

RULE BOOK



Drone Race Challenge

5th International Robotic Olympiad 2025

at Uttara University, Dhaka

The event will be held on **June 21, 2025**.

Organized By





Description

5TH International Robo Tech Olympiads Drone Race Challenge Segment invites participants to showcase their drone-flying prowess in an action-packed event. Drones must weave through tricky obstacle courses, requiring participants to demonstrate their skill in navigating with precision. The challenge emphasizes the use of smart technology for obstacle avoidance, highlighting participants' creativity and technical know-how. This event is all about the thrill of flying drones with speed and accuracy, where quick thinking and control are crucial for success

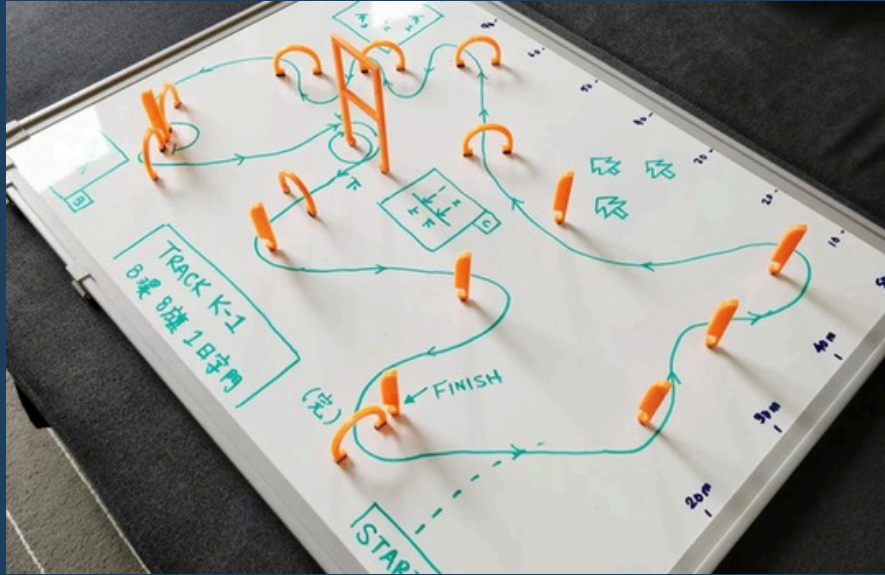
Team Specifications

- A team can have a maximum number of Three participants.
- The team must have a name
- The competition is open to all students. It is permissible to form the team with the students of different universities.
- Registration fee for each team is 1000 Tk . (Online Payment)
- The Team must announce the name of the pilot before the competition.

Drone Specifications

- Weight and Dimension:** The complete Drone (including Battery) should have the maximum dimension of 60cm*60cm*60cm (L*B*H). Drone weight including battery should not be more than 3Kg.
- Battery, (mAh, voltage)** The Drone must be electrically powered only. The battery capacity must not combinedly (if multiple batteries are used simultaneously) exceed 5000 mAh. The maximum voltage of any two points of drone circuit must be limited to 24V
- Highest number of motor (tri/quad/hexa)** The drone can have 3, 4 or 6 propellers and each propeller can have 3 blades at maximum. A drone that contains, propeller of any other number beyond rules or more than 3 blades in a propeller, will not be allowed to participate in the game.

Flying Arena



Demo of the Arena

There will be enough space to fly your drone with freedom. There will be some obstacles like rectangles, triangles, U-shaped obstacle, rings in the arena through which the drone will have to pass. The dimension of these objects are given below :

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- The cross sectional dimensions of those obstacles will not be less than 90cm*90cm
- The ring diameter will not be less than 90 cm.
- The radius of the U shaped obstacle will not be less than 90 cm which will be placed on the ground.
- The height of those obstacles will vary but not exceed 3 meters.

Number of Rounds

The competition will be divided into two rounds.

□ First Round: Elimination Stage

- All teams will have to submit their drone before the start of the competition. The drone will be given back to the respective team before the run of each team.
- The participants will be given around 3 minutes to set up their drones before the competition starts.
- In this round participants will complete the track individually. Scoring will be based on time record, obstacle passing, lap completion, track completion. Point distribution and calculation method is attached below. A certain number of selected teams will play in the final round.
- The maximum time to complete the track will be declared before the competition.
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□ Second Round: Final Stage All the rules of round one are included in this round. The orientation of the arena and the number of obstacle courses may change. The number of lap may increase. The team with the most points will be the winner of this stage.

Point Calculation

□ Obstacle Passing:

- For passing a rectangular obstacle 25 points will be given (K)
- For passing a triangular obstacle 40 points will be given (L)
- For passing a ring-shaped obstacle 35 points will be given (M)
- For passing a U-shaped obstacle 25 points will be given (N)

□ Bonus Point:

- For successful completion of each lap will be awarded with 50 points. (Q)
- For successful landing after the crossing of the finishing line will be awarded with 75 points. (R)

Total obstacle passing and bonus point:

$$P_b = 25*K + 40*L + 35*M + 25*N + 100*Q + R$$

□ Time Count:

For a given time T second if the drone takes t second to finish the track, It will have points of :

$$P_t = 5*(T-t)$$

K, LN, M, R, Q, are the number of successful attempts.

□ Penalties:

- Colliding with any obstacle will result in a penalty of 20 points (m).
- Skipping any obstacle will result in a penalty of 20 points (n).
- Every restart will result in 20 point deduction (l).

□ Total penalty:

$$P_p = 20*n + 20*m + 20*l$$

n, m are counts of failure.

□ Total Point Calculation

$$P_{total} = P_b + P_t - P_p$$

General Rules

☐ Safety First:

- All participants must prioritize safety in all aspects of the tournament.
- Drones must be operated in a manner that minimizes the risk of injury to participants, spectators, and equipment.

☐ Technical Specifications:

- Drones must meet specified technical requirements set by the tournament organizers.
- Any modifications to drones must be per-approved by tournament officials.

☐ Fair Play:

- Participants must engage in fair play and adhere to the spirit of sportsmanship.
- Any attempt to gain an unfair advantage through technical means or rule violations will result in disqualification.

☐ Drone Inspection:

- All drones must undergo thorough inspection before the tournament to ensure compliance with technical specifications and safety standards. Any drone found to be in violation will be disqualified until the issues are rectified.

❑ **No Interference:**

- Participants must not interfere with the operation of
- drones from other teams.
- Deliberate interference, such as signal jamming, is
- strictly prohibited.

❑ **Communication:**

- Teams must follow communication protocols set by
- the organizers.
- Any disputes or issues should be communicated to
- tournament officials promptly.

❑ **Scoring and Judging:**

- Scoring criteria and judging methods should be clearly
- communicated to all participants.
- Judges' decisions are final and binding

❑ **Special Rule:**

Participants are allowed to utilize pre-fabricated structural members for the competition. However, the drone itself must not be pre-assembled or constructed using Lego components.

For Any Queries Call us:

+880 1706276447

+880 1878782806

Or inbox at our page:



Registration Form

