Dinosaur Rescue- 2025 UAV Drone

Overview

The mission of your team is to design, build, assemble, document and test fly an Unmanned Aerial Vehicle drone that can complete landing, dropping, identifying and picking up tasks of varying difficulty in a course designed to test the handling, maneuverability, hardware capabilities, and piloting of your drone. The event will consist of a pre-inspection and check-in of the team members, drone, and all equipment associated (controllers, flight goggles, etc.)

THE UAV DRONE CHALLENGE COMPETITORS ARE TO ENGINEER AND BUILD AN OPEN-SOURCE UAV Drone. Different drones may have different capabilities, but to complete all tasks required of the event, the UAV DRONE should be able to drop uncaged dinosaurs and caged dinosaurs onto or within 4 inches of specially marked drop targets additionally competitors will have to use their cameras to identify 2 hidden targets on the competition field. Drones may be designed to use grippers or magnets for the dropping device.

The Flight Mission:

- Mission Time: Ten (10) minute running clock.
- There will be 4 possible payloads for the drone recover and deliver to a target area. 2 Caged and 2 uncaged. Additionally, there will be two additional hidden targets to find and identify using the cameras on the drone.
- Drones may take only one payload at a time.
- There will be 2 paths for the pilot to choose from containing a combination of the following obstacles– The ladders, the reverse hurdles, and floating square. Competitors must complete each of the obstacles in the path to receiving credit for completion and drop or target identification. Described in more details below.
- Pilots will fly UAV Drone via FPV or visual flight methods. Secondary Pilot may use FPV (goggles, video screen, phone, etc.) to identify targets and complete payload load and drop operations.
- Payloads: Start from the launch station (pilot area), then choose path to the payload acquisition area, collect payload (Payload acquisition area) and return to the drop area (no path choice is required). Payloads will be organized by the team in the designated payload acquisition area; no outside devices can be used to hold/stand/modify given payloads.
- Target Identification: Start from the launch station (pilot area), collect payload and then choose path to the targets.
- Spotters should communicate the UAV Drone location and any targets they may see
- The Judging Team will tally up the successful drops/ lands onto specified targets and hidden targets identified during the 10-minute running clock window.

Overview/Procedures

- When UAV Drone is out of the competition tent area, all propellers must be removed. NO EXCEPTIONS. Violation of this will result in an automatic disqualification.
- Pit Area Assignment. The Event Coordinator will provide a designated area for UAV Drone Teams to work on and prepare their UAV Drone for flight.
- Once a dinosaur has been dropped, then the drone must return to the start point before beginning the next pick-up run.
- Once a payload is dropped in the competition area, the payload will remain there until the competition time has expired or ended due to successful completion of all course targets.
- Pilots must take their drone through a chosen course before the drop or target identification counts.
- Points will be scored based on the accuracy of the drop to the target and on the course that the pilots choose to take their drone to get to the target.
- Target run: If targets cannot be identified the path points will still count towards the team score.
- Payload run: If the drone is not carrying a payload the path points do not count.
- Fly back to start zones between drops/targets before proceeding to pick-up new payload; dropped payload (Caged and uncaged dinosaurs) within the competition arena may not be retrieved by the drone during competition.
- Time is taken, in the case of a tie in points the faster time will advance.

Regulations

1. Following all safety guidelines and precautions of this competition is the most important regulation; Violation of the safety guidelines can result in a warning or removal from the competition depending on the severity.
2. **All Drone Competitors are Required to wear at minimum Safety glasses and High Visibility Safety Vest**
3. When a team enters the competition tent field, only at the discretion of the Event Coordinator may the team members attach the battery cable and turn on their UAV Drone and become ready to fly.
4. When A UAV Drone is outside of the competition tent area, all batteries must be unplugged from the UAV Drone stack, which should consist of the flight controller receiver and the Electronic Speed Controller (ESE). **NO EXCEPTIONS**.
5. When the competition and practice sessions are taking place and a UAV Drone is in the competition field area flying, all UAV Drones in the pit area or outside the pit area must be **POWERED OFF**.
6. All UAV Drones must fly **ONLY** within the Competition field.
7. Propellor Guards are recommended
8. Violations of any of the above regulations will result in disqualification.

Course Obstacles/Payloads/Targets:

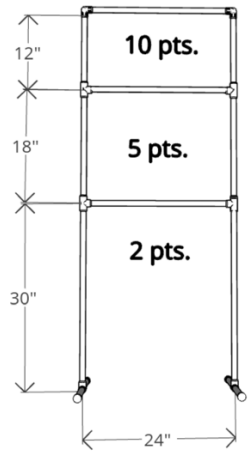
Payloads will be similar to the one found here

Target for the dinosaurs and caged dinosaurs will be a 14” x 14” square. Ten (10) pts for each successful drop completely in the target zone.

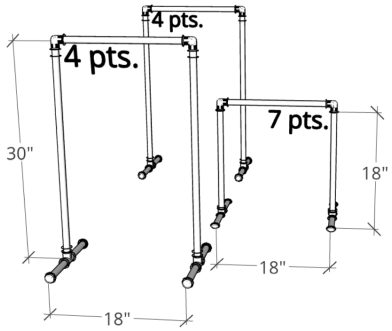
Hidden Target Identification with camera fifteen (15) pts. The target identified must be easily identified to the judges on a screen provided by the competitor. It can be the same screen used for flight. The target must be easy to see/read to receive full points.

Course Obstacles location and selected dinosaur payloads will be determined at the conference and a layout will be given at the time of check in/signup for team planning.

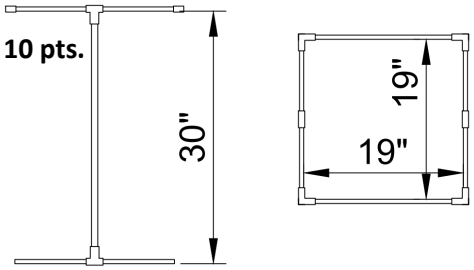
Obstacle 1– The ladders – made of ½” PVC Pipe and measurements are the opening size.



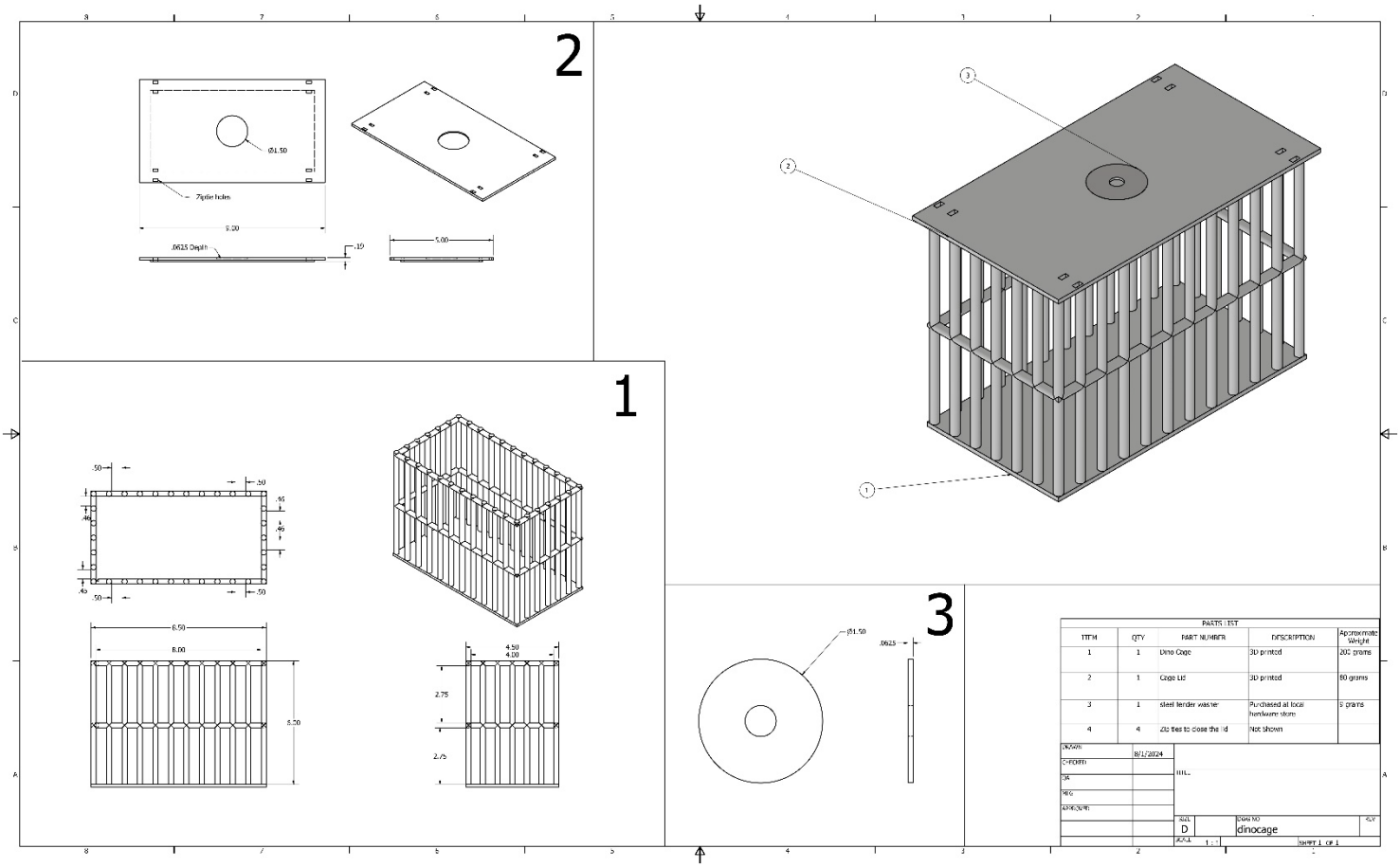
Obstacle 2– The reverse hurdles – made of ½” PVC Pipe and measurements are the opening size.



Obstacle 3 – The Floating Square- made of ½” PVC Pipe and measurements are the opening size.



Team Number			Time		
Payload Run	**Path Taken**	**Points Acquired**	**Payload Drop Successful**	**Payload Drop Points**	**Run Total Points**
1 Cage Dino or Uncaged Dino	1 2		Yes or No		
2 Cage Dino or Uncaged Dino	1 2		Yes or No		
3 Cage Dino or Uncaged Dino	1 2		Yes or No		
4 Cage Dino or Uncaged Dino	1 2		Yes or No		
Target Run	**Path Taken**	**Points Acquired**	**Target Identified with Camera**	**Target Identified Points**	**Run Total Points**
Target 1	1 2		Yes or No		
Target 2	1 2		Yes or No		
				Final Total Points	



Sample Course Setup