Deliverable D: Detailed Design, Prototype 1, BOM, Peer Feedback and Team Dynamics

Group 25

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Abstract

Contained in this report is client feedback from the second client meeting. The meeting went overall well but there were some things that she requested to be changed. This feedback was taken and analyzed and the changes that she requested were made where possible. A prototype was made to test the feasibility of the new design, and testing was done. Once feasibility was confirmed a bill of materials was drawn up for the final design. Finally, an updated project plan was included.

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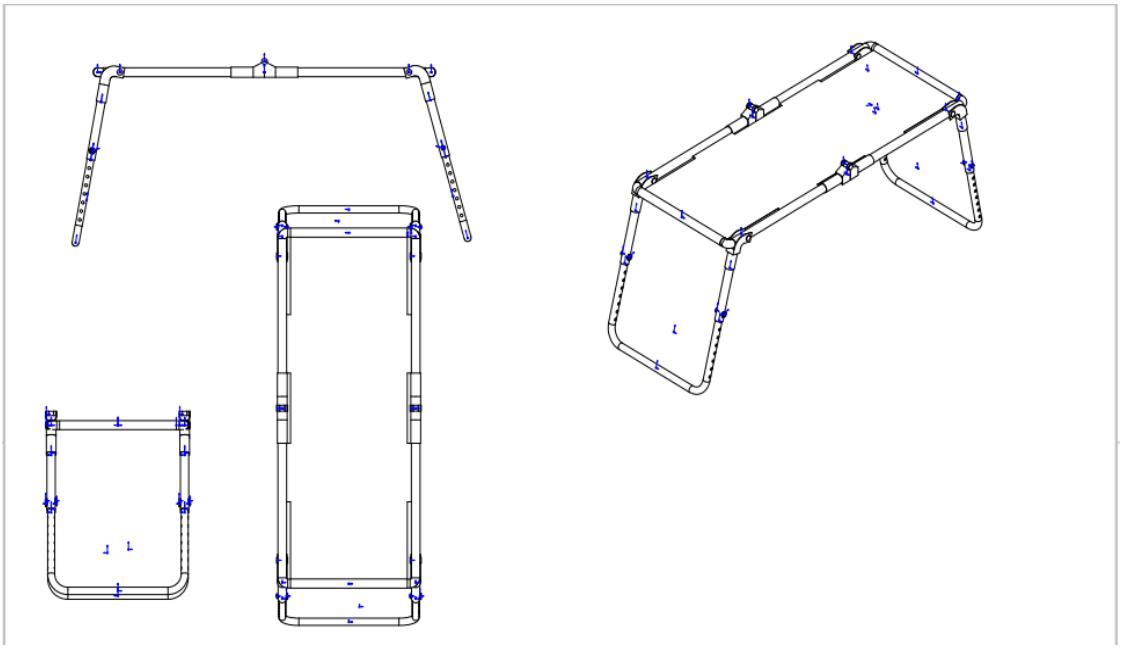
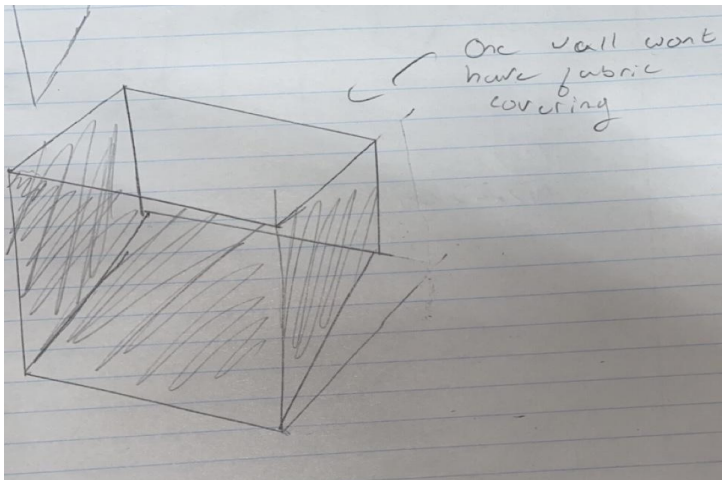
D.1.1 Client Feedback

The overall design concept seemed acceptable to the client. She liked that it was portable and enjoyed the idea that was generated for the privacy curtain subsystem. However there were some improvements that she had asked to be made. The first one was her preference for the crush up or collapsable system for the table rather than the fold up system. Then she asked if we could add safety straps to the device to be able to secure someone who was on the table. There were also concerns that the wind could blow over the privacy tent, as well as the tent needing to be wider to accommodate two people within the tent.

Given that feedback the plan for the device is simple. The tent subsystem is going to be expanded and made wider, as well as made out of a heavier fabric to stop the wind from blowing it over. Then the safety strap system is now planned to be added. The system is just a simple neoprene strap that goes over the person.

D.1.2 Updated Design

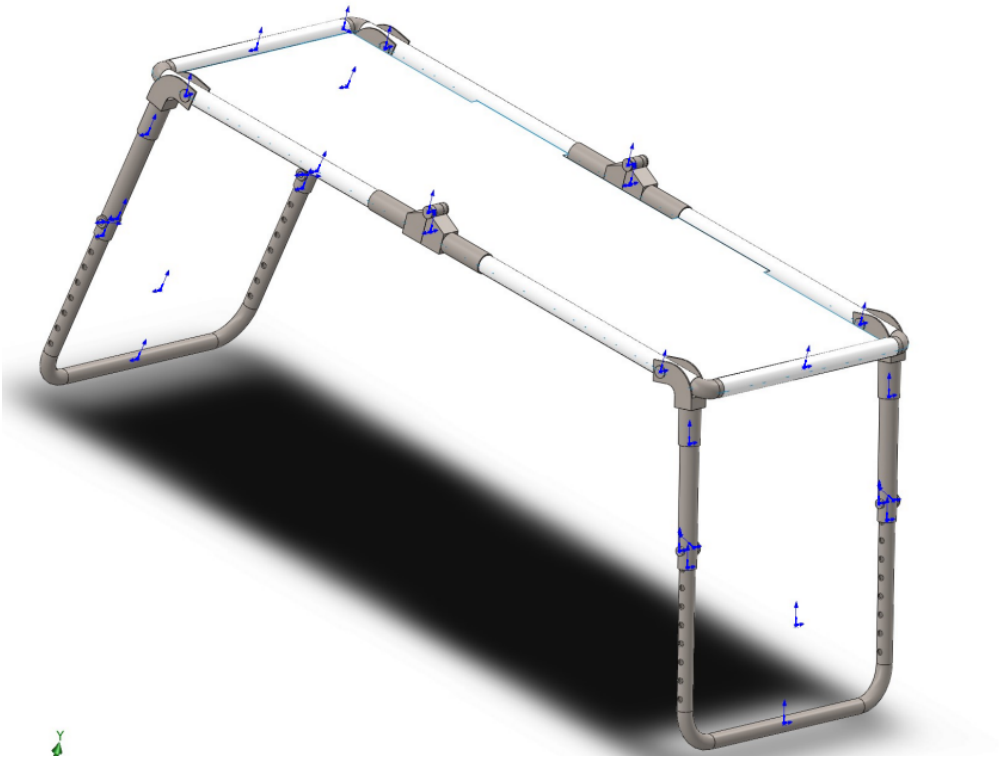




D.1.3 Critical Assumptions

There are many critical assumptions that must be made in this project. The ability for the device to handle a load applied directly on top of it. There's an assumption that the devices main material aluminum will be available. There's an assumption that the table being 6' will be enough. The weight will be below ~ 20 pounds.

D.1.4 Prototype I



Prototype I was just a proof of concept design of the product done in CAD. It was done to test how the system would theoretically look if it fulfilled all of the customers requirements.

D.1.5 Prototype Testing and Results

Table 1.1 A list of target specification along with the results from the testing

Metric	Unit	Ideal Value	Marginally Acceptable Values	Testing
Weight	lb	=<10	<27	Fail, the weight when measured in solidworks is around 66 lbs
Cost	$	=80	=<100	The cost of the part would be below 100
Height	in	24 to 30	=24	Pass the measured height is the same
Size of Table Top Width	ft	=2	=2	Pass the measured height is the same
Size of Table Top Length	ft	5 to 7	=5	Pass the measured height is the same
Collapsible	%	75	50	Able to be up to 50% collapsible
Set up Time	s	<60	<180	Not measured
Cushioned	binary	Pass	fail	Pass, the polyester is a very soft material
Water Resistance	binary	pass	pass	Not measured
Weight Supportive	lb	<100	=100	Passed, able to successfully be assembled in solidworks and support a load

D.1.6 Next Client Meeting

After the result of our first prototype and testing, the prototype will be shown to the client. During this information needs to be gathered about what she likes and dislikes about the current prototype as well as her preference as to whether or not the product is built from scratch or using a camping cot as a base. Also information will need to be gathered

D.1.7 Bill of Materials

Steel Wire ~ $10 CAD
https://www.amazon.ca/Hillman-Group-123106-Galvanized-Steel/dp/B000BPEQAE/ref=sr_1_5?dchild=1&keywords=steel%2Bwire&qid=1633650799&sr=8-5&th=1
Polyester Fabric ~$40 CAD
https://www.amazon.ca/Fabric-Wedding-Bridal-Decoration-Fashion/dp/B09BQCPVLJ/ref=sr_1_8?dchild=1&keywords=Polyester%2Bfabric%2Bby%2Bthe%2Byard&qid=1633653175&sr=8-8&th=1
Aluminium Piping 1' ~ $20
https://makerstore.ca/shop/ols/products/round-tube-aluminum-per-inch/v/BF005-D1-75X
Camp Chair $~30
https://www.canadiantire.ca/en/pdp/outbound-wide-back-folding-camp-chair-assorted-0765481p.html#srp

D.2.1 Project Plan Update

Below are the pictures of Gantt Chart for a plan update: