

Project Progress

Group A2.2 - One Handed Walker Steering



By

Shahd Al-Zuhaika, Mark Uchanski, Rayane Laouadi, Sydney Ceolin, and Mehdi Ezzine

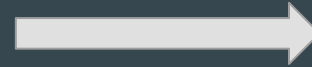
Customer Needs : The Main Takeaways

Customer
statements



Turn “I” statements into
“should” statements

Needs



Assign each measurable
need a metric

Target
specs

- Main needs identified , i.e the ones that the MVP should satisfy :
 - Solution should be **versatile**
 - **Compatible** with various kinds of walkers
 - Easy **steering**

Problem Statement :

A need exists for a product that allows customers with inabilities to use and steer a walker one-handed through a long-lasting design that can be controlled by either hand and is compatible with various kinds of walkers.

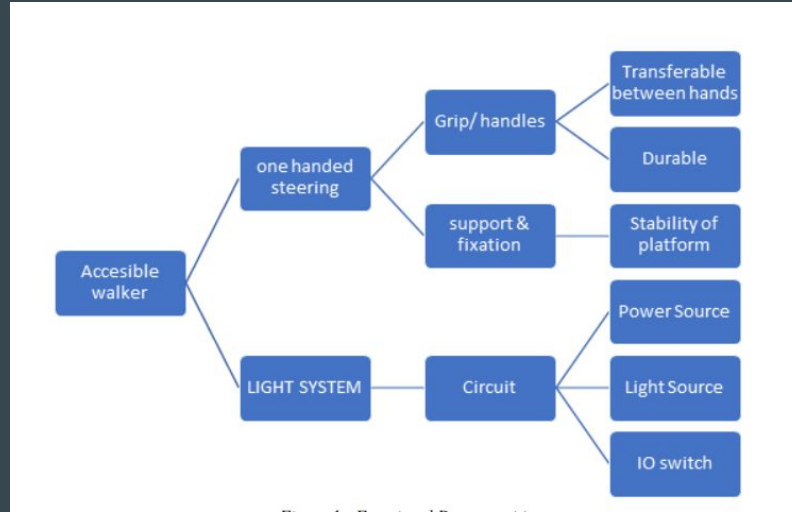
Benchmarking and Target Specs

# M E T	# N E E D	Metrics	I M P	UNIT	Rollator with 7.5" Casters [1]	Gemino 30 Walker Lightweight Rollator [2]	Human Care Carl Oskar RA Forearm Rollator [3]
1	2	Tire rolling resistance	3	N	2.7	4.5	7.89
2	3	Light intensity	2	cd	N/A	N/A	N/A
3	4	Sheer force	3	N	20	10	25
4	6	Elevation of the handle	3	cm	78.74-93.98	83.82-99.06	106.9-125.98
5	8	Price	2	\$	159.99	925	1270
6	9	Weight	4	kg	9.07	9.07	13.15
7	11	Diameter of front wheel	3	cm	20	25	30
8	1	Size between handles	5	cm	43.18	25.4	49.5

Table 5 - Marginal and Ideal Values Based Off Benchmarking

# M E T	Metric	Units	Marginal Value	Ideal Value
1	sheer force	N	15	20
2	elevation of the steering device	cm	106	125
3	price	\$	50	39.9
4	weight	kg	1	0,500
5	light intensity	cdn	20	10-20
6	light frequency	Hz	5	3-5
7	length	cm	46	49

Concept Generation and Selection



Personal
designs



Comparison
matrix

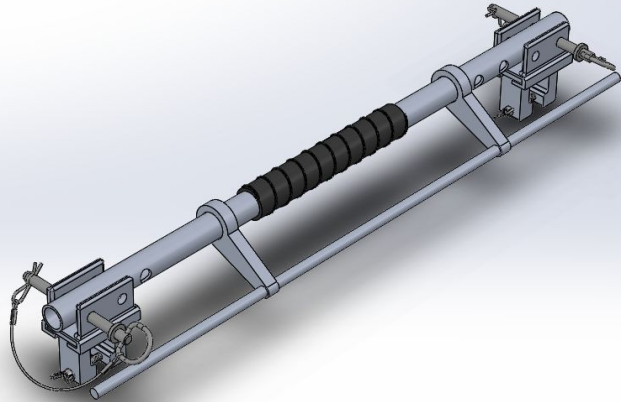


Ideas grouped
into 3 main
designs



Final design

The Final Design

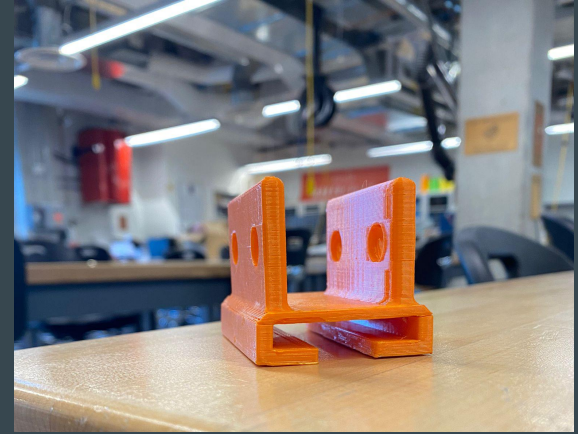


Client Feedback Summary

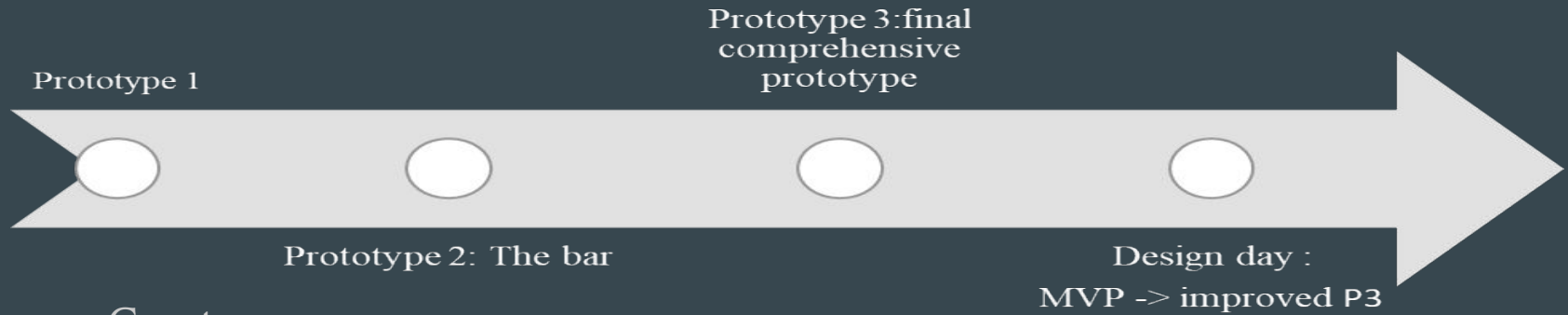
- Breaking : concerns over amount of force required to activate the brakes
- Transportability of the attachment , other ideas to explore ?
- Features liked by the client :
 - Compatibility with the walker
 - ease of installation

The First Prototype

- Main objective : test out the attachment strength of the clamping design
- Why ? fixation to the walker -> **crucial functionality**
- Testing :
 - Drop test : see the effects of normal wear and tear that the product might endure
 - Clamping test : test versatility and overall functionality
- Learnings :
 - PDA not strong enough
 - Size of the claws needs to be adjusted
 - Shape of the clamp -> more rounded



Prototyping Plan and Project Plan Tracking :



- Capstones :
 - Prototype 1: Fixations to the walker , **October 9**: Done in time
 - Prototype 2: physical prototype of the bar , **November 6**: In progress
 - Prototype 3: comprehensive prototype : **November 25th**
 - Minimum viable product : **November 27th**
 - Design day : **December 1**

Final Thoughts

- Get feedback on our first and second prototype during 2nd client meeting
- Refine target specifications with insights from the client
- Rework the design of the clamps with the information that we gathered from the first phase of testing.