



**2026**

**Australia Youth Drone Tournament**

**World Robot Contest**

**FTF Obstacle Challenge Manual**

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## 1. Competition Overview

The 2026 RoboPro Australia Youth Drone Tournament is an individual drone flight competition designed to evaluate participants' drone piloting skills, spatial awareness, and obstacle navigation ability.

Participants must fly the drone through a series of designated obstacles in the correct order and complete the final landing task within the time limit.

The competition focuses on:

- Drone flight control
- Spatial navigation
- Precision flying
- Obstacle avoidance

No programming task is required in this competition.

## 2. Competition Information

**Competition Name:** Flight Control Challenge

**Competition Format:** Individual competition

**Target Participants:** Primary & Secondary School Category

### Competition Field

The competition field measures approximately **3m × 4m**.

The field includes:

- Player Movement Zone
- Seven obstacle / task zones

Safety barriers are installed around the competition field to ensure safe operation. The map is laid flat on the ground and obstacles are placed according to the field layout.

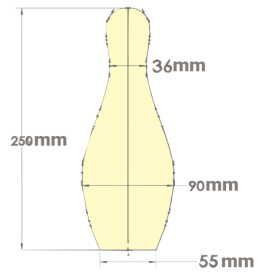
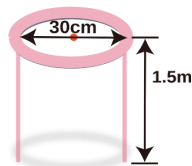
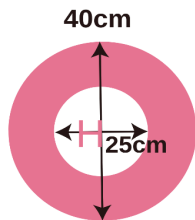
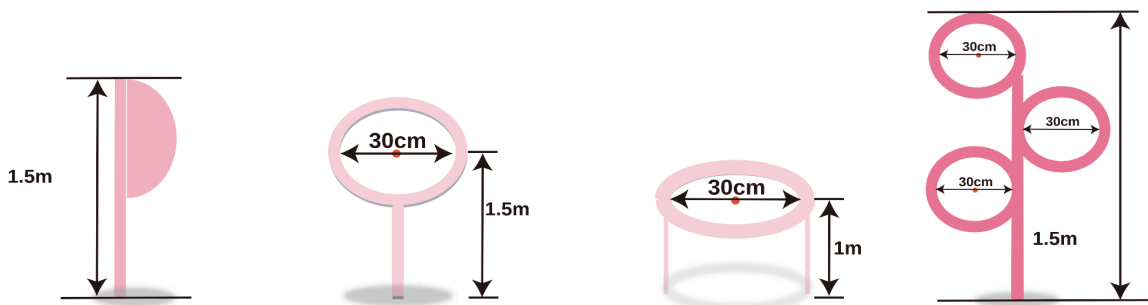
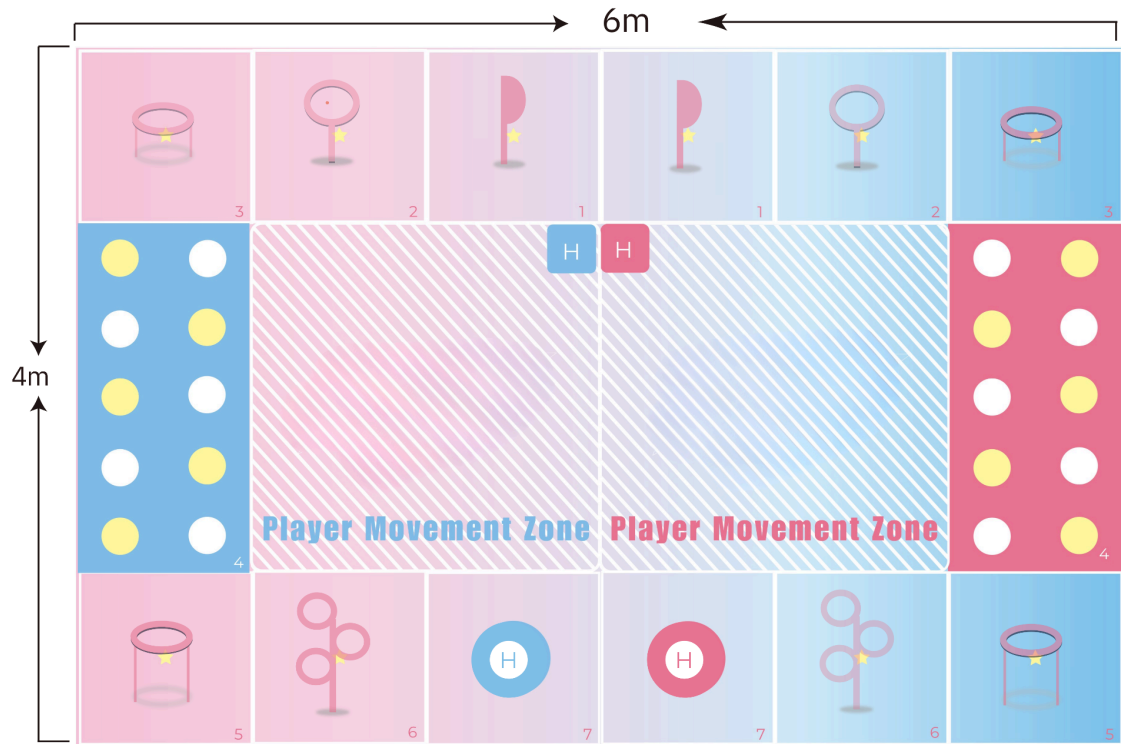
Obstacle placement tolerance: **±5cm**

**All obstacles will be set up by the organising committee prior to the competition. Participants are not allowed to reposition obstacles unless instructed by referees.**

## 3. Task Zones and Requirements

The course includes **seven task zones**, each containing a specific obstacle and scoring requirement.

Participants must complete the tasks **in numerical order**.



### **3.1. Zone 1 - Flag Marker**

Obstacle: Vertical flag pole

Height: approximately 1.5 m above ground

Requirement: The drone must circle around the flag once.

Score: +5 points for successful completion.

### **3.2. Zone 2 – Vertical Ring**

Obstacle: Vertical circular ring

Diameter: approximately 30 cm

Center height: approximately 1.5 m

Requirement: The drone must pass completely through the ring.

Score: +5 points for successful completion.

### **3.3. Zone 3 – Horizontal Ring (Top to Bottom)**

Obstacle: Horizontal circular ring

Diameter: approximately 30 cm

Height: approximately 1 m

Requirement: The drone must pass through the ring from top to bottom.

Score: +5 points for successful completion.

### **3.4. Zone 4 – Bowling Pin Challenge**

Obstacle: 10 bowling pins total:

- 5 yellow pins
- 5 white pins

Task requirement: Participants must knock down all yellow pins before proceeding to the next zone.

Scoring:

- +2 points for each yellow pin knocked down
- -5 points for each white pin knocked down

After all yellow pins are knocked down: +5 points for completing the zone.

A bowling pin is considered knocked down when it is no longer standing upright.

### **3.5. Zone 5 – Horizontal Ring (Bottom to Top)**

Obstacle: Horizontal circular ring

Diameter: approximately 30 cm

Height: approximately 1.5 m

Requirement: The drone must pass through the ring from bottom to top.

Score: +5 points for successful completion.

### **3.6. Zone 6 – Triple Ring Tree**

Obstacle: three circular rings arranged vertically

Diameter: approximately 30 cm

Requirement: The drone must pass through each ring once.

Score: +5 points for successful completion.

### **3.7. Zone 7 – Landing Zone**

Landing zone includes two circular areas:

- Inner circle diameter: **25 cm**
- Outer circle diameter: **40 cm**

Landing score will be determined by the final resting position of the drone. If the drone slides after landing, the final position will be used.

Landing scores:

- Landing inside inner circle → **+5 points**
- Landing inside outer circle → **+3 points**
- Landing outside both circles → **+1 point**

### **3.8. Player Movement Zone**

The movement zone measures approximately **2 m × 2 m**.

The drone takeoff point is located within this zone.

Participants must remain inside the movement zone during operation.

### **3.9. Definition – Complete Pass**

A complete pass means the entire drone body must pass through the obstacle. If the drone touches the obstacle but still passes completely through it, the pass is still considered valid unless the obstacle is displaced.

## 4. Competition Equipment

Participants must bring their own drones that meet the competition specifications. All drones will be inspected before the competition begins.

### Drone specifications:

- Weight: 135 g – 200 g, including battery
- Battery type: Lithium battery
- The drone must be equipped with fully protected propellers
- Only standard remote controllers are permitted
- Recommended model: DJI Neo Drone

## 5. Competition Rules

### 5.1 General Rule

Each participant has **two flight attempts**. The **best result** will be recorded. Each attempt has a **time limit of 3 minutes**.

Before each round begins, participants are allowed **2 minutes of preparation time** to adjust the obstacles or bowling pins if necessary. However:

- Obstacles must remain within their designated zones
- Props must not be moved outside the allowed area

After preparation is completed, participants must **raise their hand to signal readiness**. The referee will then start the timer.

### 5.2 Competition Completion

Participants must complete the tasks **in numerical order**. If the time limit of **3 minutes** is reached before the tasks are completed, the round will **immediately end**.

### 5.3 Equipment Failure Rule

Participants may continue the attempt if the drone is still operational and remains within the competition field.

If the drone cannot continue due to:

- power loss
- crash
- component damage
- loss of control

Participants may **not restart or touch the drone**. The attempt will **immediately end**.

## 6. Scoring and Ranking

### 6.1 Ranking

Scores are determined based on **obstacle completion and penalties**.

Ranking priority:

1. **Total Score**
2. **Completion Time**

If two participants achieve the same score, the **shorter completion time ranks higher**.

### 6.2 Score Calculation

Total Score = Zone Completion Points + Yellow Pin Points – Penalty Deductions

Penalty deductions refer to rule violations defined in Section 7.

## 7. Violations and Penalties

### 7.1 Preparation Time Violation

If a participant exceeds the **2-minute preparation time** after being notified by the referee:

–10 points will be deducted.

### 7.2 Movement Zone Violation

If a participant steps outside the movement zone:

–5 points per occurrence.

If the participant fails to return after warning:

an additional **–5 points** will be deducted.

### 7.3 Disqualification Violations

The following actions will result in **disqualification**:

- Moving obstacles outside their designated zones
- Moving bowling pins outside the allowed circular area
- Using unauthorized equipment
- Using signal interference devices
- Any behavior that disrupts the fairness of the competition

## 8. Referees

Competition officials include:

- **1 Head Referee**
- **2 Assistant Referees**

Referees are responsible for:

- Equipment inspection
- Score recording
- Rule enforcement
- Dispute resolution

Appeals must be submitted to the Head Referee through the team coach. The **Head Referee's decision is final.**

## 9. Important Notes

### 9.1 Safety

Participants must strictly follow drone safety procedures. If a drone becomes unsafe or uncontrollable, the participant must stop operating immediately.

### 9.2 Equipment Responsibility

Participants must ensure:

- batteries are fully charged
- drone components are functioning properly
- controllers are working normally

### 9.3 Competition Conduct

Participants must follow competition rules and respect referees and staff. Any cheating behavior will result in disqualification. The Head Referee has final authority on all decisions.