DRONIX

The Dronix is a drone race competition designed to highlight the innovative skills of students in the fields of engineering and technology. As aspiring engineers, participants are invited to showcase their technical aptitude by designing a drone that meets specific criteria. The focus of the competition is to encourage participants to demonstrate their practical engineering skills and to develop drones that prioritise functionality, durability and versatility.

Technical Guidelines:

- Drones that participate in the event must contain 4 rotors at maximum.
- The drone can be made of any materials such as PvC, plastic, or carbon fiber.
- Shape of the drone is entirely subjective to the team but it must not contain any control surfaces for gliding.
- The drone must be capable of vertical landing or takeoff, should not require runway or taxiway.
- Drone motors should not exceed 1000KV.
- The drone must weigh less than or equal to 2kg.
- The drone must be within the maximum dimensions of 80*60*15 centimeters.
- The drone must be controlled by wi-fi, bluetooth, a smart-phone, or an RC.
- The control range of the drone must be less than 200 meters.
- Batteries of any choice can be used.
- The flight altitude must be less than or equal to 100 meters.
- Drones with obstacle avoidance sensor configurations are not allowed.
- Fully autonomous, autopilot, or smart drones are not allowed.
- The pilot's FPV, remote control view, and drone view, 3rd person operation is not allowed.

Conduct Guidelines:

- The pilot must be pursuing an UG degree from the same institution as the rest of the team.
- Posing any other individual such as alumnus or trainer as the pilot could lead to disqualifying the team from entire event.
- The drone may only be operated on the permitted premises.
- The pilot must operate the drone within the visual range.
- During the demonstration, or participation in the event, participants must respect the privacy of other teams.
- The pilot must bear all responsibility for ensuring the security of the drone while operating it.

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Rounds Breakdown:

Round 1: Technical Inspection (100 points)

In this round, each drone will be checked for technical aspects and whether it meets the rulebook requirements. Teams whose drones do not meet the rulebook requirements will be given penalty points. Technical questions will be asked by the judges or coordinators to the team members about their corresponding drones.

Round 2: Hover (150 points)

In this round, the drone operators must fly their drones in the specified space and altitude, which will be allocated by the event coordinator, for a specific time. If the drone flies in the specified region within the specified time, it will receive full points. Points will be awarded based on the flying time.

Round 3: Maneuvrability (150 points)

In this round, the drone operator must fly the drone as instructed by the event coordinator. The drone might need to traverse through curved paths or loops to check the maneuvrability. The score will be awarded based on the performance of the drone.

Round 4: Race (300 points)

This round consists of various obstacles that the drone must clear. The pilot must stand in one place and fly the drone, but one of their team members can accompany the drone. The team must complete the lap by navigating through the hurdles. Points will be deducted if the drone strikes the hurdles. If the drone falls at any moment, it must be driven from the last checkpoint. The shortest time take to complete the lap will be awarded the highest points.

Penalties:

- A penalty of 20 points will be imposed for each instance of the drone touching a hurdle during the race.
- A penalty of 20 points will be imposed for each instance of drone crossing a specified boundary during the race.
- Human Interference Penalty: A penalty of 20 points will be imposed for any instances of human interference during the race.
- Flight Time Penalty: if the drone is unable to maintain flight for a continuous period of 10 seconds or more, a penalty of 15 points will be imposed.
- Deviation Penalty: A penalty of 50 points will be imposed for each instance of the drone deviating from the designated track three times or more during the race.

Disqualification :

- The team will be disqualified if they violate any of the rules and regulations mentioned in the rulebook.
- The coordinators have the right to disqualify any team if they deem it necessary.

Liability:

- The participants are responsible for their own safety and the safety of others.
- The organizers will not be held liable for any damages or accidents that may occur during the event.

Appeals:

- The coordinators have the right to change the rules of rounds if necessary.
- In case of any disputes, the coordinators' or judges' decision will be final and binding.
- No appeals will be entertained.

Winning Criteria:

- The team with the highest total score from all rounds will be declared the first place winner.
- In the case of a tie, the team with the shortest overall completion time for all rounds will be declared the winner.

Competition Rewards:

The winners of the event will be awarded the following prizes:

- ➢ 1st Prize: INR 11,000
- ➢ 2nd Prize: INR 7,000

Additionally, all participants will receive a certificate of participation as a token of appreciation for their effort.

Registration Details:

Registration fee structure varies according to the team size.

- ➢ Single member 300/-
- ➢ Two members 500/-
- ➢ Three members 750/-
- ➢ Four members 1000/-
- ➢ Five members 1250/-

NOTE: The team should consists of maximum five members

Contact Details:

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The Drone Race competition is a great platform for students to showcase their technical skills and creativity. We hope that all participants have a fun and safe time during the event. Good luck to all the teams!