Deliverable F

Submitted by

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1. Introduction

At this point in the project, we are looking to iterate on the previous prototype and move forward based on the feedback we gathered in the previous lab. The client made little note about what changes he wanted us to make, however the one thing he suggested that we add is a component of this project we think is critical. Now with the vision of the second prototype, we need to find the critical assumptions about the chair so we can go ahead testing. The main assumptions that need to be covered are the weight and dimensions of the chair. The chair needs to support the weight of most people and it also needs to be small enough to fit in a carry-on bag. Another critical assumption is the availability of the materials we need to create the hinge system. Once these assumptions are made and the second prototype is designed, tests will have to be formulated. The first type of test will include testing for specs using measuring tools and weights. The second test will be more of a comprehensive test based on notes taken while using the seat as it is designed for.

2. Client's Feedback

In the client meeting we shared the prototype of the hinge mechanism and described our plan on continuing the design of the chair. The client stated his approval for most of the information we presented him. The only thing that he requested was that the hinge mechanism have a locking mechanism for when it folds in and out. The reasoning behind this change was to improve the stability of the chair while used as the legs may fail if lateral movement occurs. Another benefit of this change is that the chair would be less cumbersome in transport because the legs would be secured to the bottom of the seat.

One other concern we had about the project was the seat backing. When questioned about the need for the seat back the client said it was a non-issue. Therefore, going forward, we will not consider adding the seat backing as it would bring costs up too far for a luxury that is not wanted.

3. Critical Product Assumption (Acceptable value, availability of material, or a critical functionality)

Our most critical assumption at this stage was that PLA would not be worn out after years of usage. Because the screws shown in our design figure might create shear forces on the plastic which might cause plastic deformation in our design. That is why in the next prototype we are planning to use aluminum instead of PLA. Therefore, currently we are assuming that the user will not use this seat for more than 5 years to make sure the plastic will not worn out during the time it is used.

4. Second Prototype (Include sketches and Function analysis)

For our second prototype, our focus was to increase the rigidity of our legs since our prototype one was not rigid enough when it was exposed to bending moments which might be caused by vertical movements made by the user. Therefore, we have changed our design as it might be seen from figure 1 and figure 2.

Number	Need	Complete
1	The product is 21 inches high (53 centimeter).	Yes
2	The product has a soft backrest and cushioning.	No
3	The product holds 250 pounds (113 kilograms).	Yes
4	The product is light weight (under 5 lbs.).	Yes
5	The product can be folded.	Yes
6	The product has durable handle and feet.	Yes
7	The product is suitable and adjustable.	Yes
8	The product is waterproof and has a drainage system.	Yes
9	The product has no latex materials.	Yes

Figure 1: Our Previous Design (Prototype 1)

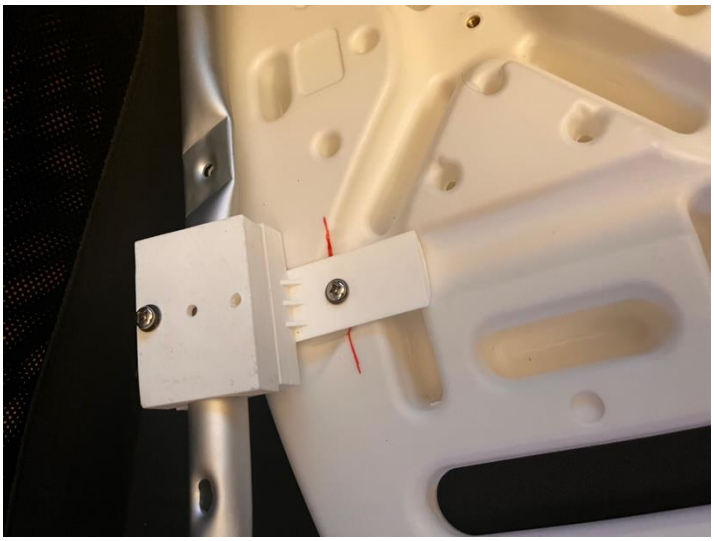

Figure 2: New Design (Prototype 2)

Part 1

Front View

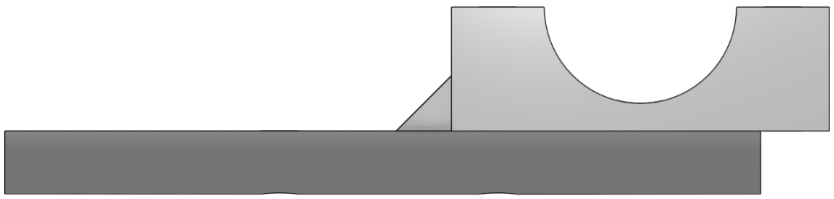

Figure 3: Part 1 - Front View

Side View

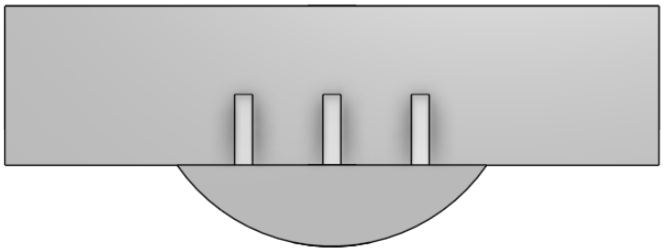

Figure 4: Part 1 - Side View

Top View

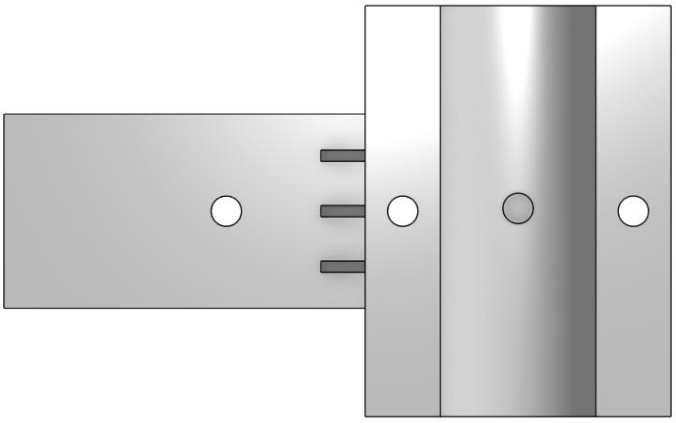

Figure 5: Part 1 - Top View

Isometric View

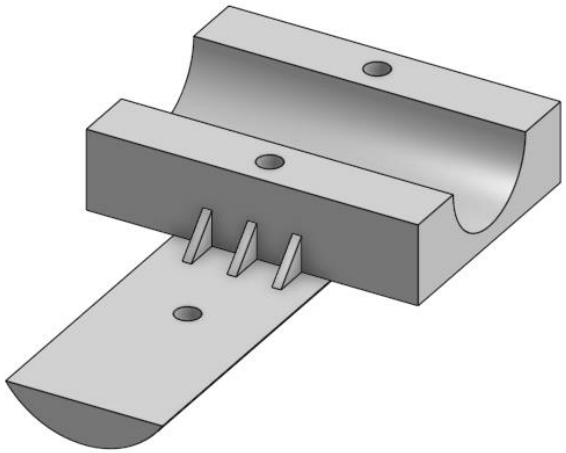

Figure 6: Part 1 - Isometric View

Part 2

Front View

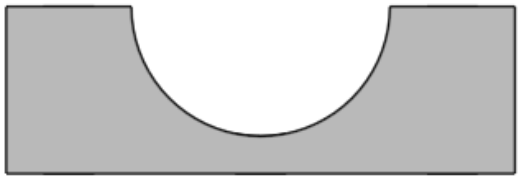

Figure 7: Part 2 - Front View

Side View

Figure 8: Part 2 - Side View

Top View

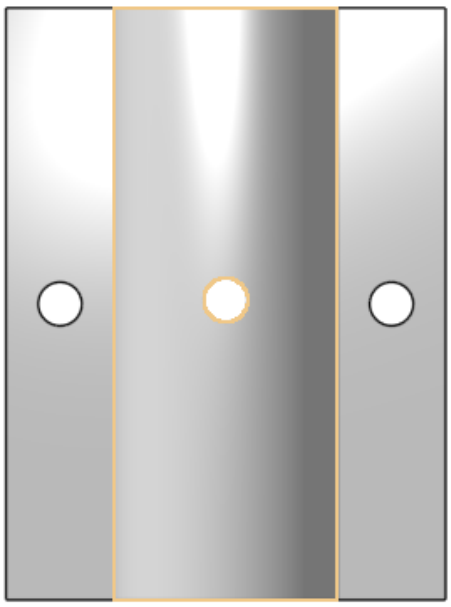

Figure 9: Part 2 - Top View

Isometric View

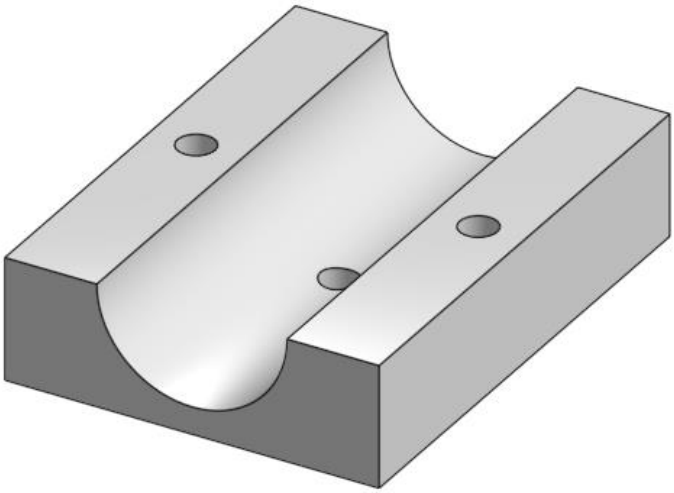

Figure 10: Part 2 - Isometric View

Part 1 and Part 2 Together

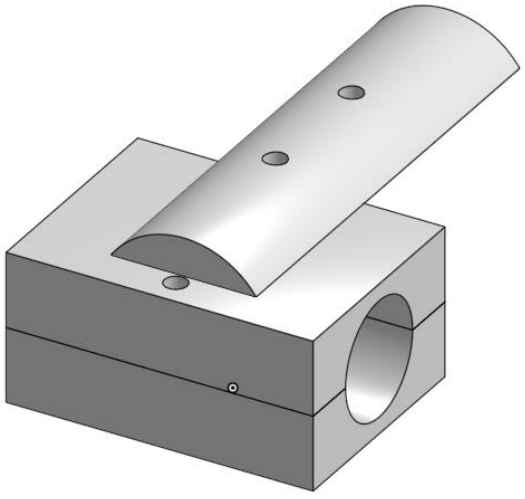

Figure 11: Part 1 and Part 2 Together

Assembly

Unfolded

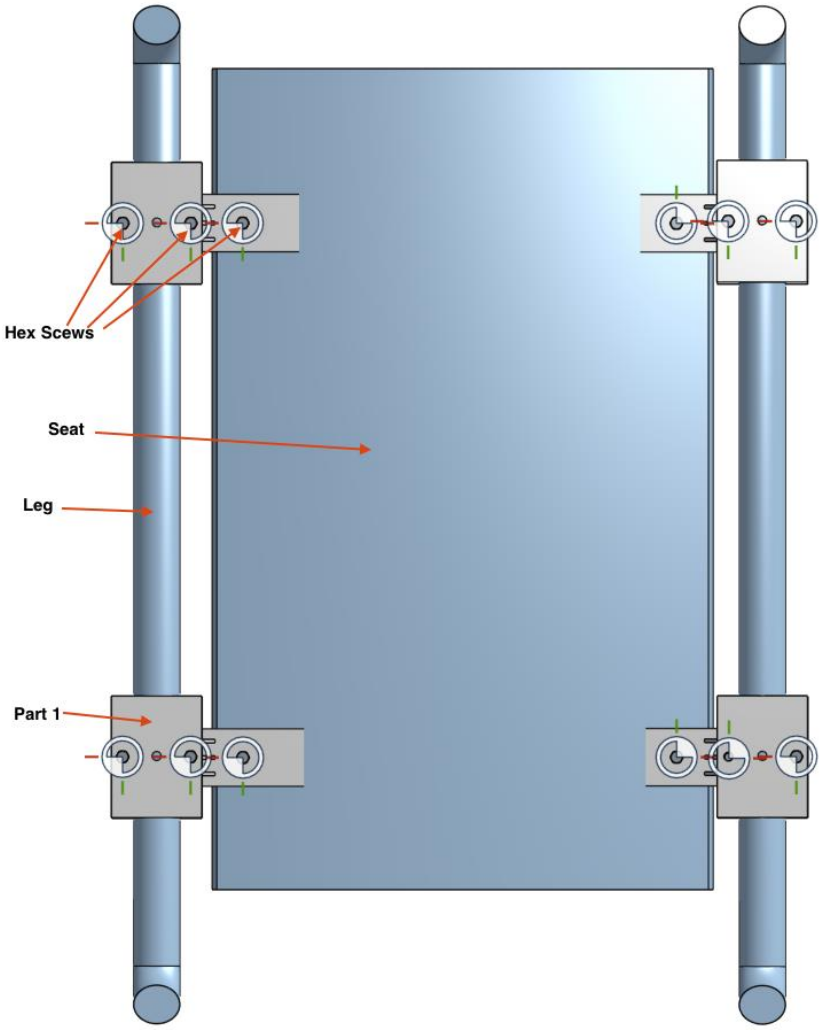

Figure 12: Prototype 2 - Assembly

Folded

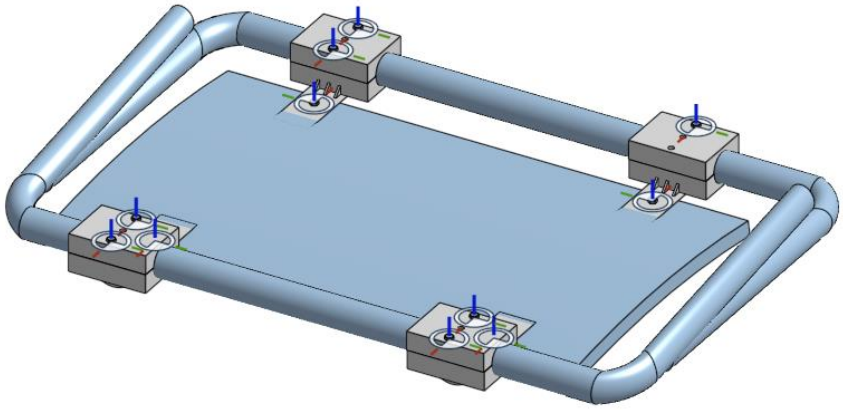

Figure 13: Prototype 2 Assembly (Folded)

5. Business Model Canvas

Business Model Canvas. What's Your Business: Service providers and users

Key Partners	*Key Activities*	*Value Proposition*	*Customer Relationships*	*Customer Segments*
Assembly material User manual	Basic set-up Question-solving	Material choice might be changed from PLA to Aluminum	Buyers can communicate and solving questions for others	Elders and overweight person, people who have diffculty standing for a long time
	Key Resources Material suppiler		*Channels* Website	

Cost Structure	*Revenue Streams*
Web Hosting cost Material cost Marketing and Sales Factories and workers cost	A large number of people will have demand for our products, we will replace the cheaper and stabler material for the product development

6. Wrike Snapshot Link

https://www.wrike.com/frontend/ganttchart/index.html?snapshotId=PAPtXUjroyiMxWlrMyNKh0261NZTO6g6%7CIE2DSNZVHA2DELSTGIYA

7. Conclusion

In this deliverable, what we should pay attention to is our client's opinions about prototype 1 and what we should add to our product. While little feedback was received from our client, it is clear we will need to address user experience as part of our second prototype by paying attention to the condition of the collapse of the seat. Also, we are going to strengthen the seat back and bottom firmness. Additionally, we will comprehensively test the second prototype in the coming days.