

Stair Chair: BME 200/300

Dates: 11/1/2024-11/7/2024

Client: Mr. Daniel Kutschera, PT

Advisor: Dr. James Trevathan

Team:

Matt Sheridan (Leader)

Dan Altschuler (Communicator)

Cody Kryzer (BSAC)

Luke Rosner (BWIG)

Abi Conners (BPAG)

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

This week the team has been waiting on materials to come in. All materials were ordered on Friday 11/1 and are expected to be delivered by this weekend. While waiting, the team has been planning tests to run on the scale model. We met to discuss our feedback from Show and Tell and got some good feedback on testing.

Weekly Goals and Accomplishments

- Team
 - Planned scale model assembly
 - Performed force analysis of design
- Matt Sheridan
 - Added to Lab Archives
- Dan Altschuler
 - Ordered materials from McMasterCarr and Metals Depot
- Cody Kryzer
 - Brainstormed testing ideas
- Luke Rosner
 - Did further Solidworks force analysis of components

Upcoming Goals

- Team
 - Assemble scale model
 - Start work on final report
- Matt Sheridan
 - Help with assembly
- Dan Altschuler
 - Help with assembly

- Cody Kryzer
 - Assemble scale model
- Luke Rosner
 - Work with team on assembly

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	0%
Final Prototype Prepared (by Thanksgiving break)	11/26	ALL	0%
Final Presentation	12/6	ALL	0%
Final Deliverables	12/11	ALL	0%

Materials and Expenses

Item	Description	Manufacturer	Mft Pt#	Vendor	Vendor Cat#	Date	QTY	Cost Each	Total	Link
Category 1										
Surface-Mount Hinge	Hinges for connection of base and ramp plates.	McMaster- Carr	1798A3 1	McMas ter - Carr		11/1	2	\$9.62	\$19.2 4	https://www.mcmaster.com/products/hinges/
Pulley	Pulley for ropes to hoist design.	McMaster- Carr	3099T3 4	McMas ter- Carr		11/1	8	\$11.89	\$95.1 2	https://www.mcmaster.com/products/pulleys/pulleys-for-wire-rope-for-lifting/
Silver Anodized Aluminum—Grooved Rail Texture	Extrusion for support and framework.	McMaster - Carr	47065T 101	McMas ter - Carr		11/1	4	\$28.93	\$115. 72	https://www.mcmaster.com/47065T101-47065T413/
Diamond Tread Aluminum 1/8 inch Baseplate (1x1 and	Material for base and ramp plates	Metals Depot	P418	Metals Depot		11/1	2	\$18.92 (1x1) \$32.84 (1x2)	\$51.7 6	https://www.metalsdepot.com/al

1x2)

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									TOTAL:	\$0.00	