9/8/2017: Completed Team Charter

Today we completed the team charter which included printing and signing the signature form. We also looked into the project topic and began research of hydraulic systems.

9/13/2017: Research specific hydraulic parts

Today we met with Dr. Trevas and discussed the different parts of a hydraulic system. We decided that Fawaz would research hydraulic pumps, Mosaed would research hydraulic fluid, Sultan would research hydraulic valves, and Cal would research hydraulic actuators.

9/20/2017: Discuss completed research

Today we discussed the research we were assigned last week. We got feedback from Dr. Trevas who suggested further research in proportional valves and a fluid’s Bulk Modulus.

9/27/2017: Meet with Dr. Trevas at Coconino Auto Supply and learn about hydraulics

Today we met with Dr. Trevas at Coconino Auto Supply and learned about how hydraulic systems work. We saw different cylinders, pumps, and hydraulic fluid and got explanations of how they work.

10/2/2017: Research topics needed in Preliminary Presentation and create PowerPoint

Today we spent most of the time figuring out the project description and researching the background and benchmarking of the project. For the background, we researched a variety of applications of hydraulics and put them in our PowerPoint, stating why hydraulics were preferred to an electric motor. We also researched the current state of the art related to our project and wrote the important parts of these systems in our PowerPoint.

10/3/2017: Complete PowerPoint for Preliminary Presentation

Today we discussed the project’s customer requirements and then created related engineering requirements. These engineering requirements were measurable and more specific forms of the customer requirements. We also generated ideas of possible designs and picked the best two ideas to include in our PowerPoint. In addition, we developed a schedule and a budget for our project. The schedule includes all project due dates as well as less strict due dates that we chose to help us stay on track. After the presentation was complete, we assigned each slide to a team member so they could begin preparing for the presentation.

10/4/2017: Prepare for Preliminary Presentation

Today we went over each slide and practiced our presentation. We made small adjustments to the slides and gave feedback to each presenter on their specific slide presentation. When it was complete, we timed a practice presentation and made sure it was well within the allowed time restrictions.

10/5/2017: Work on Preliminary Report

Today we transferred most of the data in the presentation to begin the report. We went over all the topics that needed to be addressed in the report and began working on them. We finished the project background which includes the introduction and the project description. We also finished the customer requirements and engineering requirements to figure out the boundaries of our project. We finished this meeting by completing the part that explains the existing designs and the current state of the art.

10/6/2017: Complete Preliminary Report

Today we completed the Preliminary Report which included our three different designs we considered. We started with the two designs we had in our presentation and we modified these from the class feedback and improved them. We also came up with a third design to include in the report. We then selected the best design based on the requirements and goals. We concluded this meeting by properly formatting the report and including a title page, a table of contents, and references.

10/11/2017: Discuss topics for Individual Analytical Analysis

Today we met with Dr. Trevas and discussed individual topics that we could use for the individual analysis. We determined we would split the assignment into the following topics: actuators, load cells and LVDTs, cylinder mounts including stopper mounts, and pumps. We decided we needed to research current devices that were within our requirements and state the specifications of each.

10/13/2017: Complete Analytical Analysis I Team Memo

Today we met to complete the Analytical Analysis I Team Memo. In this memo, we wrote the topic that each of us will be researching for the Individual Analytical Analysis.

10/18/2017: Discuss research completed in the individual analysis

Today we met with Dr. Trevas and discussed what research we had done in the individual analysis. We also got some guidance on what to focus the research on in the assignment.

10/24/2017: Update Team Website

Today we met to update our team website. We included the meeting minutes and changed the formatting of the website.

1/17/2018: Each team member assigned different parts to proceed with our design.

Mosaed Aljebly string potentiometer

Fawaz Alenezi: Figure out load cell alternative.

Sultan Alenezi: Find a cart and a frame (proper dimension)

Cal: Figure out which experiments to do for the hydraulic demonstrator (lab manuals).

1/24/2018: all team members have to research for different to buy online.

Mosaed: Arduino Ultrasonic sensor to measure displacement.

Fawaz: Pressure release valve to set at 1000 psi.

Sultan: Pump and reservoir.

Cal: An actuator.

If we had issues with parts we’re ordering online. We will ask Brent. (Brent works in Coconino auto supply).

1/31/2018: All team members will continue with online parts research

Mosaed: order a Arduino Mega kit (sign the blue form and give it to Fawaz)

Sultan: Find a 100 psi 120 V low flow rate pump.

Cal: 1) focus on D/A, S/R actuators

2) Look for directional valve

Fawaz: 1) Pressure safely Valve (100 psi).

2) Load cell minimum 350 lb.

3) Hoses or connectors.