Object Following Drone Use Model

5/16/16

Revision 1.3

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. **DESCRIBTION 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