

SteadyHand Progress Report #6

Date: 10/15/26

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 advanced early prototype fabrication by finding initial demonstration materials and starting CAD modeling. The team also researched more into osteoarthritis and LDRT, as well as reflecting on feedback from the Feedback Fruits activity to be more cohesive as a team.

Difficulties / advice requests

Current design

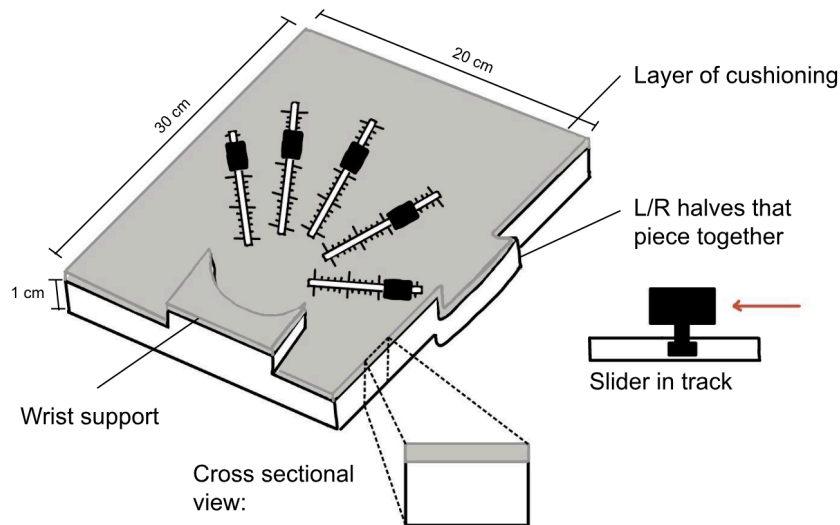


Figure 1. Chosen preliminary design sketch

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. Create several prototypes to share with Dr. Sohn when we meet.
2. Split up to CAD parts of the design and create lots of different ideas.
3. Find out more about the current LDRT process at the clinic and get client feedback on prototypes.

Next week's individual goals

- Anna Wood
 - Meet in person with Dr. Sohn to show rough prototypes and get an idea of the direction we should go in
 - Learn more about the current device in the clinic and quantify it and its setup process
 - Continue to make iterative prototypes with cheap materials
- Mara Van Dyke
 - Create multiple prototypes using different iterations of design ideas to present to client
 - Meet with the client to learn more about the setup process and clinical use of the design and get feedback on prototypes
 - Begin CAD modelling of design components
- Tess Brazee
 - Continue the prototyping process
 - Meet with our client to learn more about the current device and share current prototypes
 - Come up with questions for the client about LDRT
- Sam Anderson
 - Finish modelling the assigned initial prototype in CAD
 - Meet with client in-person and figure out more about the testing process
 - Also, learn more about LDRT as a whole from client
- Ben Pytlik
 - Begin prototyping parts of the design in CAD with my group
 - Meet with the client in-person to show designs, get testing plans, and understand his current device
 - Continue with research about LDRT and materials regarding the project
- Miti Patel
 - Continue prototyping parts of the design in CAD
 - Meet with client and determine next steps with designs and learn more about the current treatment process
 - Continue researching LDRT and how it works to improve quality of life for osteoarthritis patients.

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	X									
Testings																
Deliverables																
Progress Reports			X	X	X	X	X									
Prelim presentation																
Final Poster																
Meetings																
Client		X		X												
Advisor	X		X	X												
Website																
Update	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
 - Brainstormed alternative designs that could have in-between the finger components
 - Obtained a battleship game set to use in the initial prototyping phase/demonstration
 - Conducted research on osteoarthritis and how it can change finger lengths
- Mara Van Dyke
 - Reflected on feedback received from team members
 - Researched linear accelerators and their application in LDRT
 - Looked into modifications to apply to battleship design
- Tess Brazee
 - Obtained a battleship game set to use in the initial prototyping phase/demonstration
 - Continued research on osteoarthritis
 - Brainstormed alternate finger placement strategies
- Sam Anderson
 - Read and reflected on comments from group members
 - Started to model the initial design in CAD
 - Researched a little more about the specific dimensions of the device
- Ben Pytlik
 - Began CAD modeling for the prototype with the group
 - Continued research
 - Gave feedback to group members and reflected on the feedback I received
 - Began assembling a preliminary design of the prototype
- Miti Patel
 - Gave feedback to group members and reflected on the feedback I received.
 - Continued research on LDRT with osteoarthritis patients.
 - Started working on designs in CAD.

Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Anna Wood	10/15	Reflected on individual feedback given by teammates, coordinated meeting times for the week with the group, asked around for a battleship game.	1	1	17.5
Mara Van Dyke	10/15	Read and reflected on feedback, researched linear accelerators, looked into altering battleship design	1	1	17.5
Tess Brazee	10/15	Conducted some research, reflected on Feedback Fruits activity, found a battleship game to use.	1	1	15.5

Sam Anderson	10/15	Read and reflected on comments from group members, started to model the initial design in CAD, researched a little more about the specifics of the design	1.5	1.5	17.5
Ben Pytlik	10/15	Read and wrote a reflection on the feedback given to me by my teammates, began planning out CAD modeling, researched about device materials	2	2	17.5
Miti Patel	10/15	Reflected on team members' comments, helped plan CAD modeling, researched potential design aspects that worked well with our chosen preliminary design.	1.5	1.5	17.5