

SteadyHand Progress Report #7

Date: 10/22/26

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, our group progressed on our design ideas and fabrication plans with Wendt design consultation. Our team worked on prototyping potential design aspects and met with our client to gain more information about the current design. Our team met with Dr. Sohn at his clinic. We were able to see the current device and talk to a radiation therapist about how they use it with each patient. The team will continue to prototype with the information learned at this meeting.

Difficulties / advice requests

Current design

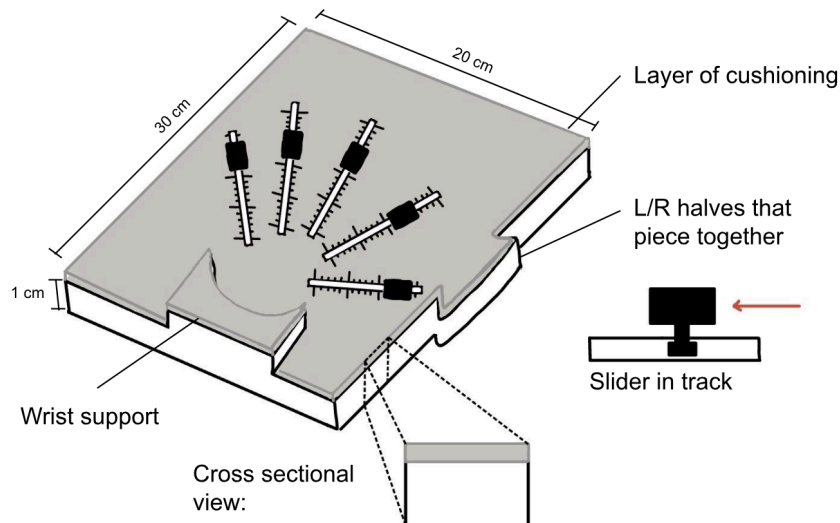


Figure 1. Chosen preliminary design sketch

Materials and expenses

Item	Description	Manufacturer	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. Prototype new design with the feedback from Dr. Sohn
2. Make initial design in CAD
3. Prepare for show and tell on Friday

Next week's individual goals

- Anna Wood
 - Start paddle design in CAD
 - Create a proof of concept prototype for the new design idea discussed with Dr. Sohn
 - Find ways to easily secure fingers and focus on designs that are “brainless”
- Mara Van Dyke
 - Model designs in CAD
 - Fabricate a prototype using feedback from Dr. Sohn on our cardboard designs
 - Look into materials to use when securing the hand
- Tess Brazee
 - Create a prototype with new information from Dr. Sohn
 - Work on paddle design in CAD
 - Continue brainstorming methods to indexing and simplicity of design
- Sam Anderson
 - Begin to create an initial design in CAD
 - Meet with client to discuss our design options going forward
 - Continue exploring materials and our fabrication process
- Ben Pytlik
 - Finalize a design for the prototype
 - Begin CAD designing for prototype
 - Research hand sizes and how to be inclusive regarding hand sizes
- Miti Patel
 - Continue prototyping with new ideas.
 - Start initial CAD designs.
 - Research more about new fabrication materials.

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				X							
Prototyping						X	X	X	X							
Testings																
Deliverables																
Progress Reports			X	X	X	X	X	X	X							
Prelim presentation						X										
Final Poster																
Meetings																
Client		X		X					X							
Advisor	X		X	X			X	X	X							
Website																
Update	X	X	X	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
 - Worked with the group to create several cardboard prototypes
 - Traveled to the clinic to see the current treatment setup and treatment room
 - Discussed current design idea with Dr. Sohn and thought of simpler alternatives
- Mara Van Dyke
 - Created physical prototypes of design ideas using cardboard
 - Discussed design ideas with Jesse and evaluated his suggestions
 - Started modeling some designs in CAD
- Tess Brazee
 - Created 4 prototype designs with team
 - Attended design consultation meeting and discussed design ideas and feasibility
 - Met with Dr. Sohn at his clinic, saw CT machine, High dose radiation set up, current positioning device, met with radiation therapist, and discussed current design and future design work
- Sam Anderson
 - Brainstormed different design possibilities combining our other ones together and fabricated them
 - Met with Makerspace staff to evaluate and improve our design ideas
 - Conducted more research on the LDRT process as a whole
- Ben Pytlik
 - Prototyped multiple rough designs with the group
 - Met with a design consultant
 - Completed machining training
 - Met with the client at UW Health
- Miti Patel
 - Prototyped potential hand placement devices.
 - Researched materials post design consultation.
 - Completed machinery training and other required training.

Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Anna Wood	10/22	Attended prototyping session, went to design consultation, met with Dr. Sohn at the clinic	4	4	21.5
Mara Van Dyke	10/22	Created cardboard prototypes of designs, attended design consultation, worked on some CAD modeling	2.5	2.5	20
Tess Brazee	10/22	Prototyped four possible designs with the team, attended design consultation with MakerSpace, met with Dr. Sohn at clinic	4	4	19.5
Sam Anderson	10/22	Brainstormed design ideas with the team and created some prototypes, met with Makerspace staff to talk about the project,	2.5	2.5	20

		researched LDRT process			
Ben Pytlik	10/22	Completed trainings, helped prototype different designs, attended design consultation and client meetings	4	4	21.5
Miti Patel	10/22	Prototyped hand placement devices, attended design consultation, engaged with faculty at BSAC meeting, researched materials, completed machinery training.	4	4	21.5