



Desing for Disability Simulation

ME 486C-1 Team B2

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Introduction

- One of the major constraints of humans to perform physical tasks is muscle strength, which can be reduced greatly as a result of neuromuscular damage in people with disabilities.
- Developing
 - Back and Head Belt
 - Change the project size
 - Black Glasses
 - Half visibility Glasses
- Purpose
 - Restrict the movement of neck and head using the back head belt
 - We can change the size to can every one use it
 - Make the person blind
 - Make the person has half visibility
- Reason
 - Feel the difficulties faces by person with disability

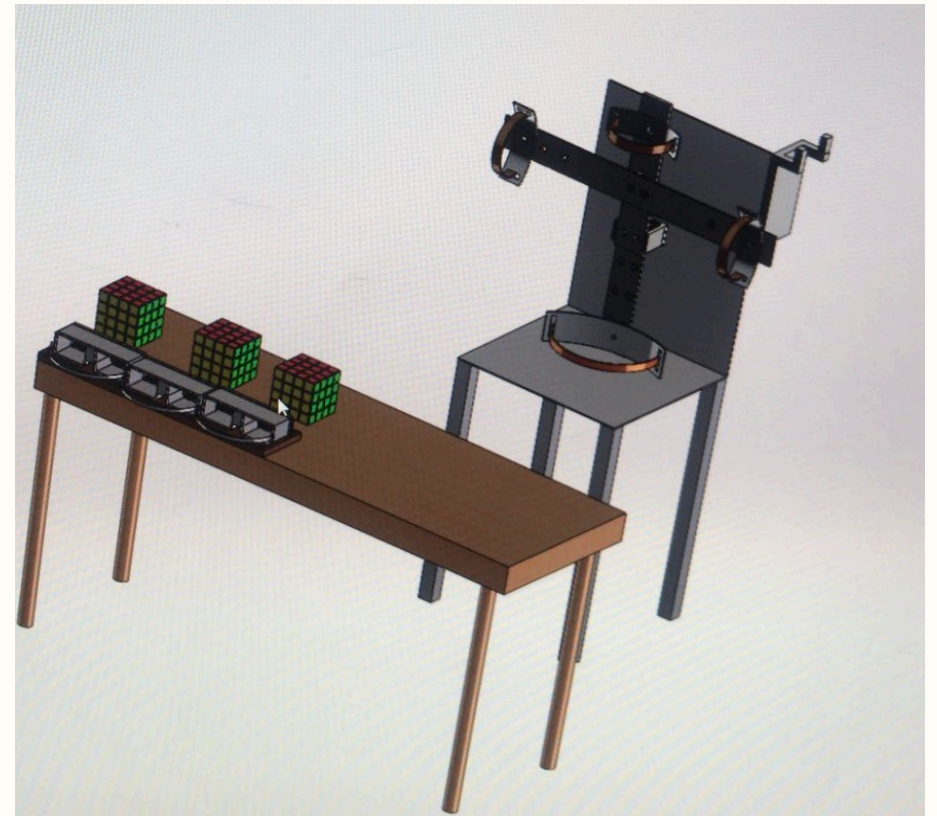


Figure (1)



Current Status

- Final design for both products have selected
- Currently the project is at Manufacturing Phase of Head Neck Belt
- Head neck belt is developing using
 - Aluminum Alloy 1060 and 6061T
 - Size of Long Bar 21 Inches
 - Size of Short Bar 16 Inches
 - Width of Bar 2 Inches

Final CAD Model of Belt

- Final Model for Head Neck belt
 - Long bar is in vertical shape
 - Short bar is in horizontal shape
 - Round shape half circle cut pieces at each edge
 - *Round shape to make the body comfortable*
 - *Don't hurt the body*
 - Rubber Bands in the edges to hold by the body
- Final Cad model of Glasses
 - Round edge Box
 - Head rubber band

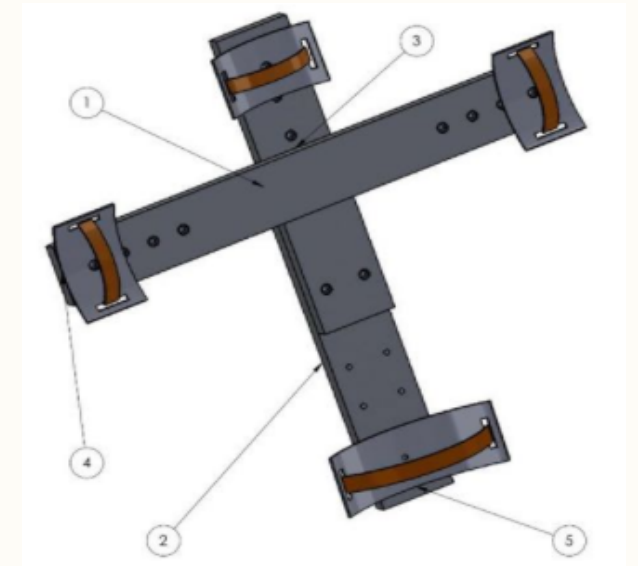


Figure (2)



Previous Work

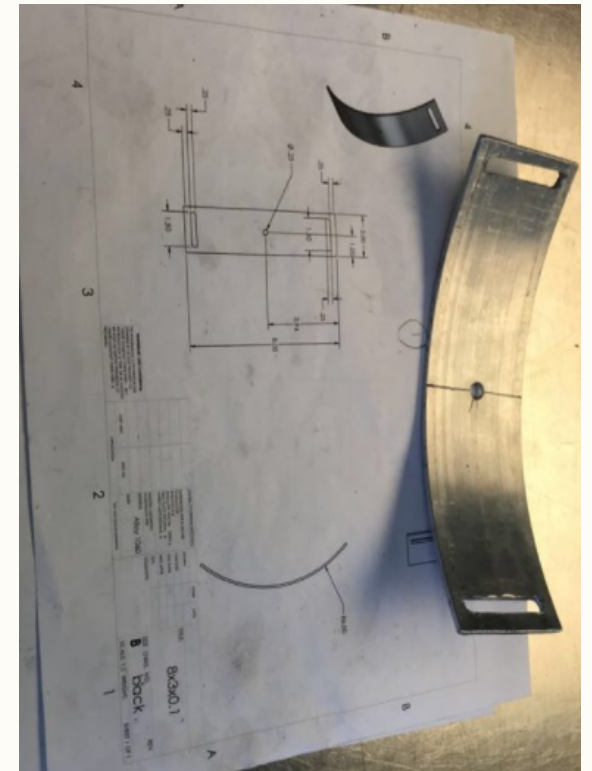
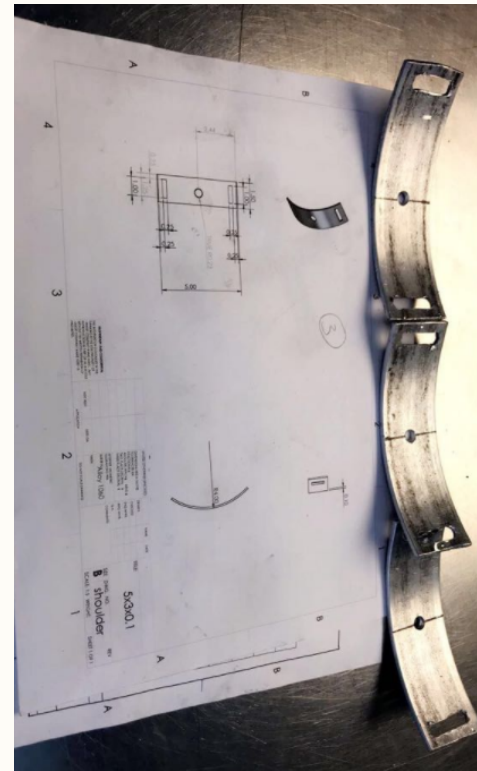
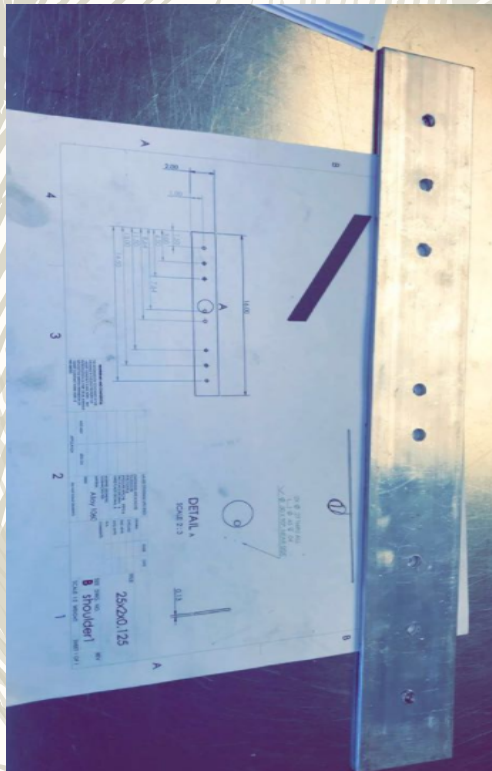
- By last presentation
 - Customer Requirements have generated
 - Engineering Requirements have generated
 - QFD matrix have formed
 - Existing Design ideas have researched
 - Design concepts have generated
 - Budget has estimated
 - Bill of Materials has developed
 - Final Designs have selected



Updated Work

- CAD Model has developed
- Minor Changes in the design have made
 - Using strips to tighten the device around the body parts
 - For glasses rubber bands have been added
- Dimensions have been finalized
- Materials have purchased for manufacturing
- Purchased mostly from Home Depot & Homco
- Bars have cut down according to the required size
- Glasses have been spray painted
- Assemble all the parts

Manufactured Parts



Figure(3)

Manufactured Parts



Figure (4)

Assembled Products

- Final prepared belt is showing

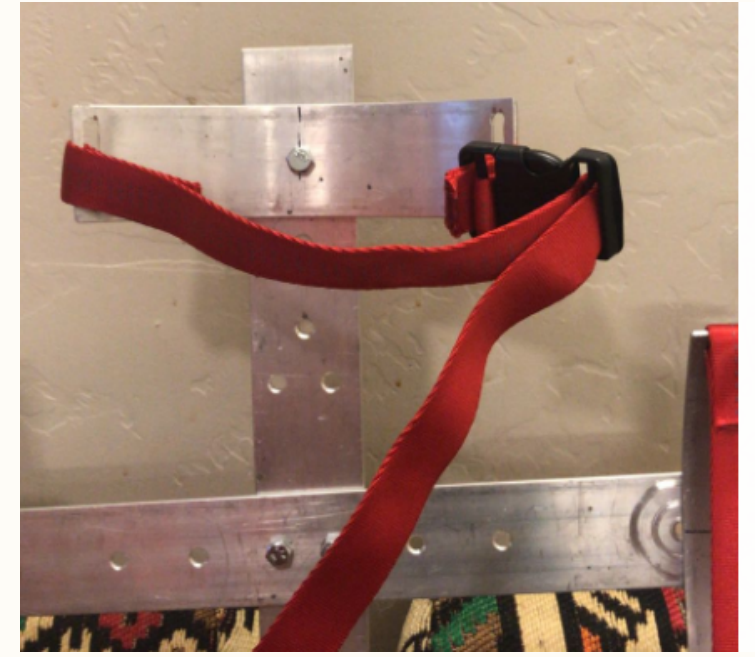


Figure (5)

Future Work

- Test the Product
- Improve the performance




Testing Phase of Belt



Testing Phase of Glasses



Budget



	Material	Quantity	Price	Total Price	Location
1	Aluminum 1060 and 6061T	3	6.83\$	20.49\$	Home depot ,Flagstaff
2	glasses	3	9.97\$	29.91\$	Home depot ,Flagstaff
3	belt	4	4.56\$	18.24\$	REI ,Flagstaff
4	spring	2	1.1\$	2.2\$	Homco,Flagstaff
5	Screw	7	1.36\$	9.52\$	Homco,Flagstaff
6	Spry paint	3	6.50\$	19.5\$	Home depot ,Flagstaff
7	Machine shop	9		346\$	<u>Mayorga's</u> Welding
			Total Price	445.54\$	



Improvements for Belt

- For improving the product, it has strips to hold the body parts.
- If the belt is loose, strip will tighten up and belt will become fit
- If the belt is extra tight and hurting the body, then strips will loose and belt will become fit to the body
- In case of any aluminum part disturbing the body, its shape will change accordingly so that it will not hurt the body



Improvements for Glasses

- For any improvement in the glasses it has made up of plastic. If any part of glasses effects the ear, it will then further mold.
- In case if the view doesn't get block properly then black color will further add to the screens to cover it properly.

Gantt Chart

