

2026 Safari Rescue- HS Drone UAV

Overview

The mission of your team is to design, build, assemble, document, and test-fly an Unmanned Aerial Vehicle (UAV) drone capable of completing landing, dropping, identifying, and picking-up tasks of varying difficulty. The competition course is designed to test the handling, maneuverability, hardware capabilities, and piloting skills of your drone. The event will include a pre-inspection and check-in of the team members, drone, and all equipment used for flight operations (e.g., controllers, flight goggles, etc.).

The UAV Drone Challenge requires competitors to engineer and build an open-source UAV drone. Drones may differ in their capabilities, but to successfully complete all tasks, each drone should be able to:

- Drop both caged and uncaged animals onto the target area.
- Use onboard cameras to identify two hidden targets on the competition field.

Drones may use grippers or magnets as their payload release mechanisms.

The Flight Mission

- Team/Driver Meeting: Thirty (30) minute maximum for all teams at the assigned time. At the end of the assigned time, the event will begin.
- Mission Time: Ten (10) minutes (running clock).
- There will be four payloads for the drone to recover and deliver to designated target areas: 2 caged and 2 uncaged animals.
- Additionally, there will be two hidden targets to locate and identify using the drone's onboard cameras.
- Course Obstacles location and selected animal payloads will be determined at the conference and a layout will be given at the time of check in/signup for team planning.
- Drones may carry only one payload at a time.
- Pilots must choose between two obstacle paths, each containing a combination of the following: ladders, reverse hurdles, and floating squares. All obstacles in the chosen path must be completed to receive credit for target drops or identification (detailed below).
- Pilots will fly the UAV via FPV (first-person view) or visual line-of-sight. A secondary pilot may use FPV (goggles, video screen, phone, etc.) to identify targets and assist with payload pick-up and drop operations.
- Payload Sequence:
 - Start from the launch station (pilot area)
 - Choose a path to the payload acquisition area
 - Collect a payload
 - Return to the drop area (no path choice is required for return)
 - Payloads must be pre-organized by the team in the designated payload area
 - No external devices may be used to hold, modify, or support the payloads
- Target Identification Sequence:
 - Start from the launch station
 - Choose a path to the hidden targets
 - Use onboard cameras to identify the targets
- Spotters are encouraged to communicate the drone's location and any observed targets.
- The judging team will score:
 - Successful drops (accuracy to marked targets)
 - Hidden targets successfully identified
 - Obstacle path completions
 - Total performance within the 10-minute flight window

Overview / Procedures

- When the UAV drone is outside the competition tent area, all propellers must be removed. No exceptions. Violations will result in automatic disqualification.
- The event coordinator will assign each team a designated pit area for preparation and repair of drones.
- After dropping a payload, the drone must return to the start point before beginning another pick-up run.
- Once a payload is dropped, it will remain in place for the remainder of the match.
- Drones must fly through the selected course before completing a drop or target identification for it to count.
- Points will be awarded for:
 - Drop accuracy
 - Path selection and completion
- Obstacle Points:
 - Can only be earned once per run
- Target Run:
 - If the drone fails to identify the hidden targets, path points still count
- Payload Run:
 - If the drone is not carrying a payload, path points do not count
- Drones must return to the start zone between each drop/target run. Payloads already dropped may not be retrieved during the match.
- In the event of a tie, the team with the faster mission time will advance.

Regulations

1. Safety is the top priority. Violations of safety guidelines may result in a warning or disqualification, depending on severity.
2. All drone operators must wear:
 - Safety glasses
 - High-visibility safety vests
3. Propellers can be installed in the pit area with batteries disconnected.
4. Upon entering the competition tent field, teams may only connect their drone's battery and power on with permission from the event coordinator or other authorized personnel.
5. When a drone is outside the competition tent, all batteries must be disconnected from the drone stack (including the flight controller, receiver, and ESCs), unless permission is given by the event coordinator or other authorized personnel.
6. UAV drones must only fly within the designated competition or practice fields.
7. Propeller guards are required.
8. Violation of any rule above may result in disqualification.

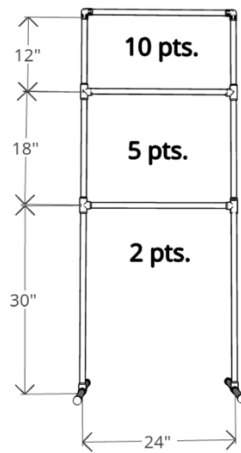
Course Obstacles/Payloads/Targets:

Payloads will be similar to the one found [here](#).

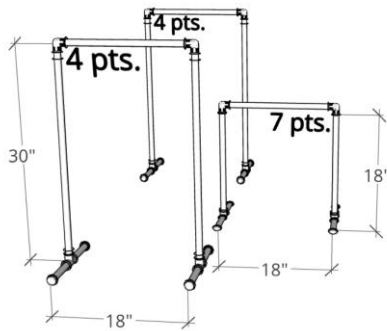
Target for the animals and caged animals will be a 14" x 14" square. Ten (10) pts for each successful drop completely in the target zone.

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.

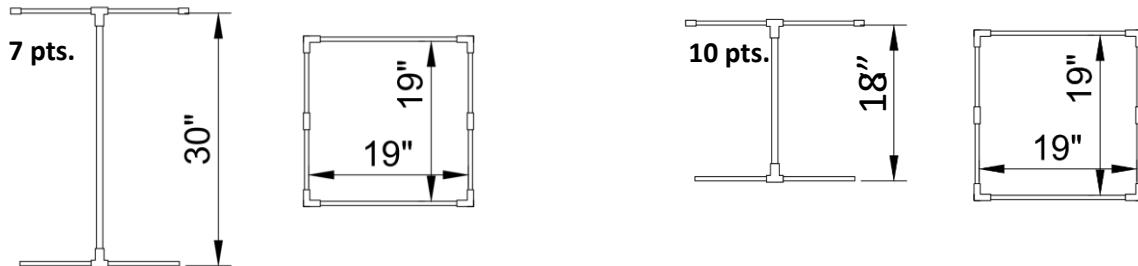
Obstacle 1– The ladders – made of ½" PVC Pipe and measurements are the opening size.



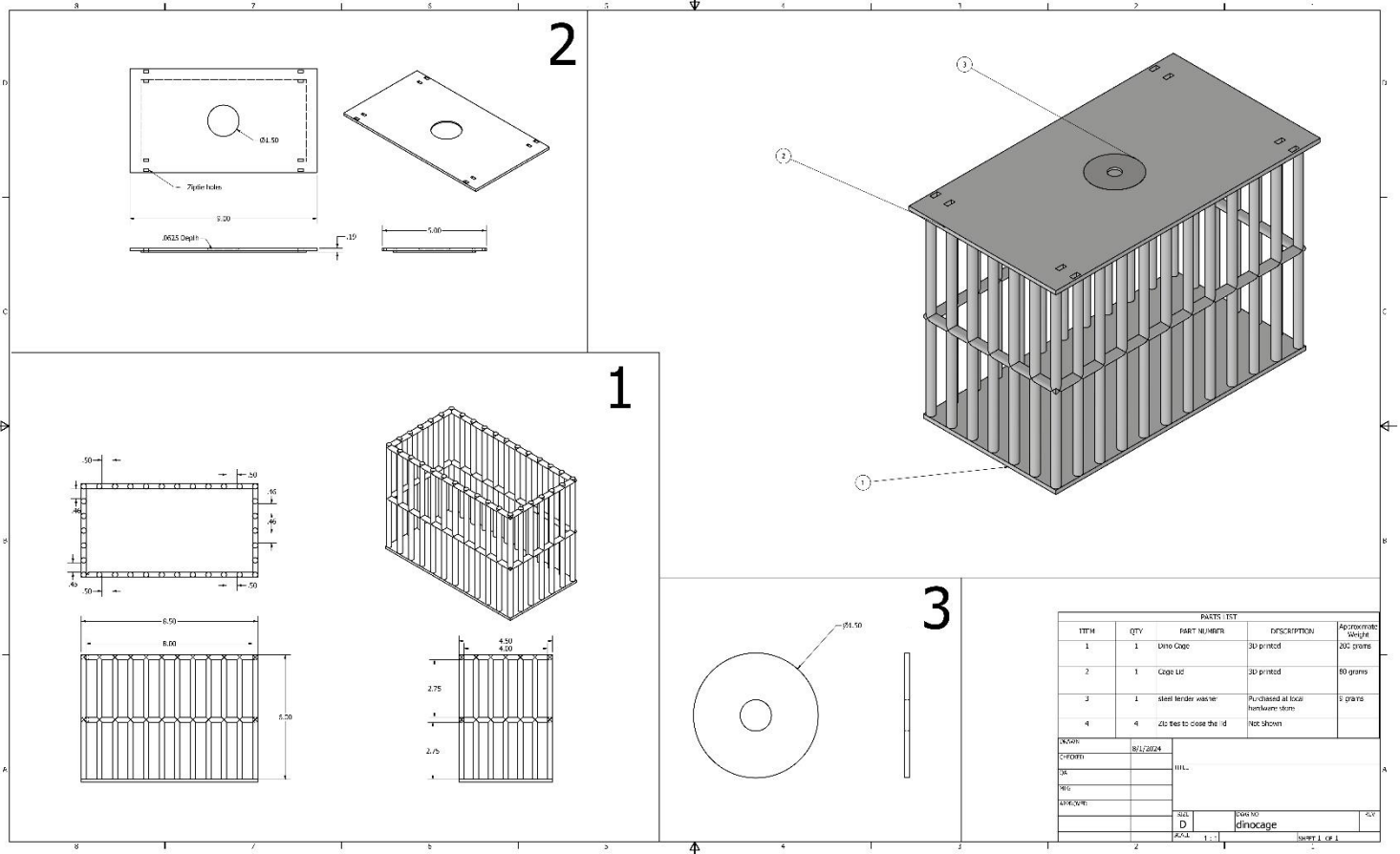
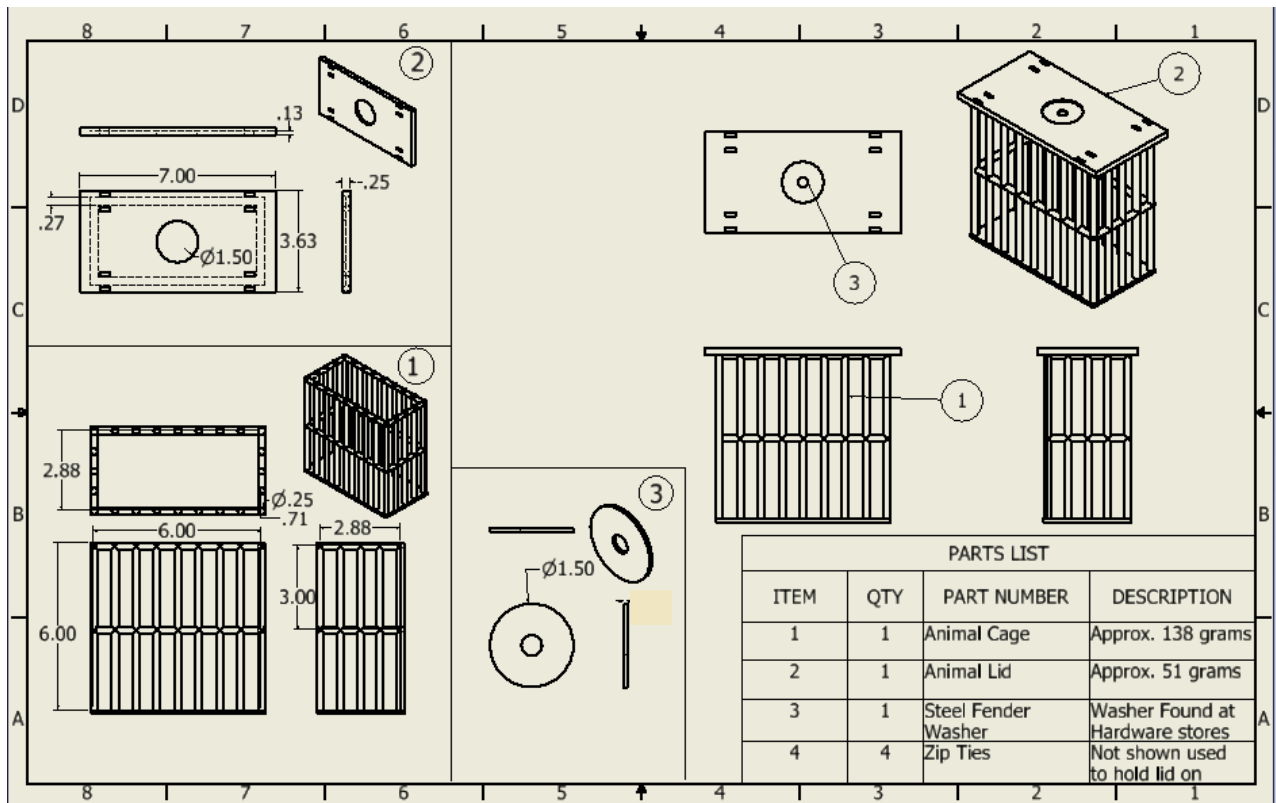
Obstacle 2– The reverse hurdles – made of ½" PVC Pipe and measurements are the opening size.



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



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|---------------------------------|-------------------|------------------------|--------------------------------------|---------------------------------|-------------------------|
| Team Number | | | Time | | |
| Payload Run | Path Taken | Points Acquired | Payload Drop Successful | Payload Drop Points | Run Total Points |
| 1 Cage animal or Uncaged animal | 1 2 | | Yes or No | | |
| 2 Cage animal or Uncaged animal | 1 2 | | Yes or No | | |
| 3 Cage animal or Uncaged animal | 1 2 | | Yes or No | | |
| 4 Cage animal or Uncaged animal | 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

