

Embouchure Assist Device

Date: 10/9/2026-10/15/2026

Client: Linda Chickering - lindabhat@gmail.com

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

Team:

Team Leader: Erika Daniels - emdaniels2@wisc.edu

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

Communicator: Celia Oslakovic - oslakovic@wisc.edu

BPAG: Owen Johnson - otjohnson2@wisc.edu

BSAC: Caden Kleespies - ckleespies@wisc.edu

BWIG: Owynn Garrelts - garrelts@wisc.edu

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 met with our client to take measurements, do force testing, and get feedback on our initial design. After this meeting, the team decided to make changes to the design in order to better accommodate the client. A subgroup prepared a new CAD prototype and other members found silicone material for the final design. The team is preparing to 3D print the new prototype and order necessary materials.

Difficulties / advice requests

Current design

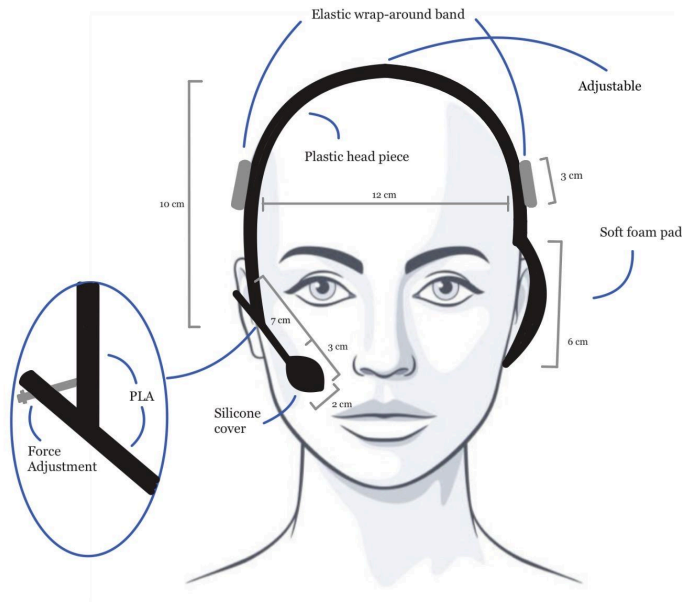


Figure 1: Headset with Clamped Pressure Piece Design

Materials and expenses

Item	Description	Manufac- turer	Mft Pt#	Vendor	Vend or Cat#	Date	#	Cost Each	Total	Link
Category : 3D Printing + DI Lab										
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: Online purchases										
Pressure Sensors	Sensor pads	MECCANIXITY		Amazon		10/03/2026	1	\$12.34	\$12.34	MECCANIXITY Thin Film Pressure Sensor, FSR406B 20g-10Kg Force Sensing Resistor Stress Test Sensor Pad for Smart Home Instruments, 2 Pack; Amazon.com: Industrial & Scientific
									\$0.00	
TOTAL:									\$12.83	

Major team goals for the next week

1. Create CAD prototype and assemble with silicone
2. Make decisions on headset designs

Next week's individual goals

- Anna
 - Finalize CAD prototype
 - Order silicone
 - Research improved headset design
 - Compare ABS and PLA
- Caden
 - Order headset
 - Finalize prototype design
 - Begin prototype fabrication
- Celia
 - Fabricate prototype with adjustments found from client testing
 - Order silicone and apply to 3d printed arms if it comes in time
 - Decide on ideal headset to order and order it
- Erika
 - Help finalize CAD prototype
 - Assemble prototype for testing
 - Decide on headset style and necessary alterations
- Owen
 - Help finalize CAD drawing
 - Order Silicone
 - Start fabrication of prototype
- Owynn
 - Finalize CAD prototype
 - Assemble first prototype
 - Begin 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	X	X								
Testing					X									
Deliverables														
Progress Reports	X	X	X	X	X	X								

Prelim presentation				X										
Final Poster														
Meetings														
Client		X			X									
Advisor	X	X		X	X	X								
Website														
Update	X	X	X	X	X	X								

Filled boxes = projected timeline

X = task was worked on or completed

Previous week's goals and accomplishments

- Anna
 - Got measurements and testing data from client
 - Analyzed testing results
 - Began creating the final design
- Caden
 - Began testing with client
 - Prepared for prototyping
 - Analyzed testing results
- Celia
 - Ran client force testing on Friday
 - Analyzed test results
 - Ordered necessary parts for fabrication of design
- Erika
 - Led client necessary force testing
 - Analyzed testing results
- Owen
 - Began testing with client
 - Analyzed results from testing
 - Researched Silicone materials
 - Drew new mouth piece
- Owynn
 - Began testing with client
 - Analyzed results from testing
 - Started thinking about fabrication steps

Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Anna van Riessen	10/9 10/14 10/15	Client testing CAD prototype design Materials research	1 2 1	4	21.5
Caden Kleepsies	10/9 10/9 10/14 10/15	BSAC Meeting Client testing CAD Research Headset Options	1 1 1 1	4	19
Celia Oslakovic	10/9 10/9 10/13	Client testing Consulted Wendt staff for ideal silicone application method Prepared options for silicone material to discuss at next meeting	1 0.5 0.5	2	19
Erika Daniels	10/9 10/15	Client testing Analyzed testing results and summarize findings Research design options	1 0.5 0.5	2	21
Owen Johnson	10/9 10/12 10/14	Client testing Draw new design idea Research silicone	1 .5 1	2.5	19.5
Owynn Garrelts	10/9/26 10/14/26	Client Meeting CAD meeting	1 1.5	2.5	19.5