

## MONSTER WHEELS

### Task

To fabricate a wireless remote controlled machine, powered only by a DC battery, which can compete with other opponents on an off-road track with numerous obstacles and sharp turns.

### Track

1. The width of the track will be around 65cm for most of the part.
2. Multiple machines will race on a single lane track at a time.
3. The track will include sections of sand, mud and hard surface to test the traction of the vehicles. It will also include small humps, ramps, hairpin curves and PVC pipes as obstacles.
4. The teams should be able to challenge other teams while maintaining stability, speed and agility on the rough terrain.

### Vehical Specifications

1. The maximum dimensions of the vehicle are  
  
Width= 25cm  
  
Length= 30cm  
  
Height= 25cm (antenna can be taller)
2. The teams are advised to keep the ground clearance more than 3cm and approach & departure angles more than 40° for their vehicles
3. The machine should be controlled by a wireless remote control mechanism throughout the race.

4. The machine must not be made from Lego parts, or any ready-made assembly kits other than the parts mentioned below. Readily available chassis layouts are not allowed. Any machine found having a readymade chassis will be disqualified.
5. Parts like gears, motors, springs, shock absorbers, servo motors, batteries, wheels and wheel hub can be directly used as available in the market. Structural parts – Chassis, steering mechanism, have to be built by the participants themselves. (Note that the use of gears, shock absorbers is not mandatory)
6. You are advised to use tires of good width for better performance on dirt tracks.
7. The machine should be powered by a DC motor only.
8. Maximum rpm rating allowed for the DC motor is 500rpm. Teams exceeding this limit will be disqualified.
9. DC motors and servos can be used for steering mechanisms or any other control mechanisms apart from propulsion.
10. The electric voltage anywhere in the machine should not exceed 12V at any point of time.
11. Teams are advised to bring extra set of batteries.

## Rules & Regulations

1. A control area will be provided along the track for the driver to position himself to control his vehicle during the run. The controlling of machine has to be done from this area only.
2. There will be a qualifying round with each team getting 1 lap. Teams will qualify to the next round on the basis of lap times.

3. After the qualifying round, there will be races between multiple cars (maximum 4) at a time. So the participants must come with at least 4 frequency options for the remote control.
4. There will be a points system to judge overall performance of the machine. All the details regarding the points system will be made known to you before the event.
5. The track will have check points at regular intervals. If a machine rolls over or gets stuck 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 timer will not be paused.
6. Team members are not permitted to touch either their machines or those of their opponents once the race begins (unless there is need to lift the machine as stated in fourth point). The penalty for doing so is disqualification.
7. A maximum of two team members are allowed from a team in the racing arena
8. Team will be penalised if the vehicle disintegrates on the track.
9. If any team is found damaging the opponent team's vehicle intentionally, it will be penalised.
10. No tools will be provided by the organisers to repair your machine. Teams are supposed to bring their own tools and other spare parts.

## General Rules

1. Note that at any point of time, the latest information will be that which is on the website. The information provided in the pdf downloaded earlier may not be the latest. However, registered participants will be informed through mail about any such change.
2. Decision of the judges/organizers will be final and cannot be challenged.
3. The organisers reserve the right to change any or all of the above rules as they deem fit. Change in rules, if any, will be highlighted on the website and notified to the registered participants.
4. Organisers reserve the right to disqualify any team indulging in misbehaviour or violating any rules. In case of any disputes/discrepancies, the organiser's decision will be final and binding.

## Team Size

Teams may have at most 4 members. However only 1 member will be allowed to control the machine. In case of failure of the machine, all members of the team can help it to repair outside the arena.

Students from different educational institutes can form a team.

## Report Submission

All registered teams will have to submit a report (MS word document) containing

1. 4 proper photos of your machine (Front, side, top and bottom view)
2. Brief report explaining the steering mechanism and all other control mechanisms used in the vehicle.

Final date for submission: 31st January 2014

## Eligibility

All students with a valid Identity Card of their respective educational institutes are eligible to participate.

## Event Timeline

15<sup>th</sup> Dec – Announcing the event and Releasing Problem Statement

31<sup>st</sup> Jan – Deadline for Report Submission

7-9<sup>th</sup> Feb – Competition

## Certificate Policy

- Certificate of Excellence will be awarded to the top 3 teams.
- Certificate of Participation will be given to all the teams.
- Disqualified teams will not be considered for any certificates.

**For doubts/queries, contact:**

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