GAME OF DRONES

OVERVIEW

Design and build a wireless remote-controlled flying drone to complete the given tasks with highest points possible. There are two rounds and a BONUS round in the competition.

PROBLEM STATEMENT

Participants are expected to Design and build a flying drone to complete the tasks with highest points possible. There are two rounds and a BONUS round in the competition. There is an optional BONUS round to show your outstanding design, manoeuvre capabilities.

DRONE SPECIFICATIONS

- Drone should fit in the box with dimensions 60cm x 60cm x 30cm
- Drones should be powered/propelled with non-hydrocarbon engines
- Flying machines which are eligible includes
  - Quad-copters
  - Hexa-copters
  - Octa-copters
  - Tri-copters
- 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 game. This is done to avoid frequency interference between the two competing vehicles.
- Participants must make all parts of the aircraft themselves. Usage of Ready-to-Fly (RTF) and Almost-Ready-to-Fly (ARTF) kits is strictly prohibited. However, the kit comprising of unassembled cut-pieces of Balsa wood is allowed.
- Metal propellers are not allowed.
- Note: Drones with frames smaller than 25cm x 25cm are considered as Mini-Drones and point system is modified to make the competion fair

ROUND 0

• Participants have to submit a video of the working model of their flying drone on or before 15th October. +50 pts
• The video should be an unedited clip, at least 1 minute in length, showing the aircraft taking off initially and taking a U-turn
• In the video, one of the participants from the team must demonstrate that he/she has decent flying skills for safety reasons
• The participants need to show their aircraft, the basic functions of their remote control, fly the aircraft with which they will be participating in the event and have to demonstrate its -

- Launch / Take off : +10pts
- Hover the drone : +10pts
- Basic Controls – forward, backward, right, left : +5*4=+20pts
- Soft Landing : +10pts

The participants have to share their video clip at below given link: phoenix@hyderabad.bits-pilani.ac.in. The subject should say: "Atmos 17 Quad Challenge – Your College Name"

ROUND 0

For participants who did not mail us the video demonstrating the flying skills.

- Steadily hover the drone at a height at 10ft : +10pts
- Basic Flight Testing:
  - Move forward to the flag post : +5pts
  - Take a right to the next flag post : +5pts
  - Take a left and come back to the previous flag post : +5pts
  - Move backward to the starting point : +5pts
- Hover and soft land at the starting point : +10pts

All the above-mentioned task should be done maintaining the altitude.
PENALTY- Altitude achieved more than 40ft : -25pts (each time this happens)(-50pts for Mini-Drones)

ROUND 1

The scoring for each sub-task:

- Steadily take off from the starting point and hover the drone at a height of 10ft : +10pts
- Move forward on a straight path towards the pole while maintain the orientation and altitude
- The pole is marked at various heights.
- Hover your drone at 10ft for 10 sec : +5pts
- Increase the altitude to 20ft and rotate 360 while maintaining the present x,y,z co-ordinates : +20pts
- Now go till 30ft and make a 90 shift right and head towards the pole on the right : +20pts
- Pass through the obstacle safely : +20pts
- Soft land your drone at the ending flag post steadily while maintaining the exact orientation during the take off : +15pts

PENALTY- Crossing the arena in any case : -35pts (-60pts for Mini-Drones)
NOTE- 10% of the total teams finishing bottom of the table will be disqualified for the next round.

ROUND 2

The Arena for this round consists of a number of obstacles. The task is to get the drone through maximum number of obstacles safely.

NOTE- The Arena will be given to the participants for practicing before the event commences depending on the number of teams and other time constraints. The Marking scheme will be announced during the commencement of the event.

BONUS ROUND

- This is an optional BONUS round where the participants are required to mount a camera on your drone and record a video of whole arena for a minimum of one minute
- Video should be automatically saved on on-board memory and should be viewable on any computer after retrieving the drone

- Scoring is based on the following parameters - stabilization of video, video resolution, recorded time
- Scoring is relative and a team can get a maximum of 150 points in this round

NOTE- Participants reaching Round 2 will only be considered for the BONUS Round.

JUDGING

- Teams will be judged based on Scoring, Design, Construction, Technology used.
- Scoring of mentioned path will be: Score = Surprise attribute + points earned - penalty.
- Surprise attribute will be disclosed while evaluating, at the event
- In case of a tie, Surprise Attribute will be the deciding factor
- Decision made by judges is final and binding

IN CASE OF ANY DISPUTE, THE DECISION OF THE EVENT ORGANIZERS IS FINAL

NOTE- The Cumulative score(the sum of scores obtained in each round) will be considered for the final results.
Also, it should be noted that Points System for Mini-Drones (25*25sq.cm) is different from normal drones

TEAM SPECIFICATIONS

- A team can consist of 3-5 participants
- Teams may consist students from different educational institutions
- A participant cannot be a part of two different teams

ELIGIBILITY

All students with a valid identity card of their respective educational institutions are eligible to participate in the event.

CERTIFICATE POLICY

- Certificate of excellence will be awarded to the top three teams.
- Certificate of Participation will be awarded to the teams who have successfully completed the ROUND 1

For any queries, contact-

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