Meeting with Professor Zwernemann - 1/26

**Objectives:** Professor Zwernemann will provide the design team with an overview of the Aircraft Design Team II program objectives and a requirements/constraints overview.

**Accomplishments**

**Notes**

1. **Points of Contact for Aircraft Design II Team**

**-**  TA: David Meskill @ meskillschool@gmail.com

- Assuming Incompressible: Program Manager: Riley Jacobs – rileymjacobs@utexas.edu

- Lift and Drag Queens: Program Manager: Grace Kirk – grace.kirk@utexas.edu

- As an aside, COE majors in Design Team 4 will be working as “subcontractors” under these program managers to achieve intended objectives

1. **Overview of Aircraft Design Capstone Course**

**-** Provides a systems engineering-based learning experience

- Students learn how to design, build, and test an aircraft system

- Starts with top-level objectives and requirements and continues with concept selection

1. **Objectives**

**-** Figure how to automate the release process of the payloads when they need to be delivered to candidate critical targets of interest (TOI) that are in need of first aid kits (frowny-face targets)

- Study the Autopilot and ADP (Airdrop Payload Mechanism) subsystem components in the aircraft to understand how satellite imagery is generated, stored, and transmitted. The GPS location runs through the autopilot. Studying these subsystems will be useful for understanding how the map generation from satellite imagery can be integrated with payload release mechanism, and ultimately, how it can all be automated

- Goal is also integrate zoom view camera with capability of narrowing field of vision with automatic target recognition algorithm. Perhaps, the algorithm can be designed under altitude conditions of the aircraft (ideally 200-250 ft) that are needed for minimum resolution to distinguish between frowny and smiley faces where all information on TOI can be captured in a single pass, or as few passes as possible

- Look into co-processors that are industry/commercially available that plug directly into the Pixhawk mechanism, otherwise there are manually technologies like Raspberry Pi that take a longer period of time to integrate with the software

**In Progress**

1. Determine Aircraft Design Team II program objectives, problem statement, requirements/constraints
2. Perform literature reviews (on individual basis) and assemble 2-3 resources pertinent to our program objectives (ex: autopilot technology, resolution optimization, etc.)
3. Assemble 1-2 into presentation deliverable for next week

**Next Steps**

1. Establish point of contact with teaching assistant, David (primary supervisor for project), program managers Riley, and Grace

**Questions/Concerns**

1. From the meeting, there were a couple of images of the TOI that were fully dimensioned; will the dimensions and aspect ratios for the targets be fixed, or will they lie within a certain range that our design will have to account for?