Stair Chair: BME 200/300

Dates: 11/7/2024-11/14/2024

Client: Mr. Daniel Kutschera, PT Advisor: Dr. James Trevathan

Team:

Matt Sheridan (Leader)
Dan Altschuler (Communicator)
Cody Kryzer (BSAC)
Luke Rosner (BWIG)

Problem Statement

Create a mechanical device that temporarily handicapped patients can use to ascend and descend 3-5 stairs. The device should be inexpensive to fabricate, as compared to competing powered stair lifts, and be easy to set up and take down, both inside and outside the patient's home.

Brief Status Update

The team is still waiting on materials to come on which has limited the amount of progress that can be made. In the meantime, we have begun to work on some of the final deliverables that we can start. This includes our poster and final report.

Weekly Goals and Accomplishments

- Team
 - Worked on plan for poster presentations
 - Started final report draft
- Matt Sheridan
 - Worked on poster
- Dan Altschuler
 - Worked on poster
- Cody Kryzer
 - Led meeting for the week
 - Worked on final report draft
- Luke Rosner
 - Started final report draft

Upcoming Goals

- Team
 - Complete assembly of scale model
 - Continue work on final deliverables
- Matt Sheridan
 - Assemble scale model
- Dan Altschuler
 - Help with scale model assembly
- Cody Kryzer

- o Assemble scale model
- Luke Rosner
 - o Help with scale model assembly
 - o Work on final report

Project Timeline

Deliverable	Deadline	People Assigned	Progress		
Initial Client Meeting	9/13	ALL	100%		
Product Design Specifications (PDS)	9/20	ALL	100%		
Individual Research	9/20	ALL	100%		
Design Matrix Criteria	9/27	ALL	100%		
Design Ideas	9/27	ALL	100%		
Preliminary Presentation	10/4	ALL	100%		
Individual Research	10/4	ALL	100%		
Preliminary Deliverables	10/9	ALL	100%		
Decide upon Final Design	10/9	ALL	100%		
Finished Model of Final Design	10/25	ALL	100%		
Show and Tell	11/1	ALL	100%		
Final Prototype Prepared (by Thanksgiving break)	11/26	ALL	0%		
Final Presentation	12/6	ALL	0%		
Final Deliverables	12/11	ALL	0%		

Category 1 Hinges for Connection of base and Hinge ramp plates. McMaster-Carr 1 1 Carr 11/1 2 \$9.62 4 ges will be seen to some the connection of base and Hinge ramp plates. McMaster-Carr 1 1 Carr 11/1 8 \$11.89 59.51 for connection of base and Hinge ramp plates. McMaster-Carr 4 Carr 11/1 8 \$11.89 59.51 for connection of base and Hinge ramp plates. McMaster-Carr 4 Carr 11/1 8 \$11.89 59.51 for connection of base and Hinge ramp plates. McMaster-Carr 4 Carr 11/1 8 \$11.89 59.51 for connection of base and Hinge ramp plates. McMaster-Carr 4 Carr 11/1 8 \$11.89 59.51 for connection of base and Hinge ramp plates. McMaster-Carr 4 Carr 11/1 8 \$11.89 59.51 for connection of base and Hinge ramp plates. McMaster-Carr 100 Carr 11/1 4 \$28.93 72 141 for connection of base and Hinge ramp plates. McMaster-Carr 101 Carr 11/1 4 \$28.93 72 141 for connection of base and Hinge ramp plates. McMaster-Carr 101 Carr 11/1 4 \$28.93 72 141 for connection of base and Hinge ramp plates. McMaster-Carr 101 Carr 11/1 4 \$28.93 72 141 for connection of base and Hinge ramp plates. McMaster-Carr 101 Carr 11/1 4 \$28.93 72 141 for connection of base and Hinge ramp plates. McMaster-Carr 101 Carr 11/1 4 \$28.93 72 141 for connection of base and Hinge ramp plates. McMaster-Carr 101 Carr 11/1 4 \$28.93 72 141 for connection of base and Hinge ramp plates. McMaster-Carr 101 Carr 11/1 4 \$28.93 72 141 for connection of base and Hinge ramp plates. McMaster-Carr 101 for connection of base and Hinge ramp plates. McMaster-Carr 101 for connection of base and Hinge ramp plates. McMaster-Carr 11/1 4 \$28.93 72 141 for connection of base and Hinge ramp plates. McMaster-Carr 101 for connection of base and Hinge ramp plates. McMaster-Carr 101 for connection of base and Hinge ramp plates. McMaster-Carr 11/1 for connection of base and Hinge ramp plates. McMaster-Carr 11/1 for connection of base and Hinge ramp plates. McMaster-Carr 11/1 for connection of base and Hinge ramp plates. McMaster-Carr 11/1 for connection of base and Hinge ramp plates. McMaster-Carr 11/1 for connecti	Item	Description	Manufacturer	Mft Pt#	Vendor	Vendor Cat#	Date	QTY	Cost Each	Total	Link
Hinges for Surface-connection of base and Hinge ramp plates. McMaster-Carr 1 Carr 11/1 2 \$9.62 Intt. //www.r.m. //www.r.m	Category 1										
Hinges for Surface-Mount base and Hinge ramp plates. McMaster-Carr 1 Carr 11/1 2 \$9.62 4 ges will be support and roopes to hoist pulley design. McMaster-Carr 4 Carr 11/1 8 \$11.89 2 time. Silver Anodized Aluminu m—Groo extrusion for wed Rail tracture Diamond Tread Roof Surface Connection of McMaster-Carr 101 Carr 11/1 4 \$28.93 72 141 1/10 1/10 1/10 1/10 1/10 1/10 1/10	,										https:
Hinges for Surface Connection of Mount base and Hinge Tamp plates. McMaster-Carr 1 Carr 11/1 2 S9.62 4 ges McMas S19.2 S19											<u>//ww</u>
Hinges for Connection of Conne											w.mc
Hinges for Connection of											mast
Hinges for connection of base and Hinge Indicate											er.co
Surface- connection of Mount base and Hinge ramp plates. McMaster-Carr 1 1798A3 ter - 11/1 2 \$9.62 4 ges 11/		Hinges for									m/pr
Mount Hinge base and Hinge 1798A3 ter- 11/1 2 \$19.2 \$1/1 2 \$9.62 4 ges htt //w Mc//w Mc//w <t< td=""><td>Surface-</td><td>_</td><td></td><td></td><td>McMas</td><td></td><td></td><td></td><td></td><td></td><td>oduct</td></t<>	Surface-	_			McMas						oduct
Hinge ramp plates. McMaster- Carr 1 Carr 11/1 2 \$9.62 4 ges htt //www.fr //ww.fr //ww.				1798A3						\$19.2	
htt			McMaster- Carr				11/1	2	\$9.62		
Pulley for ropes to hoist Pulley design. McMaster- Carr 4 Carr 11/1 8 \$11.89 2 ting McMas Silver Anodized Anodized Aluminu m—Groo Extrusion for ved Rail support and fread Tread McMaster- Carr 101 Carr 11/1 4 \$28.93 72 141 72 73 74 74 74 74 74 74 74	80	таттр ртагоот		_	-		,-		75.52		https:
Pulley for ropes to hoist Pulley design. McMaster-Carr 4 Carr 11/1 8 \$11.89 2 tiny 1/2											//ww
Pulley for ropes to hoist Pulley design. McMaster-Carr 4 Carr 11/1 8 \$11.89 2 ting McMas Silver Anodized Aluminu m—Groo ved Rail support and fread Famework. McMaster-Carr 101 Carr 11/1 4 \$28.93 72 143 McMaster-Carr 11/1 4 \$28.93 72 143 McMaster-Carr 101 McMaster-Carr 11/1 14 McMaster-Carr 11/1											w.mc
Pulley for ropes to hoist Pulley design. McMas											mast
Pulley for ropes to hoist Pulley for design. McMas McM											
Pulley for ropes to hoist Pulley design. McMaster- Carr 4 Carr 11/1 8 \$11.89 2 ting mass 10/2 McMas McMaster Carr 11/1 8 \$11.89 2 ting mass McMaster Carr 11/1 8 \$11.89 2 McMaster Carr											m/pr
Pulley for ropes to hoist Pulley design. McMaster- Carr 4 Carr 11/1 8 \$11.89 2 ting mass 10/2 most 11/2 11/											oduct
Pulley for ropes to hoist Pulley design. McMaster- Carr 4 Carr 11/1 8 \$11.89 2 ting											s/pull
Pulley for ropes to hoist Pulley for ropes to hoist Pulley design. McMas ter- 11/1 8 \$11.89 2 ting http://www.rmasupport and ropes to hoist Pulley Remains McMas Remains Remai											eys/p
Pulley for ropes to hoist Pulley design. McMaster- Carr McMas McMaster McMas McMaster											ulleys
Pulley for ropes to hoist design. McMaster- Carr 4 Carr 11/1 8 \$11.89 2 ting htt //www.rma Silver Anodized Aluminu m—Groo Extrusion for ved Rail Texture framework. McMaster - Carr 101 Carr 11/1 4 \$28.93 72 143 Diamond Tread											~/mo
Pulley for ropes to hoist Pulley design. McMaster- Carr 4 Carr 11/1 8 \$11.89 2 ting McMas Silver Anodized Aluminu m—Groo Extrusion for ved Rail support and Texture framework. McMaster - Carr 101 Carr 11/1 4 \$28.93 72 T41 Diamond Tread											unted
Pulley for ropes to hoist Pulley design. McMaster- Carr 4 Carr 11/1 8 \$11.89 2 ting McMas Pulley design. McMaster- Carr 4 Carr 11/1 8 \$11.89 2 ting McMas Pulley McMaster- Carr 4 Carr 11/1 8 \$11.89 2 ting McMas Pulley McMaster Pulley McMaster Pulley McMaster Pulley McMaster Pulley McMaster Pulley McMas Pulley Pulley McMas Pulley McMas Pulley McMas Pulley McMas Pulley McMas Pulley Pulley McMas Pulley McMas Pulley Pulley McMas Pulley Pu											-pulle
Pulley for ropes to hoist Pulley design. McMaster- Carr 4 Carr 11/1 8 \$11.89 2 ting ma Silver Anodized Aluminu m—Groo Extrusion for ved Rail support and Texture framework. McMaster - Carr 101 Carr 11/1 4 \$28.93 72 143 Diamond Tread											vs-for
Pulley for ropes to hoist design. McMaster- Carr 4 Carr 11/1 8 \$11.89 2 ting for carr design. McMaster- Carr 4 Carr 11/1 8 \$11.89 2 ting for carr design. McMaster- Carr 4 Carr 11/1 8 \$11.89 2 ting for carr design. McMaster- Carr 4 Carr 11/1 8 \$11.89 2 ting for carr design. McMas design											-wire-
ropes to hoist design. Pulley design. McMaster- Carr 4 Carr 11/1 8 \$11.89 2 ting		Pulley for			McMas						rope-
Pulley design. McMaster- Carr 4 Carr 11/1 8 \$11.89 2 ting htt. //w w.r ma Silver Anodized Aluminu m—Groo Extrusion for ved Rail support and Texture framework. McMaster - Carr 101 Carr 11/1 4 \$28.93 72 T41 Diamond Tread		•		3099T3						\$95.1	1
Silver Anodized Aluminu m—Groo Extrusion for ved Rail support and Texture framework. McMaster - Carr 101 Carr 11/1 4 \$28.93 72 T41 Diamond Tread	Pullev	-	McMaster- Carr				11/1	8	\$11.89	1	1
Silver Anodized Aluminu m—Groo Extrusion for ved Rail support and Texture framework. McMaster - Carr 101 Carr 11/1 4 \$28.93 72 T41 Diamond Tread	,,						,-		7	_	https:
Silver Anodized Aluminu m—Groo Extrusion for ved Rail support and Tread McMas 47065T ter - 11/1 4 \$28.93 72 T41 htt //w											<u>//ww</u>
Silver Anodized Aluminu m—Groo Extrusion for ved Rail support and Texture framework. McMas 47065T ter - 11/1 4 \$28.93 72 T41 Diamond Tread											w.mc
Silver Anodized Aluminu m—Groo Extrusion for ved Rail support and Texture framework. McMaster - Carr 101 Carr 11/1 4 \$28.93 72 T41 Diamond Tread											mast
Anodized Aluminu m—Groo Extrusion for ved Rail support and Texture framework. McMaster - Carr 101 Carr 11/1 4 \$28.93 72 T41 Diamond Tread	Silver										er.co
Aluminu m—Groo Extrusion for ved Rail support and framework. McMaster - Carr 101 Carr 11/1 4 \$28.93 72 T41 Diamond Tread											m/47
m—Groo Extrusion for ved Rail support and framework. McMaster - Carr 101 Carr 11/1 4 \$28.93 72 T41 Diamond Tread											065T
ved Railsupport and framework.47065Tter - 10111/1\$115.706Diamond Tread11/14\$28.9372141		Extrusion for			McMas						101-4
Texture framework. McMaster - Carr 101 Carr 11/1 4 \$28.93 72 T41 Diamond Tread				47065T						\$115.	
Diamond Tread htt. //w			McMaster - Carr				11/1	4	\$28.93		
Tread			23.71				,-				https:
											//ww
	l .								\$18.92		w.me
m ⅓ inch Material for tals	1	Material for							· .		talsde
	l .				Metals					\$51.7	
			 Metals Denot	P418			11/1	2			om/al

1x2)	'								<u>umin</u>
	'	1			1			1 1	<u>um-p</u>
	'	1			1			1 1	roduc
	'	1			1			1 1	ts/alu
	'	[1				<u>minu</u>
	'	[1				m-dia
	'		1		1			1 1	<u>mond</u>
	'		1		1			1 1	<u>-plate</u>
							TOTAL:	\$0.00	