

Knee Crutch

Progress Report #5

BME Design 200/300

Date: 10/2-10/8

Client: Daniel Kutschera

Advisor: Duc-Huy Nguyen

Team:

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Problem statement

Patients who are non-weightbearing on a lower limb often have difficulty safely navigating stairs when returning home, particularly when weakness or other physical limitations prevent them from using crutches. Current solutions are either improvised, uncomfortable, difficult to adjust, or designed for walking rather than stair navigation. Therefore, there is a need for a stable, adjustable, comfortable, and easily sanitized device that allows non-weightbearing patients to safely ascend and descend stairs without placing weight on the injured lower limb.

Brief status update

Difficulties / advice requests

Current design

Materials and expenses

Item	Description	Manufac-turer	Mft Pt#	Vendor	Vendor Cat#	Date	#	Cost Each	Total	Link
Category 1										
									\$0.00	
									\$0.00	
Category 2										
									\$0.00	
									\$0.00	
								TOTAL:	\$0.00	

Goals

Major team goals for the next week

1. Update PDS
2. Finish Prelim Report
3. Start ordering of cushion and aluminum base
4. Keep iterating cad drawing so we can stay up-to-date with our project

Next week's individual goals

- Carmen Tanem
 - Keep updating PDS
 - Get materials prepped for show and tell
 - Look into and order cushion materials
- Katie Matheus

- Order materials for the base and structure of the crutch
- Update PDS
- Finished report
- Start fabricating
- Meghan Hayes
 - Update CAD based on ordered parts
 - Update PDS
 - Run CAD simulation testing
- Madeline
 - Continue researching materials before final decision
 - Continue updating PDS
- Zach
 - Continue researching materials and sources
 - Order materials for frame of crutch
 - Develop printable CAD models for spacer plates
- Victoria
 - Continue Researching materials
 - Start fabricating
 - Identify materials for handles

Timeline

Task	N/A	Sept				Oct					Nov				Dec	
	N/A	3	10	17	24	1	8	15	22	29	5	12	19	26	10	17
Project R&D																
Empathize																
Background...		X	X													
Prototyping				X	X											
Testings																
Deliverables																
Progress Reports		X	X	X	X	X										
Prelim presentation						X										
Final Poster																
Meetings																
Client		X														
Advisor		X	X	X	X	X										
Website																
Update		X	X	X	X	X										

Filled boxes = projected timeline

X = task was worked on or completed

Detailed accomplishments

Previous week's goals and accomplishments

- Carmen Tanem
 - Complete Prelim report
 - Complete peer review
 - Continue research
 - Get prepared to start some initial printing and ordering of materials
 - Update PDS with current information/advisor feedback
- Katie Matheus
 - Write the prelim report
 - Complete peer reviews
 - Research background design ideas
- Meghan Hayes
 - Complete preliminary report
 - Complete peer reviews
 - Update PDS
 - Research materials and fabrication processes
- Madeline
 - Complete preliminary report and peer reviews
 - Research materials and begin fabrication process
- Zach
 - Complete Preliminary Report
 - Continue material research
 - Prepare for fabrication process
- Victoria
 - Complete Preliminary Report
 - Complete Peer Review
 - Continue researching materials for handles and base
 - Begin buying materials

Summary of Team Accomplishments

1. Updated final design
2. Finalized preliminary report

Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
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Carmen Tanem	10/5/26	Prelim Report	4	4	18
Katie Matheus	10/5/26 10/6/26	Prelim Report Prelim Report, Research	1 3	4	17
Meghan					
Victoria	10/07 10/08	Preliminary Report Research	1.5 2.0	3.5	16.5
Madeline	10/7/26 10/8/26	Preliminary report Research	1.5 2.5	4	16
Zach	10/6/26 10/8/26	Preliminary Report Research	2 1	3	17