Deliverable E - Project Progress Presentation

GNG 2101- Introduction to Product Development And Management For Engineers

Submitted by

Section A, Team 7

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Thursday, October 7, 2021

University of Ottawa

Customer Needs

Safety	Necessity	Comfort

#	Need	Importance
1	Need to support 60 kg	5
2	Safety belt around mid table	5
3	Wider than the user	3
4	A reasonable length to be able to use it for several years	3
5	Firm material to reduce the user from sinking in the table	2
6	No latex (allergy)	5
7	Fold flat	2
8	Can be hung on the chair or carried like a backpack	1
9	Low setting up time (folding and unfolding time)	4
10	Waterproof material	2
11	The height of the change table should be in-line with the wheelchair seat	5
12	No hard plastic material	4
13	Handles on each side of the bed	2

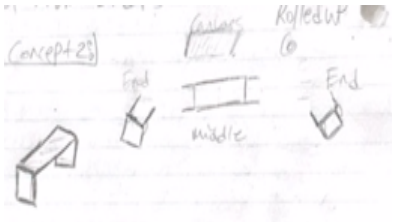
Benchmarking of Similar Products

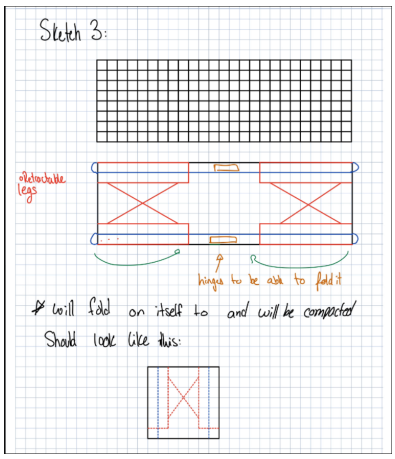
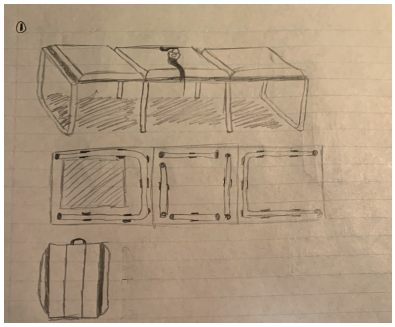
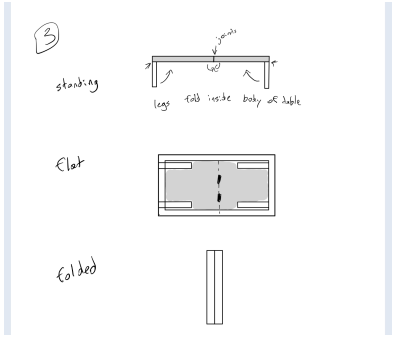
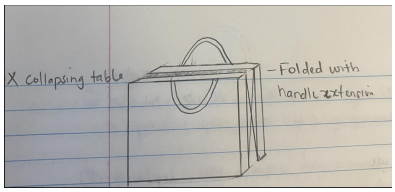
Need #	Metric	Importance	Coleman Trailhead || Cot	Jay-Be Saver Folding Cot Bed:	Teton Sports Outfitter XXL Camping Cot
1	Yes/No	**5**	**Yes**	**Yes**	**Yes**
2	Yes/No	**5**	**No**	**No**	**No**
6	Yes/No	**5**	**Not latex**	**Not latex**	**Not Latex**
8	Yes/No	**1**	**Yes**	**No**	**Yes**
9	Yes/No	**4**	**Yes**	**Yes**	**Yes**
12	Yes/No	**4**	**Yes**	**No**	**Yes**

Set of target specifications

Target specification	Acceptable value(s)	Ideal value(s)
Length	152.4 cm	168 cm
Width	51 cm	56 cm
Height	48 cm	58 cm
Supportable Weight	60 kg	70 kg
Assembly time	Less than 5 minutes	Under 3 minutes

Concepts

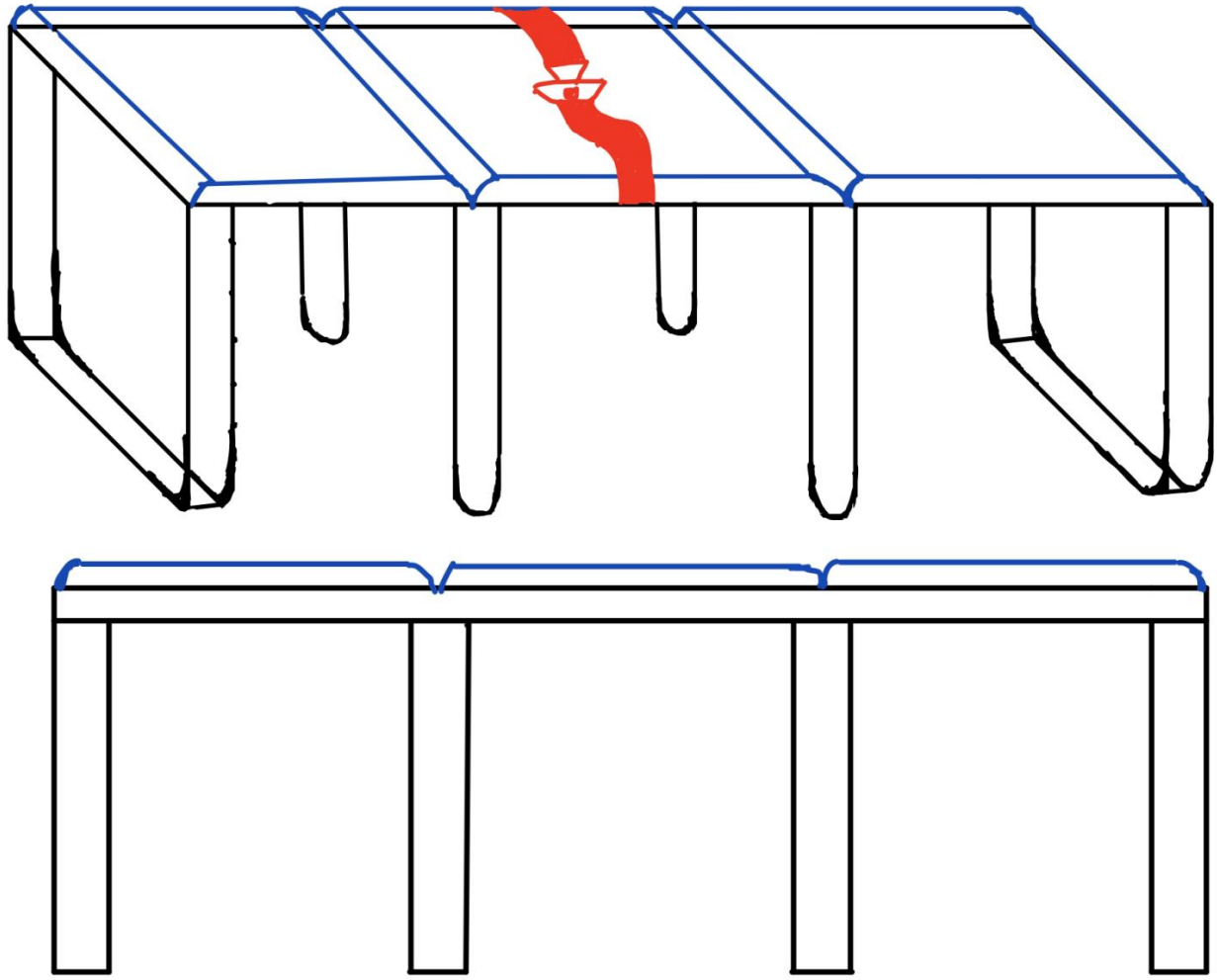
Promising Solutions	Prototype
Concept 1.2	

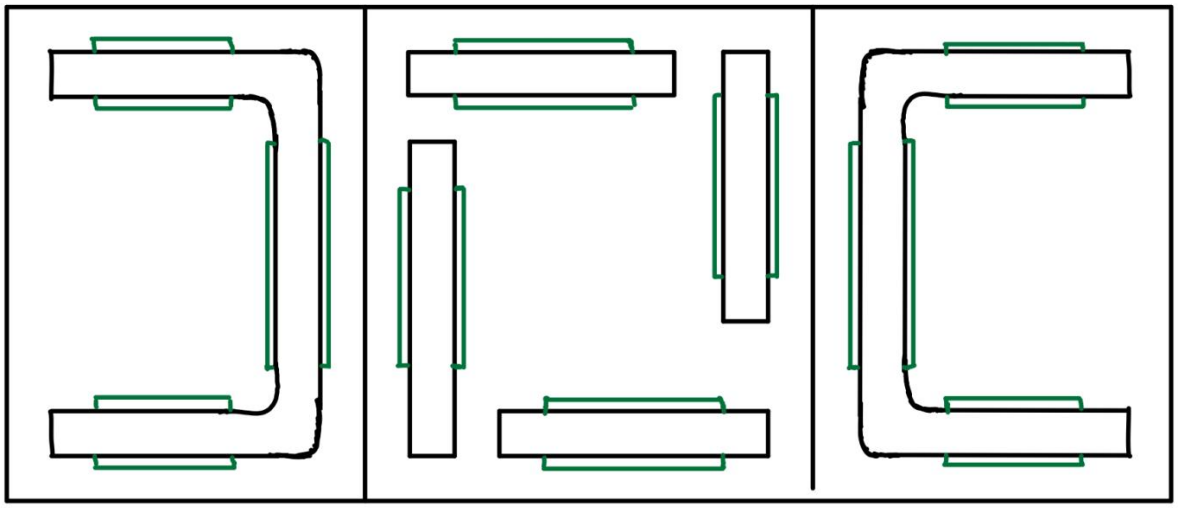
Concept 2.3	
Concept 3.1	
Concept 4.3	
Concept 5.2	

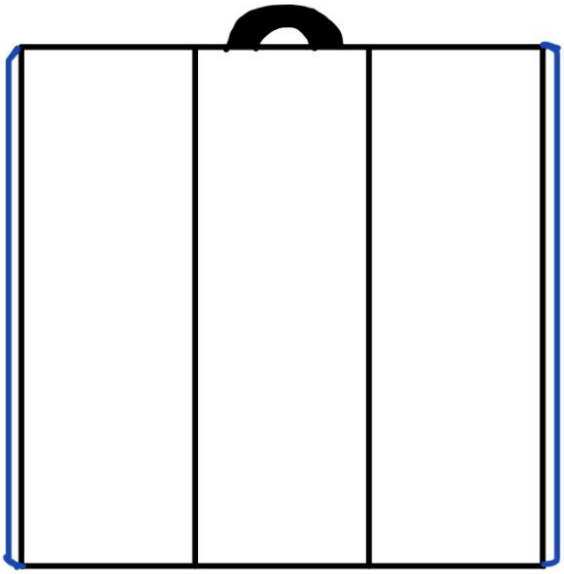
Decision Matrix

Criteria > Concepts	Weight supported	Safety (really safe=5 Not that safe=1-4)	No latex (yes=5) (no=0)	Hung on chair (yes=5) (no=0)	Set up time >2 min=5 2-3 min=4 3-4 min=3 4-5 min=2 <5 min= 1	No plastic, hard material (no=5 yes=0)	Total (/30)
Aaron-1.2	5	4	5	5	4	5	28
Andro-2.3	5	3	5	5	5	5	28
Jacob-3.1	5	5	5	5	3	5	28
Jake-4.3	5	4	5	5	4	4	27
Praise-5.2	5	3	5	5	5	5	28

Initial Project Plan







We are no longer following this idea following the client meeting 2.

Client Feedback

Overall, the client's really enjoyed our variety in designs as it allowed them to really point out aspects that they liked and the ones that they didn't. It was also an opportunity for them to show their concerns with some of our designs. They really liked the idea of a cot that would prevent sinking as it would be a light and easily transportable change table. They showed some concerns that the more compact models would be too heavy to carry around at an event and gave the solution of adding wheels to the table to make it more accommodating to the client's needs. They also prioritized some of their needs for the team, like they preferred a sturdy and lightweight change table than a comfortable one. The clients also continued to give feedback and a few needs that they didn't think of previously, like preventing the material from sinking over time and to accommodate the table to be able to leave it in the car for a long period of time without having the change table overheating. From the client feedback, the team removed the idea of cushions being on the change table to the clients request. The team also did a lot of fundamental changes to the previous design based on the client's feedback. The overall design was swapped from a sturdy three piece folding change table to a two way folding change table. We also decided to change the material of the change table to accommodate the user. Also, by changing the material and design of the table, the overall weight of the new design is more lightweight and portable. With the feedback obtained from the clients, the team was able to update the change table design in order to accommodate the client's needs to a more accurate degree than previous.

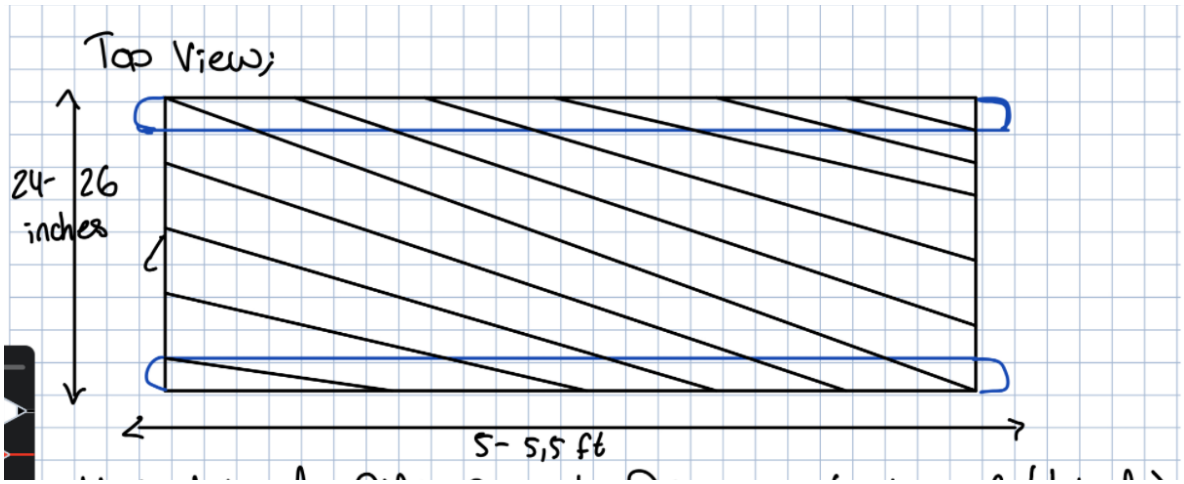
Future Plan

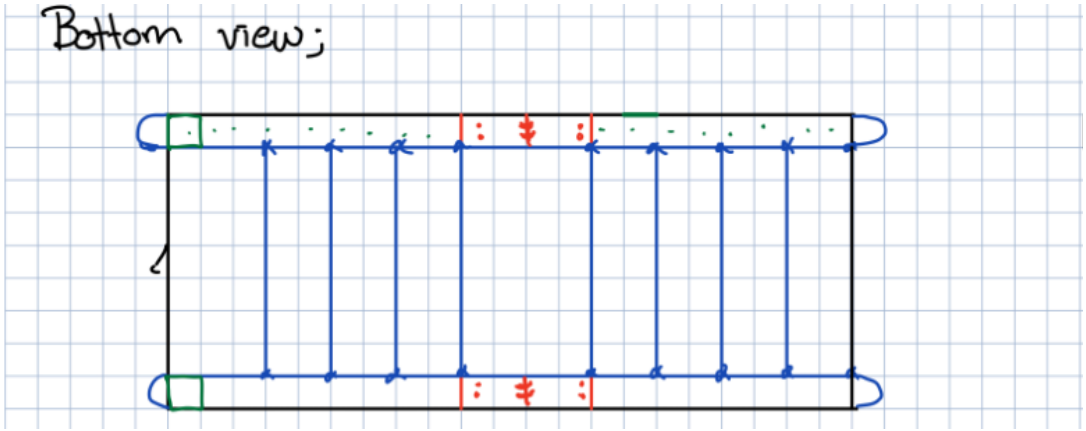
Prototype #2 will be an analytical model drafted on solidworks. This will give us a clear representation of the end product to present to our client, and will allow for easy revisions for the final prototype , prototype #3. Our lead designer, Andro Hanna, will develop this model with the help of all team members. We will meet during reading week to complete the model and mechanical prints of the prototype in solidworks. We will also be testing the functionality of the prototype during this meeting - using solidworks simulation tools - to ensure that the design meets all previously specified design criteria. After this prototype has been presented to the client in the next client meet, we will record their remarks and feedback, and interpret this into

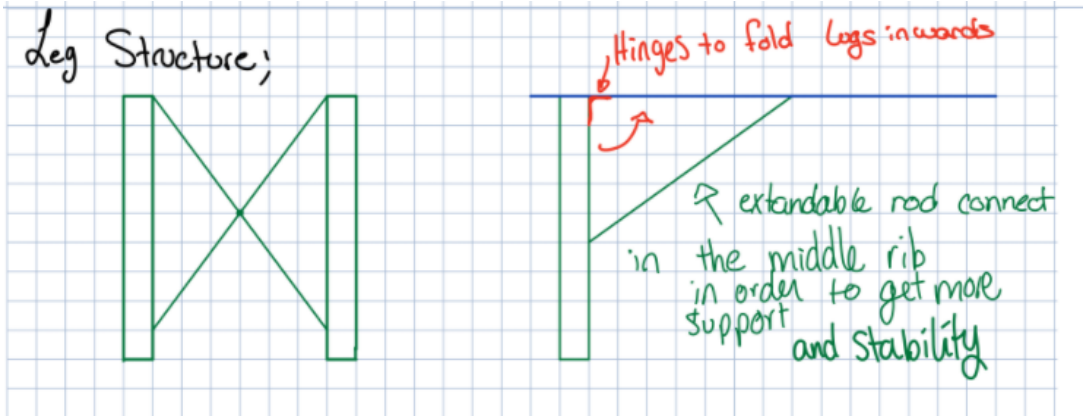
design revisions to implement in our prototype #3. Prototype #3 will be a physical , and functional prototype, and will also be the final prototype for the project. Once we have established the revision changes necessary to prototype #2, we will begin manufacturing of prototype #3 at the campus manufacturing resource facilities, either Brunsfeild or MTC lab whichever is necessary. Our final prototype , prototype #3 will be the fully functioning, end product which we are asked to deliver to the client at the end of the course.

The manufacturing processes we will require are basic machining- milling, drilling, threading; and welding. These can all be done in the Brunsfield manufacturing lab. We also will have to do some basic sewing , and general assembly, which can be done at the Uottawa makerspace. The design criteria to be tested in prototype 2 and 3 are as follows: product length between 152-168cm, width between 51-56 cm, , and height between 48-58cm , the max load supported between 60-70kg, and overall assembly time between 3-5min. The prototype 2 plan will be assigned as follows: Andro Hanna will be the lead designer, and will create a 3D model analytical prototype on Solidworks, with the help of other team members. Jacob Charron will create mechanical blueprints for the prototype. Jake Ratkovic will conduct the design criteria test plan and document results of the testing. Aaron MacNeil will present prototype #2 test results and concept to client in next client meet. Praise Eberim will record and interpret client feedback from the client meeting into a list of revisions for prototype #3.
The prototype #3 plan will be as follows:The team will gather on campus at the Makerspace and the Brunsfield lab to build the final prototype. Jacob Charron will be our lead assembler and assembly consultant. Praise Eberim will manufacture the mesh/ bed of the table via sewing machine. Aaron MacNeil will be our leader drill and threading operations consultant. Jake Ratkovic will be our lead welding consultant. Andro Hanna will be our lead machining consultant. We will work in phases to build the prototype #3; phase 1 will be general manufacturing processes of our materials. Phase #2 will be assembly of the table frame. Phase #3 will be assembly of the table legs, and the mesh/bed of the table , completing the finished product.

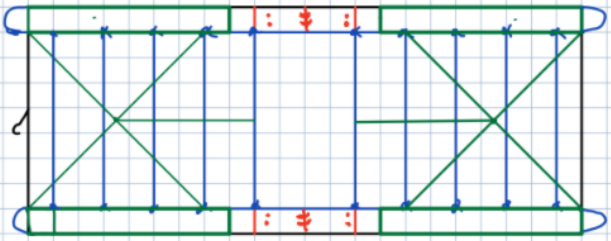
Prototype 1


Top View;
24- 26 inches
5- 5,5 ft


Bottom view;


Leg Structure;
Hinges to fold Legs inwards
extendable rod connect in the middle rib in order to get more support and stability

Folded legs:



Folded Table