

ASSIGNMENT #9

DR. SANKALP K. BHAN

Due Date: 04/23

1. ACADEMIC INTEGRITY

You may produce your video with your group mates or individually. Please post your own work, don't add clips of work that doesn't belong to your group.

If you demonstrate your UAV flying in the video, you will receive +10 pts on top of your final grade.

2. ASSIGNMENT

- (1) Create a simulation (linear or nonlinear) of the parrot mambo and actuator model with your identified parameters.
- (2) Place a deadzone from $[0, 0.45]$ m in your simulation on the ultrasonic sensor feedback
- (3) Simulate a take-off from 0 m.
- (4) Then for 3 s allow the drone to hover at 1.5m
- (5) Move the UAV forward at a speed of 0.3 m/s for 3 s
- (6) Put the UAV in a 1g orbit. Orbit at a speed of 0.3 m/s.
- (7) After it completes 1 revolution, flip the UAV about its body x-axis
- (8) Land the UAV

3. WHAT TO TURN IN

Create a short (<7 minute video) that summarizes what you learned in the course and how you made the UAV fly. You may choose to individually make a video or work in a group. Including footage of your groups drone performing the simulation will add 10 pts to your final grade. Please turn in all matlab files and code. Please send your professor a video via youtube or some other media.

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