly fitted mask and frequently sanitize yourself with an alcohol-based hand rub (sanitizer) or soaps.

11.3 Make sure your mask covers your nose, mouth, and chin.

11.4 If you feel any kind of Covid-19 symptoms, make sure you inform coordinators immediately.

11.5 It's important for every participant to strictly follow the Covid-19 Protocols.

11.6 All participants will be given a Certificate of Participation.

11.7 Winners and runners will be given a Certificate of Merit.

11.8 The same member cannot be a member of two different teams for the same event.

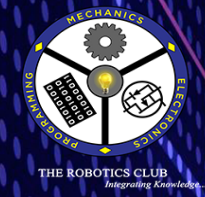
11.9 In case of any discrepancies, the decision of the coordinator and the event head shall be the final, and no further arguments shall be entertained.

11.10 We request the participants not to assume anything without contacting us.

11.11 Team Roboveda is not responsible for any kind of damage to your robot.







11.12 All participants must bring their registration receipts to the event compulsorily.

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

11.14 Ranaveera Pushpak and Yantra are open categories. All the remaining events are open for students pursuing up-to b. tech level only.

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

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

i. 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.

ii. The following modification has to be made to the old robot to accept it as a new robot. They are: Wheels, motors, and chassis material is changed and then it is accepted as a new robot. In case of any discrepancies, the decision of the coordinator and the event head shall be the final and no further arguments shall be entertained.

11.17 The above all the rules can be updated till the event starts.

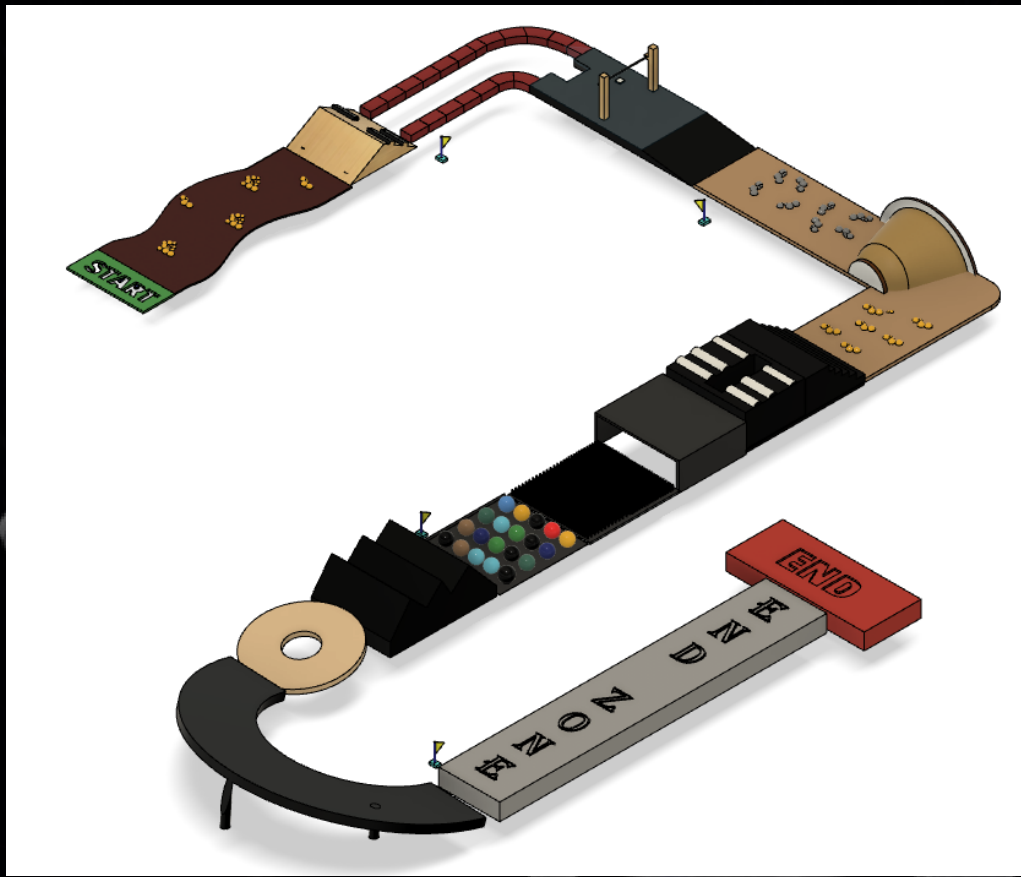
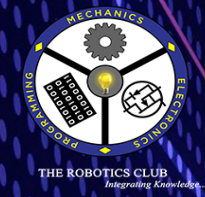
11.18 The registration fee per individual in a team is ₹299. with which the entrant can participate in Yoddha, Samanvayi and Jaladhmatra.

11.19 The registration fee per individual in a team is ₹549. with which the entrant can participate in all the events except Pushpak, Ranaveera, and Yantraa.

11.20 The registration fee is ₹799. for which the entrant can participate in all the events including Ranaveera(any one category only), Pushpak, and Yantraa.

11.21 The registration fee is ₹849. for which the entrant can participate in all the events including Ranaveera(both categories), Pushpak, and Yantraa.





\*\*\*\*\*THANKYOU\*\*\*\*\*

**EVENT COORDINATORS:**

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