Assignment #7:
Assigned: February 27th
Multiple Deliverables Tuesday March 5th (Github), Later @ flying field

5% of final grade after assignment is flow

Objective:
To prepare a very simple program for your first physical flight. You may base this on existing code but you should thoroughly test it in the simulator.

Required Functionality:

1. **Tell your UAV to takeoff to 20 meters**
   - **a.** Assume the UAV starts in White Field within the predefined geofence
   - **b.** Fly at 20 meters to avoid the stadium lights!

2. **Fly a triangle (with each side 10-15 meters)**
   - **a.** The precise shape of the triangle doesn't matter.
   - **b.** Return to your starting longitude and latitude (this means detecting the home coordinates when you start as you don't know exactly where they will be)

3. **Land the drone.**

4. **Make sure that your code includes standard safety checks.**

   - **a.** You should be able to break out of your while loop if the user switches to LOITER mode: while vehicle.mode.name=="GUIDED":
   - **b.** You should check that the waypoints are inside the center part of the White Field area before issuing a go-to command. Do not issue a command outside this area.
     North West: 41.715368, -86.243882
     South East: 41.714310, -86.239746
     There are certain constraints (for purposes of this assignment).
     - The lead drone can reject waypoint commands if those commands would require it to create an angle greater than 30 degrees from its direction of travel.

5. **When we go to the flying field you'll need to:**

   a. Learn to fly the UAV (if you don't know already)
   b. Pass your manual flying test (quite simple but to demonstrate you understand the controls)
   c. Fly your "triangle" program above from your laptop.