

SteadyHand Progress Report #5

Date: 10/08/26

Client: Dr. James Sohn

Advisor: Dr. Shawn Gomez

Team:

Anna Wood

Tess Brazee

Mara Van Dyke

Sam Anderson

Ben Pytlik

Miti Patel

Problem statement

Severe joint pain in the hands due to arthritis and other inflammatory conditions is now frequently treated using low-dose radiation therapy (LDRT). Current LDRT protocols require high setup reproducibility across 6 treatment sessions. Existing positioning systems are overly complex, use complicated indexing systems, and compress digits 2-5 together. This causes significant discomfort for patients and creates unnecessarily long setup times.

This project aims to develop a hand positioning device to be used in a clinical setting that minimizes setup time and patient discomfort while ensuring exact hand placement for each treatment session

Brief status update

This week the team compiled all progress thus far into a preliminary presentation and report. We also worked together to come up with a plan for fabricating and testing future prototypes. We plan to begin fabrication this coming week and work together to create and print some CAD models.

Difficulties / advice requests

Current design

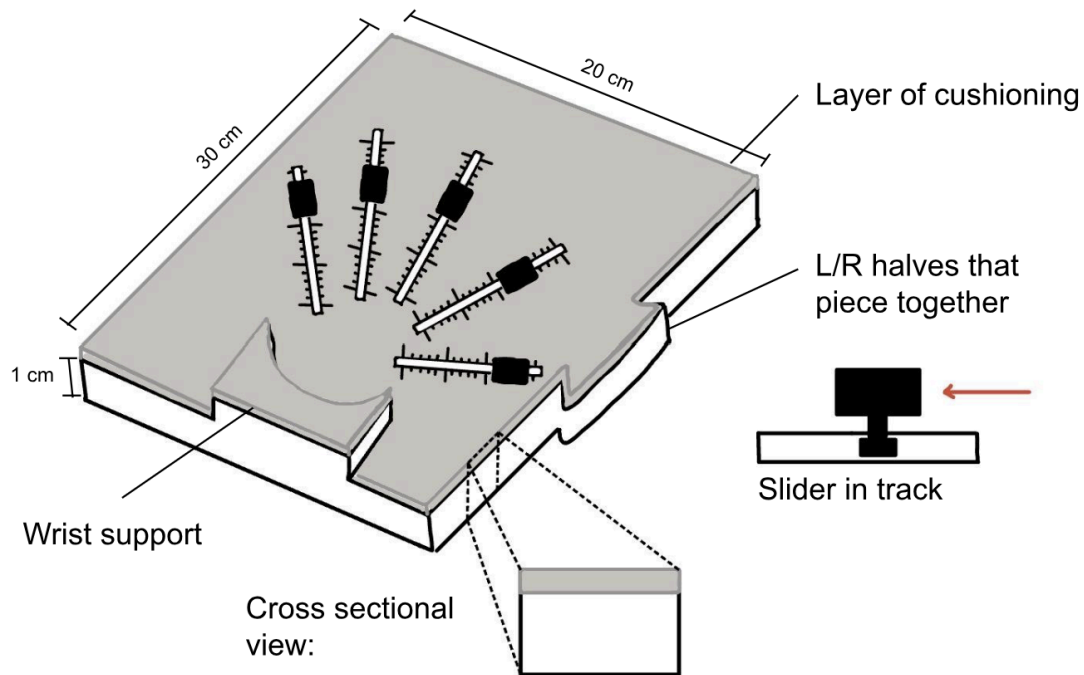


Figure 1. Chosen preliminary design sketch



Figure 2. Rough proof of concept prototype featuring a singular finger track and slider.

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. Make chosen designs in CAD and work on 3D printing.
2. Test designs to determine viability.

Next week's individual goals

- Anna Wood
 - Look into 3D motion sensor capture apps and whether it would be an option for testing hand positioning movement across trials.
 - Start modeling prototype components in CAD
- Mara Van Dyke
 - Conduct research on potential testing methods
 - Work on creating CAD models of prototypes with teammates
 - Look into ordering any potential materials like polyurethane
- Tess Brazee
 - Work on modeling the finger supports in CAD
 - Fabricate a prototype of different finger supports
 - Read feedback on Feedback Fruits
- Sam Anderson
 - Continue to research and get down the specifics of our product design
 - Model the device in CAD
 - Read feedback from other group members
 - Fabricate a prototype that is able to be tested
- Ben Pytlik
 - Began CAD modeling for the prototype with the group
 - Continue research
 - Give feedback to group members and reflect on the feedback I received

- Began assembling a preliminary design of the prototype
- Miti Patel
 - Work on modeling in CAD and 3D print design components.
 - Test design components based on chosen criteria.
 - Update PDS as needed.

Timeline

Task	Aug.	Sept.					Oct.				Nov.					Dec.
	30	6	13	20	27	4	11	18	25	1	8	16	22	29	6	
Project R&D																
Empathize	X	X	X													
Background...				X	X											
Prototyping						X										
Testings																
Deliverables																
Progress Reports			X	X	X	X										
Prelim presentation																
Final Poster																
Meetings																
Client		X		X												
Advisor	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

- Anna Wood
 - Completed a plan for testing different aspects of the prototype and for the statistical analysis of results for the preliminary report.
 - Presented preliminary design presentation
 - Gave and received feedback from team members on Feedback Fruits
- Mara Van Dyke
 - Completed assigned sections of the preliminary report
 - Gave and received feedback on the Feedback Fruits platform
 - Refined preliminary design sketches for presentation and report
- Tess Brazee
 - Completed assigned sections of preliminary report
 - Delivered preliminary presentations
 - Gave feedback to teammates

- Sam Anderson
 - Finished assigned sections of the preliminary report
 - Presented the preliminary presentation
 - Fabricated a rough prototype
 - Gave feedback to team mates
- Ben Pytlik
 - Completed assigned sections of the preliminary report
 - Gave feedback to group members
 - Presented design presentation to class
- Miti Patel
 - Created prototype for preliminary presentations
 - Worked on preliminary presentation slides and presented to small group presentations

Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Anna Wood	10/8	Finished preliminary report section, met with client and team, presented preliminary presentation.	2.5	2.5	16.5
Mara Van Dyke	10/8				13.5
Tess Brazee	10/8	Completed assigned preliminary report sections, presented presentation, continued research	3	3	14.5
Sam Anderson	10/8	Completed the assigned preliminary report section, presented the preliminary presentation, did more research on the specifics of the prototype design	3.5	3.5	16
Ben Pytlik	10/8	Finished preliminary report section, completed presentation, presented design, and researched more for the prototype	3	3	15.5
Miti Patel	10/8	Worked on preliminary report, attended BSAC meeting, started modeling components in CAD	3	3	16