

Object Following Drone Use Model

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Revision 2.0

1. INTRODUCTION

This is the Use Model for Object Following Drone project. This Use Model describes how Drone Unit could be operated.

2. HARDWARE AND EQUIPMENTS

- Drone Unit
- Laptop

3. SETUP

- The operation of this drone unit must be in an open field with minimum dimension 150ft by 100ft.
- Drone Unit, laptop and object/person always be on the same vector with Drone as starting and object/person is ending point.
- Front of the drone is facing the direction of moving.
- During operation, object/person has to be 5ft to 20ft with respect to the drone.
- If drone follows an operator/actor, the laptop has to be either with the operator or in accessible place for controlling the drone.

4. OPERATION

- Power on Drone (plug in drone battery)
- Communicate with Drone using laptop via Wi-Fi/Bluetooth.
- Once the communication is done, have an object or a person, that will be tracked, at 10ft away from drone.
- Input: Image of an object or person that will be tracked and the height of that object/person.
- Initialization – Drone will hover at input height and start tracking.
- Movement/Tracking – Object can only move in one direction. The direction of moving is the direction of drone facing in Setup section.
- Finish – Use laptop to stop Drone from tracking. Drone now will return to its starting point.
- Lost tracking – Drone hovers and looks for an object. If object doesn't appear within 10 seconds, Drone returns to starting point. If object appears, Drone resumes to operation.

5. DESCRIPTION OF USE MODEL DIAGRAM

a. Actor

- Setup
 - Drone face direction of moving
 - Drone, object and operator have to be within 20ft during setup process
 - Drone and Object has to be on a straight line (or the same vector as mention in section above)
- Initialization
 - Power ON
 - Program Inputs: Object height and Object image.
 - Run command/Start Tracking
- Finish
 - Stop Tracking
 - Return to starting point

b. Drone

- Lost track of the object
 - Hover 10 seconds to look for the object.
 - If object is found, start tracking again
 - If object is not found, return to starting point

6. USE MODEL DIAGRAM

