

Embouchure Assist Device

Date: 9/25/2026-10/1/2026

Client: Linda Chickering - lindabhat@gmail.com

Advisor: Dr. William Murphy - wlmurphy@ortho.wisc.edu

Team:

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Team Leader: Anna van Riessen - avanriessen@wisc.edu

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Problem statement

Facial nerve weakness and palsy can affect many aspects of a patient's daily life, including their ability to maintain an adequate air seal around a musical instrument's mouthpiece. This creates significant challenges for musicians playing woodwind instruments, such as the oboe. Unlike other woodwind instruments, the oboe uses a unique double reed that is unsupported by a traditional mouthpiece, requiring precise and stable embouchure control. The objective of this project is to develop a tailored device to stabilize the embouchure for individuals with facial nerve weakness.

Brief status update

This week the team evaluated material choices using a design matrix and developed fabrication plans for the final design. Additionally, the team documented their work thus far and future plans by developing a preliminary presentation. The team plans to present this content on 10/2/2026 and document further details in an additional preliminary report. The team's next steps include CAD modeling for the device, developing test protocols for force application, and meeting with the client.

Difficulties / advice requests

We will likely need access to a Force Sensitive Resistor and/or spring scales. Is there a location we might access these or should they be ordered?

Current design

Materials and expenses

Item	Description	Manufac- turer	Mft Pt#	Vendo r	Vendor Cat#	Date	#	Cost Each	Total	Link
Category 1										
3-D Print	Force arm prop (TPU)	DI Lab				9/29/2026	1	\$0.32	\$0.32	
3-D Print	Force arm prop (PLA)	DI Lab				9/30/2026	1	\$0.17	\$0.17	
Category 2										
									\$0.00	
									\$0.00	
								TOTAL:	\$0.00	

Major team goals for the next week

1. CAD final design
2. Develop test protocols for client meeting
3. Preliminary report

Next week's individual goals

- Anna
 - Complete my portion of the report
 - Edit the report
 - Assist with CAD
- Caden
 - Complete report
 - Prepare for testing
 - Begin preparing for prototyping
- Celia
 - Finalize CAD design with team
 - Establish defined testing protocol for client visit
 - Complete section of preliminary report
- Erika
 - Collaborate with other team members of final design CAD
 - Finalize testing protocols for force application testing during client meeting
 - Work on the preliminary report

- Owen
 - Collaborate with CAD design
 - Work on preliminary report
 - further materials research
- Owynn
 - Work on preliminary report
 - Assist with the CAD design
 - Finalize testing

Timeline

Task	September				October				November				December	
	7	14	21	28	5	12	19	26	2	9	16	23	1	7
Project R&D														
Empathize	X	X												
Background	X	X	X	X										
Prototyping			X	X										
Testing														
Deliverables														
Progress Reports	X	X	X	X										
Prelim presentation				X										
Final Poster														
Meetings														
Client		X												
Advisor	X	X		X										
Website														
Update	X	X	X	X										

Filled boxes = projected timeline

X = task was worked on or completed

Previous week's goals and accomplishments

- Anna
 - Completed my portion of the preliminary design presentation
 - Practiced my part of the presentation
 - Continued research
- Caden
 - Completed preliminary design presentation

- Continued research
- Prepared for prototype fabrication
- Celia
 - Completed and rehearsed my section of the preliminary design presentation
 - Continued research
 - Worked on fabrication plan for prototype
- Erika
 - Worked on preliminary design presentation and associated information
 - Continued conducting research
 - Test method development
 - Began CAD for final design and printed a presentation prop
- Owen
 - Worked on Preliminary design presentation
 - Conducted materials research
 - Brainstormed fabrication methods
 - Began CAD for final design
- Owynn
 - Worked on preliminary design presentation
 - Conducted research
 - Continued thinking of ideas for testing
 - Began CAD for final design

Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Anna van Riessen	9/29	Work on and practice my part of the presentation	2	3	12.5
	9/30	Team meeting	1		
Caden Kleepsies	9/27	Completed Presentation	2	3	11.5
	9/30	Team Meeting	1		
Celia Oslakovic	9/27/2026	Researched testing methods for presentation	1	2	12.5
	9/29/2026	Completed my part of presentation (testing, future work)	1		
Erika Daniels	9/26/2026	Worked on presentation of competing designs and introduction information Created CAD for a force arm prop	3	3.5	14.5
	9/28/2026	Printed CAD file, developed background info slides	0.5		

Owen Johnson	9/27/2026	Worked on materials research	1	5	14
	9/27/2026	Worked on Materials matrix	2		
	9/29/2027	filled out slides for preliminary presentation	1		
	9/30/2027	Finalized and edited materials matrix and slides	1		
Owynn Garrelts	9/27/26	Worked on preliminary presentation	2	4	13
	9/28/26	Finished my slides for preliminary presentation	1		
	9/30/26	Team meeting/preliminary presentation practice	1		