PROJECT DELIVERABLE B

SUBMITTED BY:

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Abstract

This document means to let the reader know the customer’s needs regarding the one-handed steering walker. It intends to specify the usage metrics and specifications of the product according to those metrics.

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Introduction

This document specifies the customer's needs, ranked on a prioritized basis. Using the metrics we have created defined by the needs, it intends to lay out the target specifications for the one-handed steering walker. This document also showcases how other available products on the market currently fare against each other. For us, this document will serve as a guideline to form conceptual designs using the target specifications, along with being used to form a viable project plan taking into consideration the constraints laid out in the deliverable for the development of a working prototype.

Client Statements & Client Needs

Statements	Needs	Rank
She uses a drive walker CURRENTLY, goes through walkers quickly	Compatible with all types of walkers	5
Used for short distances except for winter	To be reliable in various climates	4
	To be reliable in various distances	3
Dislocates shoulders, and back regularly (re: 100 times/day)	Operable with one hand	5
Has epilepsy	Use solid light	5
Has neuropathy	Low force required to move walker	3
Has hyperbole Ehlers-Danlos syndrome (will get worse)	Prototype is not uncomfortable to use for client	4
Sling rest on the sternum and 2 shoulder slings	Compatible with slings	4
Handles get slick in weather easily	Added grip for handles	3
Versatility in the handle	Can be used by either arm	5
Turning should be easy, not too straining	Smooth turning	3
Something that last long term	Built reliable and strong	5
There are people in Dalhousie to help install and build the different things she needs	Easy installation and manual included	3
She expressed interest in light for nighttime use.	Pathway light	1
Needs grips to be sturdy	High material strength	2
Able to be folded and picked up	Lightweight	4
	Foldable	3

Table 1.1: Needs Identification

5 = Top Priority
1 = Low Priority

Client Needs

#	Needs	Rank
1	Compatible with all types of walkers	5
2	Operable with one hand	5
3	Built reliable and strong	5
4	Can be used by either arm	5
5	Prototype is comfortable to use for client	4
6	Not rusting in various climates	4
7	Compatible with slings	4
8	Lightweight	4
9	To be reliable in various distances	3
10	Low force required to move walker	3
11	Added grip for handles	3
12	Smooth turning	3
13	Easy installations and manual included	3
14	Foldable	3
15	High material strength	2
16	Pathway Light	1

Table 1.2: Ranking of Client Needs

Problem Statement

Our client requires a durable, easily operable, one-handed, ambidextrous walker steering attachment compatible with different walkers.

Metrics

Metric #'s	Need #'s	Metric	Imp	Unit
FUNCTIONAL				
1	3,8,14	Weight Capacity	5	lbs
2	6	Corrosion Rate of Material	4	µm/year
3	10	Additional force required to move walker	5	lbs
4	1,13	Attachment Time	3	s
5	14	Folding Time	3	s
6	4	Position of attachment	5	inch
NON - FUNCTIONAL				
7	16	LED Light	3	Y/N
8	5	Ease of use	5	N/A
9	11	Feel of handle cushion/padding	3	N/A
CONSTRAINTS				
10	2,8	Weight	4	lbs
11	N/A	Cost	4	$
12	5,7	Added Height	4	inch

Table 1.3: Metrics

5 - Top Priority
1 - Low Priority

Benchmarking

M #	Imp #	Metric	Unit	MakerAbility	TAD Walker	Guardian Walker Platform Attachment
11	4	Cost	$	N/A	N/A	$151.10 (youth option) $160.08 (adult option)
10	4	Weight	lbs	N/A (Made of Metal)	“Lightweight” (Made of Aluminum)	N/A (Made of Metal)
2	4	Corrosion Rate	µm/ year	N/A	0.8–0.28 µm/year	N/A
5	3	Folding Time	s	N/A	N/A	N/A
7	3	LED Light	Y/N	No	No	No
12	4	Added Height	inch	N/A	N/A	30” - 36”
3	5	Additional force required to move walker	lbs	N/A	N/A	N/A
9	3	Handle Grip Material	N/A	Foam	N/A	Rubber
10	4	Weight Capacity	lbs	(min) 350 lbs (walker)	(min) 360 lbs (walker)	300 lbs
4	3	Attachable to Different Walkers	Y/N	No	Yes	Yes
6	5	Position of Attachment	N/A	Across front	Across front	Side
5/8	3-5	Simplicity	N/A	Yes	Yes	Yes

		Images		  		

Table 1.4: Benchmarking

5 - Top Priority
1 - Low Priority

Due to two of the items being on existing creator sites (the MakerAbility, and TAD Walker), no prices could be found for the total cost of the item.

Target Specifications

Metric	Unit	Marginal Value	Target Value
Weight Capacity	lbs	>300lbs	>400lbs
Corrosion Rate	µm/year	0.8–0.28 µm/year	<0.28 µm/year
Additional Force Required	lbs	<3lbs	0lbs
Attachment Time	s	<600s	<300s
Folding Time	s	<30s	<15s
Added Height	inches	<6”	<3”
Weight	lbs	<8lbs	<5lbs
Cost	$	<100$	<100$

Table 1.5 Target Specifications

Wrike

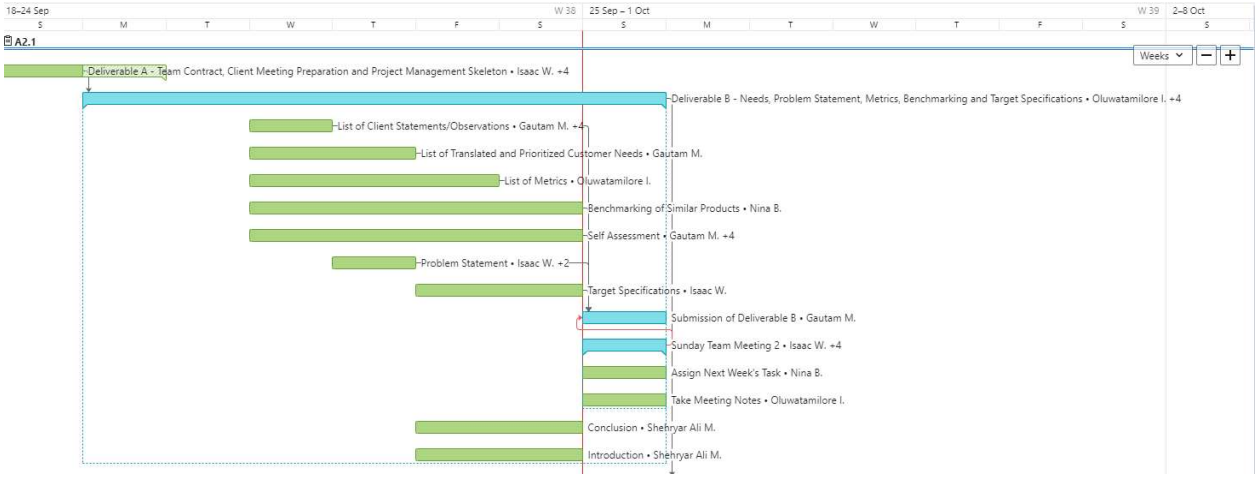

Figure 1: Wrike Screenshot Week 2

Above is an image of the wrike layout for this past week that the group followed, with the corresponding task that everyone had completed before the designated Team Meeting Date (Sunday, September 25). Just to note, when dependencies are done correctly, a black arrow will appear signifying what task leads to the next tasks, however, a red arrow does appear. This is due to a dependency being due on the same day its successor is due. The task in question is the Team Meeting, (and the subtask allotted with it). This red arrow will appear with the rest of the wrike screenshots because as a team we have agreed that having Sunday meetings is the best time for us to meet.

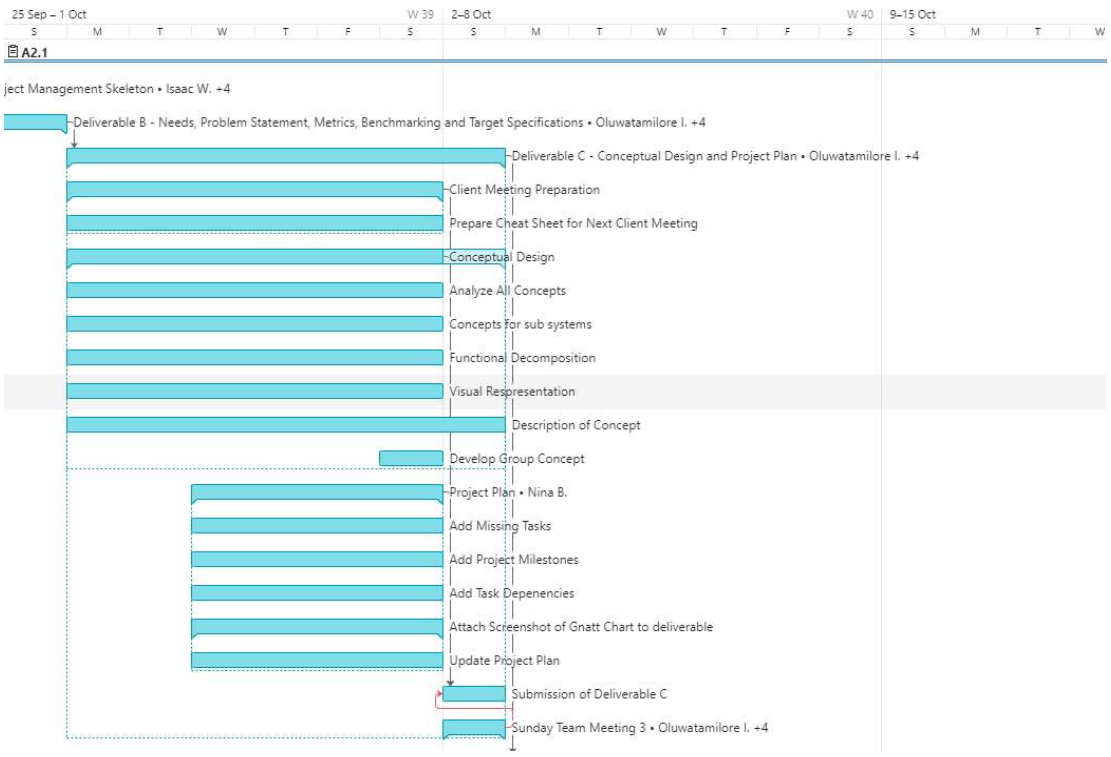

Figure 2: Wrike Screenshot Week 3

Figure 2 is a screenshot of the layout for the next coming week, which is expected to change, as when Wednesday comes, a more concrete plan will be formulated, and tasks will be assigned

Conclusion

Meeting the client made it clear to us why a one-handed walking steering is important to her, along with the difficulties she has to face due to not having one. The client meeting also gave us a framework to start developing our prototype, as we got to know her routine and the type of equipment she uses. This document displays how we are approaching this problem in the form of a concise and exact problem statement, making it clear to the reader what they can expect of us in the upcoming deliverables.

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