

2019 Texas TSA Drone Competition

CONTEST CONCEPT:

- Unmanned Aerial Vehicles (UAV), or better known as drones, have gained immense popularity over the last few years. The most important aspect of drone operation is flying them. Your task is to fly the UAV, that you have built from a kit or from scratch, through a course in the fastest time possible. Your drone will make three laps around the course and the best lap time will be used to determine your placement in the race. The top two teams from each race will move forward to the next race.

DRONE SPECIFICATION:

- Although there is no official UAV of the event, the UAV to be used will conform to the following specifications. If the UAV does not meet the specifications given, the team will not be permitted to fly their UAV:
- Your UAV will not weigh more than 150g.
- The motor size will be no larger than an 11xx.
- The propeller size will be no larger than 2.5”.
- The Lithium Polymer (LiPo) battery being used will be no larger than 2S.

CONTESTANT & SAFETY REQUIREMENTS:

- Operating rules for the UAV race will be followed. Any violation of the rules that are stated will lead the flying team to be disqualified and asked to leave the course:

OPERATING RULES:

- Unmanned aircraft must weigh less than 150 grams fully loaded.
 - Keep the unmanned aircraft within visual line-of-sight.
 - Do not fly directly over people.
 - Must not receive or use GPS.
 - Must not have any object avoidance systems
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- The Drone Contest Director may call for an Emergency Stop at ANY TIME if they determine that a drone is unsafe due to unsafe equipment or due to unsafe piloting.
 - Each team and their drone will be inspected for meeting specification, safety, and operations prior to flight to ensure compliance with all rules before the races begin. The UAV will be submitted for inspection with the propellers removed from the UAV.
 - ALL UAV, and UAV transmitters WILL be powered off at the beginning of the contest. No UAV and transmitter will be allowed to be turned on during the Contest (unless instructed to do so) to ensure that there is no interference between the current pilot and the current drone.
 - Teams must consist of a minimum of two (2) student members with a maximum of three (3) student members. Each school will be allowed 2 competing teams. Each team will have their own UAV, transmitter, and goggles.

- ALL team members MUST wear OSHA approved (Z87.1) CLEAR safety glasses at all times. TSA will NOT supply safety glasses. Teams caught without wearing safety glass will not be allowed to fly.
- ALL team members MUST wear OSHA approved hard hats at all times during the contest. Texas TSA will NOT supply hard hats. Teams without hard hats will not be allowed to fly.
- ALL team members MUST have a signed Texas TSA Liability Release form physically with them at the Drone Contest. Not having the Texas TSA Liability Release form disqualifies that member from competing as part of the Team during the UAV Race.
- There will NOT be any practice flights prior to the beginning of the UAV Race. There will be a walk through, and pre-race instructions given to contestants before the race.
- All team members MUST remain in the designated areas at all times during the flight. The Pilot must be in the Pilot Box at all times during that team's flight. Additional team members MUST remain in Team Box areas at the back corners of the Designated Contest Area. In the event that the drone crashes or is instructed to land, team members may NOT leave the Team Boxes until told to do so by the Contest Director.
- Teams waiting to compete will be instructed where to wait by the Drone Contest Director at the beginning of the contest.
- All transmitters of the UAV must be through direct inputs to the transmitter by the pilot, without any autopilot, flight, or navigational aids.
- Teams using a UAV that does not conform to these rules will not be permitted to use it at the competition.

Team Placement will be determined by the lowest lap time out of three laps on the course.

RECOMMENDATIONS:

- There has been an explosion of UAV companies that are available to supply do-it-yourself (DIY) kits. Many of these companies are happy to assist students in putting together their drone kits bought from them. Two companies in the Spring and Conroe area, Catalyst Machine Works and Cyclone FPV, have worked with students in the area. Banggood is a Chinese mail order and has a good selection of drones and equipment, but it takes several weeks for delivery. Also, there are many local racing groups in the Texas area with members that will help new drone racers and recommend of drones and drone equipment to start with. The Houston area has three groups that can be found on Facebook.
- When you finally make a decision on the kit you wish to assemble, make sure that the drone meets specifications. Also, remember, you will need to solder wires to very small electronic components so make sure you understand how to solder before messing up your electronics.