

Title: Progress Report 5

Date: 02/27/2025

Client: Dr. Andrew Ross

Advisor: Dr. Megan McClean

Team:

Student 1: Ana Toscano

Student 2: Rini Anand

Student 3: Gabriela Cecon

Student 4: Sofia Yeates-Delahoz

Problem statement

Design and develop a prototype that securely supports, stabilizes, and precisely maneuvers needles during awkward, image-guided minimally invasive radiology procedures to enhance ergonomics, reduce operator fatigue, and improve accuracy and patient outcomes

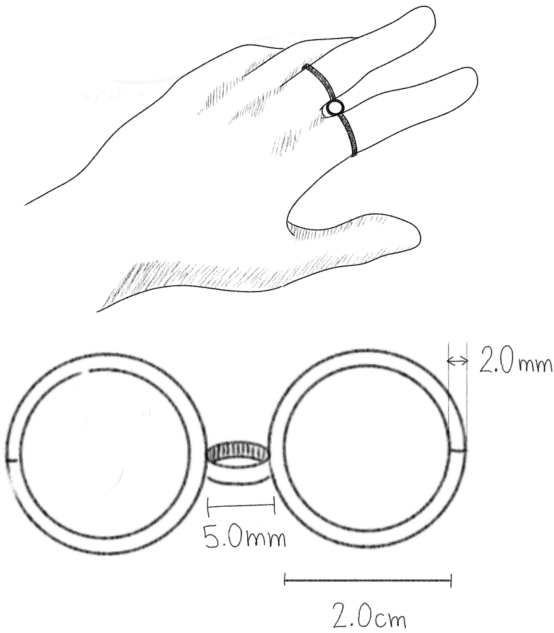
Brief status update

Team presented the oral preliminary presentation and is brainstorming alternate design ideas as a result of client feedback.

Difficulties / advice requests

None to report.

Current design



This image depicts the current proposed design for the Needle Navigator device. There will be changes made to this proposed design in the upcoming week.

Materials and expenses

Currently, there are no expenses as the project is still in the preliminary research phase.

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	

Major team goals for the next week

1. Begin prototyping the device
2. Brainstorm locking mechanism and release system for the Between Finger Stabilizer design

Next week's individual goals

- Ana Toscano

- Conduct in-depth research on a sliding mechanism that enables the users to slide and adjust the needle with one hand for improved maneuverability.
- Work on fabrication protocol and CAD prototype
- Rini Anand
 - Brainstorm new design with client
 - Work on CAD model
 - Compare different locking/hinge mechanisms
- Gabriela Cecon
 - Conduct research on design ideas for the locking mechanism and potential challenges
 - Work on the CAD model
 - Evaluate the need for additional materials
- Sofia Yeates-Delahoz
 - Begin prototyping the needle navigator using CAD software
 - Conduct additional research on potential locking mechanisms that can be integrated into the design

Timeline

Task	Jan	Feb				March				April				May	
	30	6	13	20	27	6	13	20	27	3	10	17	24	1	8
Project R&D															
Empathize	X	X	X												
Background...		X	X												
Prototyping															
Testings															
Deliverables															
Progress Reports	X	X	X	X	X										
Prelim presentation				X											
Final Poster															
Meetings															
Team	X	X	X	X	X										
Client		X			X										
Advisor	X	X	X	X	X										
Website															
Update	X	X	X	X	X										

Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Ana Toscano	2/27 - 3/06	Completed Preliminary Report	3	3	16

		Performed additional background, demographics and global impact research			
Rini Anand	2/13 - 3/06	Completed Preliminary Report Performed addition research on material selection and testing	4	4	16
Sofia Yeates-Delahoz	2/13 - 3/06	Completed Preliminary Report Performed additional research on ethical considerations of the device.	4	4	15.5
Gabriela Cecon	2/13 - 3/06	Completed Preliminary Report Performed research on diversity and ethical considerations Met with the client for feedback	4	4	16