



Overview

Participants will demonstrate their knowledge of drones by participating in **manual** flight missions related to a specified theme area. Teams also study the principles of flight and research the use of drones in a specified theme area to create a **digital research poster**. Details about the flight missions and theme area will be posted on the Droneworks website (www.droneworksite.com). Semifinalists will be **interviewed** about their digital research poster.



- One (1) Pilot
- One (1) Spotter

In a Team of one (1) participant, the individual may serve as both Pilot and Spotter.

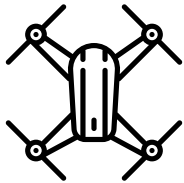
Team of 1-2 Students
2 Teams per Chapter

Pilot and Spotter may switch roles during competition.



Safety Glasses

Safety glasses required for ALL participants



Drone

A. With all components attached, drone must not exceed the following dimensions:

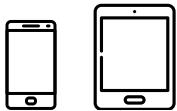
- a. 9 in (30 cm) width
- b. 9 in (30 cm) length
- c. 5 in (13 cm) height

(as measured from the surface the drone is resting upon to the highest point of the drone, with all its components attached)



Gamepad Controller

C. Drone weight (with all components attached) must not exceed 3.5 oz (100 g).



Smartphone/Tablet
(Optional)

D. Propeller guards/cage may be used if, once attached, the overall drone size does not exceed the dimensions listed above.

E. A gamepad controller or smartphone/tablet may be used for manual flight.




F. First Person View (FPV) goggles are not allowed.



No FPV Allowed

A list of suggested drones is posted on the Droneworks website (www.droneworksite.com)

Event Components

Preliminary Round		Semifinal Round
		
Digital Research Poster	Manual Drone Flight	Interview

Procedure

Digital Research Poster (Pre-Conference) (Preliminary Round)



- A. Participants are given a **theme** related to the use of drones in real-world applications.
- B. Participants will create a **digital research poster** explaining up to three (3) ways drones may be used in relation to the theme.

Manual Drone Flight (On-Site) (Preliminary Round)



C. Participants are provided a series of designated **flight missions** and point values.



D. More information on the theme and flight missions are available on the [Droneworks website](http://www.droneworksite.com).



E. Participants will complete the missions **manually**.



1-min

F. Participants will have a **one (1:00) minute** attempt to complete flight missions **manually** to score the most points.



x3

G. All participants will be given **up to three (3) attempts** of manual flight to achieve their best score by completing the flight missions.



H. The **preliminary round score** from the digital research poster and top two (2) manual flight attempts will determine the **twelve (12) semifinalists**.

Semifinal Interview (On-Site) (Semifinal Round)



I. Semifinalists participate in an on-site **interview** about their digital research poster. The **top ten (10) finalists** will be announced at the conference awards ceremony.



Digital Research Poster (Pre-Conference)

40 points

Create a **digital research poster** illustrating and explaining **up to three (3) ways drones may be used** related to the given theme.



Digital Research Poster (PDF)

- A. Digital poster must be submitted as a **2-page PDF**.
- B. Poster may be **no larger than 22 in. x 28 in.**
- C. Color or grayscale is acceptable
- D. Any medium may be used. (e.g. digital, pencil, paint, marker, photographs)
- E. Physical poster may be created, photographed, and submitted as a PDF file.
- F. Any photographs or digital media used must be properly credited in Research Bibliography.

First page must contain:

- 1. Theme
- 2. Research description in **300 words or less**
- 3. Research description may be handwritten or typed
- 4. Hand drawn or digital **illustrations/photos (2-3)**

Second page must contain:

- 1. Team/chapter ID number
- 2. **Research Bibliography** citing sources of research information and illustrations/photos

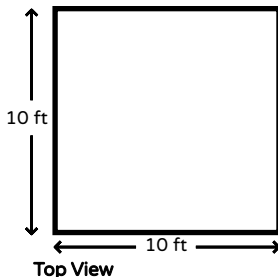


Ratings Criteria

- Theme Research
- Illustrations/Photos
- Layout and Design
- Research Bibliography



Airspace



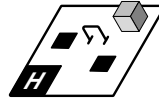
The airspace is the area where the drone flies. It is an area 10 ft. long x 10 ft. wide. It also has a virtual ceiling of 10 ft. Netting is hung to isolate the drones from spectators.



Manual Drone Flight

120 points

To challenge the participants' **manual** flying skills, teams pilot their drone through various **theme-based missions**. Teams attempt to complete missions and score the most points within **one (1) minute**.



- 1. Theme-based missions are released on the [Droneworks website](#)

During the Competition



- 2. At the **hot table**, participants power up their drone and connect it to their **Drone Control System**.



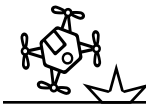
- 3. Only one (1) team at a time competes within the airspace.



- 4. The **pilot** stays outside the airspace and controls the drone from within the **pilot area**.



- 5. The **spotter** places the drone on the **landing pad**. An attempt begins with a countdown.



- 6. The **spotter** remains outside the airspace unless the drone **stops**, but may retrieve it and return it to the landing pad for **additional flights**.



1-Min. Manual Attempt

- 7. Participants will have a **one (1:00) minute** attempt to complete flight missions **manually**. **The timer never pauses.**



- 8. After an **attempt**, a judge discusses what happened, mission by mission. If the **team** agrees with everything, they sign the **score sheet**.



x3

- 9. Participants will be given **up to three (3) attempts** to achieve their best score by completing the flight missions.



- 10. The **preliminary round score** from the digital research poster and top two (2) manual flight attempts will determine the **twelve (12) semifinalists**.



Semifinal Interview

40 points

Semifinalists participate in an on-site **interview** about their digital research poster. The **top ten (10) finalists** will be announced at the conference awards ceremony.