

Team/Client Meeting - 6/25/19

Start Time: 11:30am

End Time: 1:00pm

Client Meeting:

Absolute needs for Project:

1. Operate stepper motor at 1/10 degree precision at low to high speeds.
2. Modular stand design. (i.e. stand can have load cells and stepper motor attached, or just stepper motor attached, or nothing attached.)
3. One person should be able to build and install components of stand and attachments.
4. Design and build airfoil with interfacing adapter for stepper motor and airfoil either build into airfoil or separate device.

If we can reach Goals:

1. Adding load cell/s to design.
2. Identify 0 angle of attack through code. (Code should be able to go back to 'home' which is the 0 angle of attack.)

- We will build airfoil to NACA airfoil standards. From a range between 9%-21% thickness. 9% will be harder to machine. 21% will be easier to machine.
- Vibrations can't contaminate load cell readings, walking past load cell/s will impact readings.
- We need to design a stand that can possibly support multiple load cells. It absolutely has to have a spot for one load cell.
- 15-20 minutes to set up current stand. Ours can take up to two hours to set up.
- Make sure there is no jerk in stepper motor. (put delays in code)
- Need to be able to level airfoil.
- Vertical airfoil design was chosen. In PDR explain why this orientation is beneficial over horizontal.
- 2x2 in 8020 10-14 ft
- 1x1 in 8020 8-10 ft

Team Meeting:

- Bryce worked on stand designs, researched vibration reducing materials, managed team meeting agenda's, client meeting agenda's, and meeting minutes for both on google docs.
- James worked on stand designs and managed design folders on google docs.
- Ryan researched wiring and interfacing for our stepper motor.
- Prototype stand design in laser cutter.
- Discuss/Research vibration effects on stepper motors.
- CNC Mill will be able make airfoil.

- Higher microstepping means less torque and higher inaccuracies.
- Research cam block systems for interfacing between stepper motor and airfoil. Six-axis locking connector.

Action Items:

Ryan - Research load cells, specifically multiple vs one. Put stepper motor specs on google docs and continue wiring/electrical research and needs for stepper motor.

Bryan - Stepper motor research with Ryan and start putting information into wikipage.

James - Continue stand design.

Bryce - Continue stand design and look at python coding for stepper motor instead of Labview.

Questions:

1. What kind of computer are we getting for coding and running the program in the wind tunnel area.
2. How compact/transportable does the system need to be?
3. Can we use thumb screws?