



Kshatij 2014

RACE PULSE

Specifications of the Model:

1. The model car should fit in a box with dimensions 700mm * 600mm * 500mm (l*b*h) throughout the time the car is on the track. However the external device used to control the car on the track and the antenna (if used) should not be included in the dimensions.
2. The model car should be controlled by a wireless remote controller.
3. Chassis layout available in the market cannot be used directly in the model car.
4. The model car could be classified further into two genres:
 - a) **Functional parts:** Batteries, Brake Pads, Differential Gear, Engine, Gears, Servo motors (non-propulsion purposes only), Shock Absorbers, Springs, Wheels, Wheel Hub.

These can be bought directly from the market.
 - b) **Structural parts:** Braking assembly, Chassis, Steering mechanism, Shock towers and Suspension (excluding upper suspension arm & spring and shock absorbers).

These have to be made by the participants themselves.
5. The tires used by the teams in the model must have a minimum diameter of 3 inches. The teams are advised to keep the width of the tyres big enough to help them to control on the dirt arena.

These are the essential criteria of participating team. They could be disqualified if they do not follow the above instructions.





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Different Mechanisms:

1. **Brake Mechanism:** An essential unit of any automobile is its braking system. Participants are expected to fabricate the brake pad as a part of the braking mechanism. Any other part used in braking mechanism (including the brake disk) can be ready-made.



2. **Wheel hub:** The part rigidly attached to the wheel hub will be considered as a part of it and hence can be ready-made.





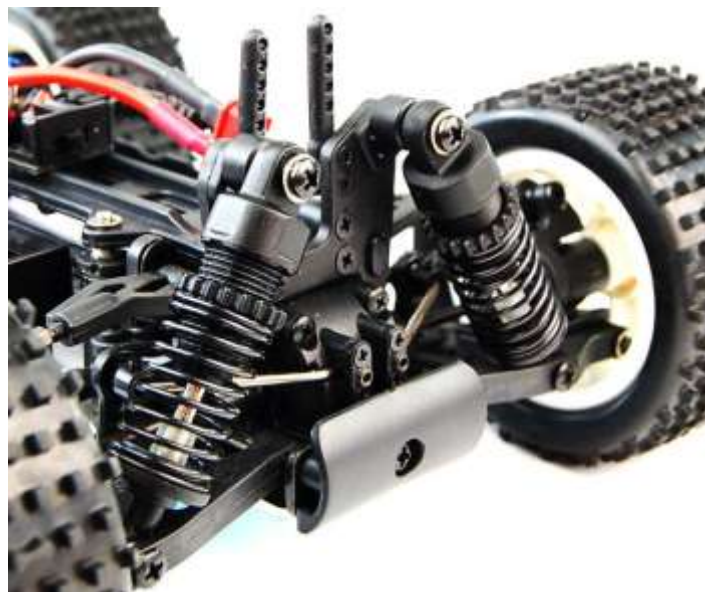
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3. **Steering Mechanism:** The part which is connected to steering rod rigidly which will have no degrees of freedom with respect to steering rod will be considered as part of steering rod and thus has to be fabricated by participants.



4. **Suspension mechanism:** The part that rigidly connects to the suspension arms (or one with no degrees of freedom with respect to suspension arm) will be considered as its part and has to be fabricated by the participants, except the upper suspension arm. Both the heim joint for the upper suspension arm and the stud rigidly connected to the wheel hub can be bought from market.





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5. If there are parts used in the concerned joint which are neither rigidly connected with suspension or the hub, steering system or hub; they can be used ready-made from the market.

Propulsion & Steering

1. The Mechanical power required for the model should have only one source of Internal Combustion engine. Only one IC engine should be used in the machine. Use of any other sources such as chemicals, compressed gas, rockets etc. is not allowed.
2. Any model car that uses DC Motors for propulsion will be disqualified. However DC motors and servos can be used for steering mechanisms or any other control mechanisms apart from propulsion.
3. The model car must have an on-board power supply to run any mechanism requiring electric power.
4. The maximum allowed displacement of the piston rod of IC engine to be used is 5.3 cc (i.e. Participants can also use 2.5 cc, 3 cc, 3.5 cc, 4.6 cc, 5.22 cc or any other IC engine lower in capacity).
5. The electric voltage anywhere in the model car should not exceed 12V at any point of time.
6. There shall be a countdown preceding the start of the race. No participant is allowed to alter any changes in the model car during the countdown period.
7. Participants may use a cooling mechanism to avoid overheating.
8. Participants are advised to use sway bars for better control and stability.
9. The participants are advised to use proper air filters as dirt might cause serious problems to the engine.
10. The model car will be inspected and if found to be dangerous, the team will be disqualified. This will be subject to the judges' discretion and would be final.

