

## Overview

We all loved driving around remote controlled cars, but what if you could race your car and win cash prizes? Well BITS Pilani Hyderabad campus presents to you MiniGP this ATMOS 18! The headliner event of the Mechanical and Manufacturing Association of the college, MiniGP has always been the biggest crowd puller and entertainer of the fest over the years. The adrenaline packed races, the cheering of the crowd and twisted track will leave you breathless. So buckle up, for this is going to be one hell of a ride!

## Problem Statement

Participants are expected to race their remote control based IC engine cars through 3 events: drag, time trial and race. The teams completing the laps in the best possible time will qualify for a grand final race. The design skills and application of real-world driving skills to the miniature cars shall be put to test.

## Judging Criteria

- Participants are expected to design their own racing car. In case the participants use readymade cars, they will only be evaluated for 3/4<sup>th</sup> of the total marks i.e a penalty of 1/4<sup>th</sup> of the total marks will be levied on them. If their car is part self-designed and part readymade, then the marks will be given accordingly as per the judge's discretion. Above mentioned penalty is not applicable for the final round.
- Driving ability and application skills of the participants shall also be put to test.
- Lap time will be another criterion to decide the winner.

## Vehicle Specifications

- The vehicle should be designed so that it fits in an 800mm X 700 mm box at any given point of time in the race. This is excluding the remote controller.
- It is essential that the car be designed with an internal combustion engine (IC engine). Motors etc. should not be the main driving sources of the car. However, for steering mechanisms or any other mechanism apart from propulsion, DC motors and servos can be used.
- Only one IC engine should be used in the vehicle. Use of any other sources such as chemicals, compressed gas, rockets etc. for propulsion is not allowed. The allowed capacity of IC engine to be used is 4.5 cc or less.
- The vehicle has to be necessarily controlled by a wireless remote control system throughout the competition. The vehicle must have two remote controllers of different frequencies or an alternate frequency remote control circuit which can be switched to either frequency before the start of the round. This is done to avoid frequency interference between the two competing vehicles.
- Remote control systems from toys or the ones purchased from a market might be used without any fear of penalization.
- The vehicle parts can be ready made. But there will be extra points if you make chassis and steering mechanism by yourself (See judging criteria for more detail).

- If you are making your own car, then other functional parts like motors and servos, gears, springs, engine, remote control systems, batteries, wheels, braking mechanism are allowed to be used as directly available from the market.
- It is essential that the vehicle has an onboard power supply to provide electricity to any mechanism requiring electric power.
- Electric voltage not more than 12V should be used in the machine wherever required.
- Participants are advised to use a proper cooling mechanism to prevent overheating of the engine.
- Verify with the organizers if you have the slightest doubt whether a component can be used or not. Please do not hesitate. Designs not complying with the vehicle specifications will be disqualified.

### **Competition Rules**

- The track will have checkpoints at regular intervals.
- In case the car tumbles, halts or goes off the arena at any point on the track, only the marshal for that round is allowed to lift it up and place it at the nearest checkpoint behind that point. (Previous two rules are for non-racing rounds. The rules for racing round will be explained on the spot)
- Until and unless there is a need to touch the vehicle as stated above, they have to be fully remote controlled throughout the race.
- Every time the machine requires lifting by the team member, a time-penalty will be imposed.
- Any vehicle is not allowed to leave any disintegrated part on the race track amidst the race. In case this happens, the team will be disqualified.
- The teams are also not allowed to damage the opponent's vehicle deliberately. If found guilty, the accused team will be disqualified.
- There will be a time-penalty for reverse gearing.
- Teams may consist of a maximum of 5 members.

### **General Rules**

- Depending on the number of teams participating and other time constraints, the arena will be given to the participants for practicing.
- The time slots will be given on the basis of first come first serve basis, but a little duration of time for practicing is assured to everyone.
- Each team must come up with its own, unique team name.
- Organizers reserve the right to change any of the above rules.
- Participants can address their queries via e-mail or forums and directly by calling up the organizers.
- For help and reference, some material will be uploaded soon.

- The decision of the organizers and judges shall be considered as final and binding on all.

### **Eligibility**

Each participant must be a full time student enrolled in an undergraduate or post graduate program from any recognized university or college. Any professional body consisting of members other than students are not allowed in this competition.

### **Registration**

Participants have to submit an abstract giving the complete description of their vehicles based on the following guidelines.

1. Teams that fabricate their own vehicle must explain the steering mechanism and the chassis layout in detail, along with proper illustrations. Picture(s) showing all the three should be attached.
2. The participants are required to send the photographs of the chassis before assembly so as to ensure that the parts of the car have been built by themselves, that being the case.
3. Photograph of the car in the current state must also be sent with the name of the photograph as the date on which it has been taken.
4. Specification of all other components like the engine, remote controllers, etc must be given.
5. The complete abstract along with photos and the team name and members' name must be provided.
6. If readymade cars are used by the team then the team should mail the exact specification of the car.
7. Write the name of the team along with the name of the team leader and team members with their respective contact numbers and e-mail ids. Design illustrations may be sent to [bphc.me@gmail.com](mailto:bphc.me@gmail.com) before **1 October 2018**.
8. A confirmation mail will be sent to the team leaders.