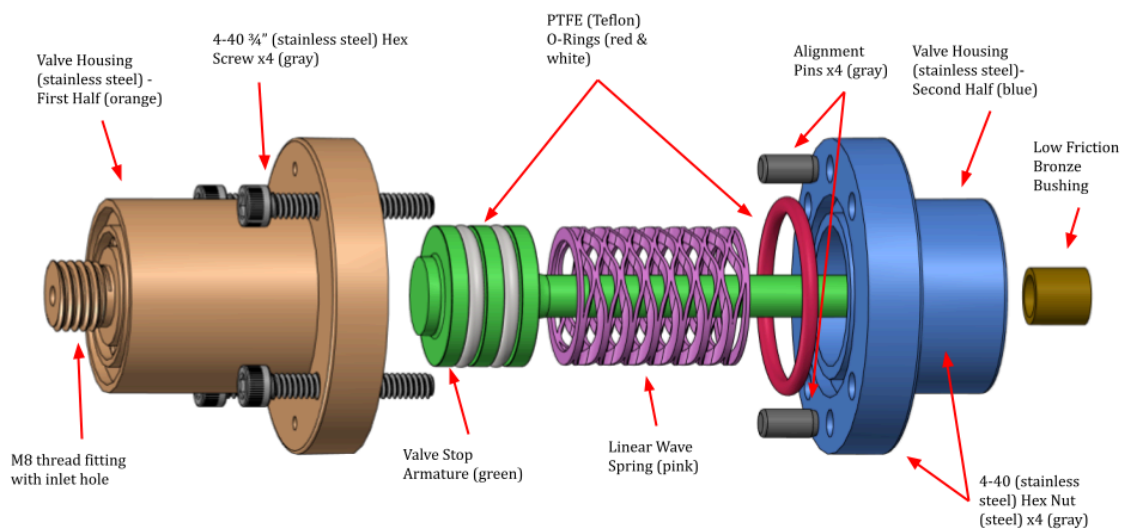


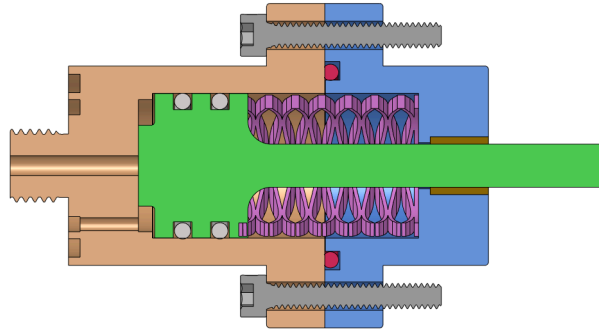
Project Status: Overview of Status of Analysis, Design, Fabrication, Tests, etc. One or two sentences to describe your project status.

- CAM program in progress - expecting to finish the Aluminum prototype this week.
 - Sponsor approved primary valve housing design.
 - Behind schedule on producing aluminum prototype due to implementation of design revisions suggested by sponsor.
- Currently working through a challenge integrating PTFE O-ring - exploring spring seals.
 - Sponsor does not desire a 2-piece plunger due to increased complexity. Will need to conduct further research on acceptable o-rings.
- Bowden cable fatigue testing in progress.
- Bowden cable interface design in progress.
 - Components to attach cable sheath to valve housing and adjust for lost motion.

Accomplishments from Previous Week: Your status of last week's goal. If you did not succeed, explain how you are going to recover it, or it is not a problem any more.

- Produced additive manufactured prototype which validates dynamic motion in valve housing.
- Received Smalley low-form factor springs.
- Began Bowden cable fatigue testing.
- Produced code to calculate theoretical optimal diameter for Bowden cable wire
- New Valve Housing Design.





- Testing different actuators

Goals for Next Week (list names after each item). Use specific and measurable objectives. Be specific on each goal and have the teammate's name after it. So that the instructor could better understand the project progress and give the progress report grades.

- Order stepper motor. (Manny)
- Source gears for rack and pinion design. (Manny)
- Order Bowden cable components of new (smaller) diameter. (Michael/Matthew)
- Select Bowden cable end fittings for smaller diameter (Michael/Matthew)
- Figure out how to mount end fittings to the valve housing and the actuator (Michael)
- Design method and components for dealing with lost cable motion; source components for the design. (Matthew)
- Continue manufacturing on aluminum valve housing prototype. (Bora)
- Determine feedback system for the actuator (either flow meter or position control system) and start sourcing components. (Anannaya)

Sponsor Comments: from past meeting on 05/05/2023

- Ernest broadly likes the current valve housing design.
 - Strongly recommended design alteration to reduce alignment pins to two to limit over constraining assembly. Further suggested slots to allow for greater machining tolerances.
 - Recommended tapping holes for fasteners rather than using nuts.

Instructor Comments: from Last Meeting and Actions Taken to Address these Comments (indicate date of comments and if via email or in person)

- No meeting this past week, including current notes:
- Account for gravitational effects in fluid flow (since the valve will be in different orientations in different test rigs)
- Make sure the Bowden cable isn't pulling on the plate
 - Have something outside valve housing for Bowden cable to pull on so it doesn't strip the threading on the housing

Risks and Areas of Concern: The main risks and concerns that prevent you from accomplishing your goal. Try not to put minor concerns in here.

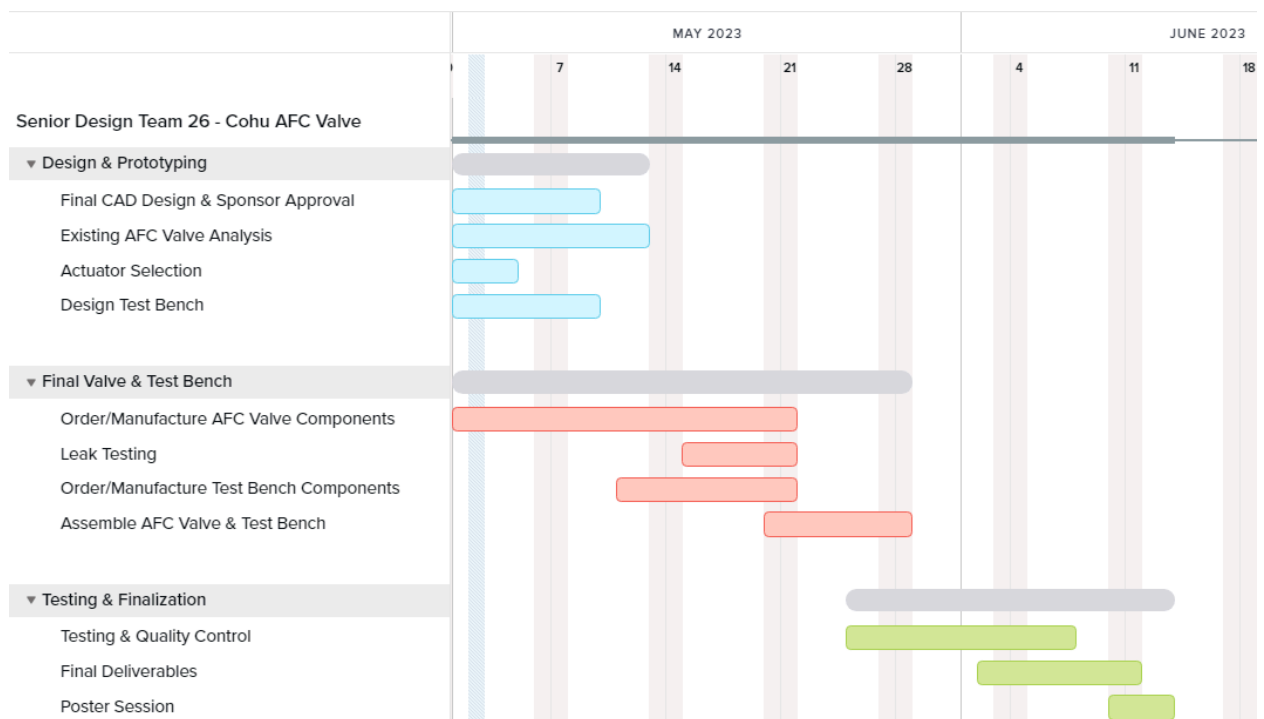
- With our current wire being unlubricated, there might be more wear between the silicon tubing and the inner steel wire.
 - Currently fatigue testing by setting up the Bowden cable hooked up to a stock spring and running the MAE 156A motor at a constant PWM.
- Sourcing o-rings for the current design.
- Determining how to set up a feedback system for the stepper motor (flow meter vs position control).

Resources or Information Required but not Available:

- None.

Schedule: Describe upcoming milestone, update Gantt Chart, Budget (list amount spent and amount remaining).

- Upcoming Milestone: Manufacturing initial prototype of valve housing in week 6. Updated Gantt Chart:



- Budget Notes:
 - Amount Spent: \$370.25
 - Amount Remaining: \$1,629.75

Progress on Report & Webpage:

- Sections of the report are being updated on pace with weekly goals.
- [Webpage Link](#)