FPV Racing championship

INTRODUCTION

This event challenges participants to design and operate high-performance FPV drones capable of navigating a predefined racing track consisting of gates, obstacles, and sharp turns in the minimum possible time. The objective is to demonstrate precision control, agility, and speed while maintaining stability and consistency throughout multiple laps. Teams are expected to optimize their drone configuration and piloting skills to efficiently complete the course under competitive conditions

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PROBLEM STATEMENT

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DRONE SPECIFICATION

Participants are required to design and operate FPV drones adhering to the following specifications:

- Frame Size: Maximum 5-inch class (propeller size $\leqslant$ 5 inches)
- Weight: Must not exceed 1 kg (including battery and all onboard components)
- Battery: Maximum 6S LiPo/Li-ion ($\leqslant$ 25.2 V)
- Propellers: Maximum diameter of 5 inches
- Control Mode: Manual FPV control only (no autonomous assistance permitted)

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- Video Transmission: Both Analog or Digital FPV systems
- Failsafe: A functional failsafe mechanism must be configured
- Safety: Drones must be structurally secure with properly mounted components

Any violation of the above specifications may result in penalties or disqualification after inspection.

ROUND STRUCTURE

Participants will be required to navigate a predefined racing track consisting of gates and obstacles using manual FPV control. The objective is to complete the course in the shortest possible time while maintaining control and accuracy.

Each team will be given two laps to complete the track. The timing will begin when the drone successfully passes through the first obstacle and will conclude upon completing two laps, with the drone passing through the first obstacle again at the end.

The best lap time (shortest lap) achieved by the participant will be considered for ranking.

Participants must ensure smooth and controlled flight while navigating through all obstacles. Missing a gate or deviating from the track may result in penalties or lap invalidation.

In case of a tie between teams, an additional round will be conducted to determine the final ranking.

The detailed layout of the arena and obstacle configuration will be revealed on the day of the event to ensure fairness and prevent prior practice advantages.

PENALTIES

To ensure fairness and consistency in evaluation, the following penalties will be imposed during the event:

- **Missing an Obstacle**: A penalty of **+5 seconds** will be added for each missed obstacle or gate.
- **Crash with Self-Recovery**: If the drone crashes but resumes flight without external assistance, a penalty of **+3 seconds** will be imposed.
- **Crash Requiring Assistance**: If the drone requires intervention from a marshal to resume flight, a penalty of **+10 seconds** will be imposed.
- **Failure to Complete Lap**: If the drone is unable to continue the race due to a crash or technical failure, the lap will be considered invalid.

Additional Guidelines

- Penalties are cumulative and will be added to the total lap time.
- Intentional skipping of obstacles will be treated as a missed obstacle.
- Any unsafe flying behavior may lead to disqualification at the discretion of the judges

Note: The organizers reserve all rights to change any or all of the above rules.

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