Embouchure Assist Device

Date: 10/30/2026-11/05/2026
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Team:
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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 developed aspects of our design for client testing on 11/6. This involved developing a new clip mechanism and attachment piece to attach the clip mechanism to the headset. These CAD models are printed and will be prepared along with basic testing protocols before meeting with the client. The team also considered suggestions from show-and-tell, including mechanisms for clamping skin and attaching the clip to the headset.

Difficulties / advice requests

Is there a storage location for fabrication materials?

Current design

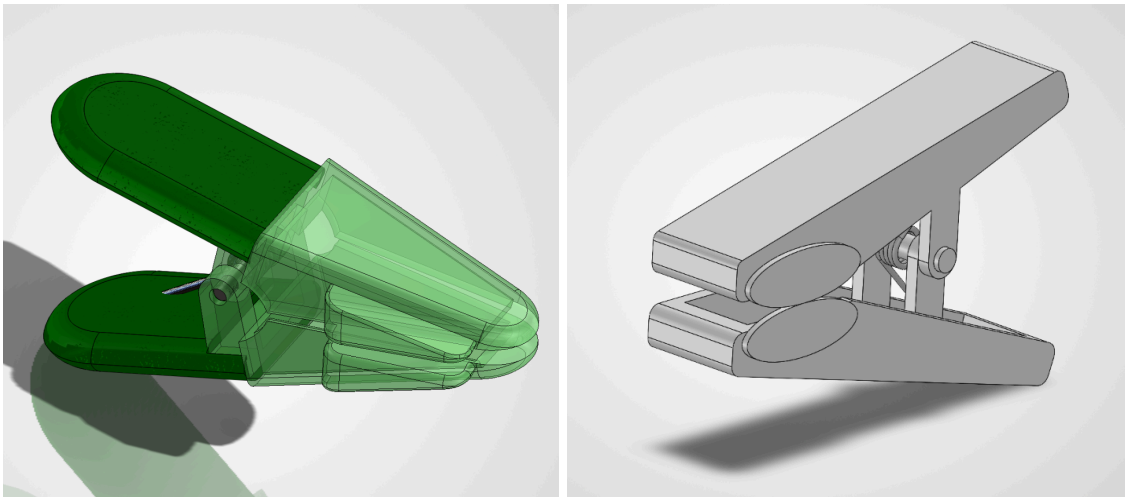


Figure 1: Two potential clip designs

Figure 2: Attachment 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	
3-D Print	Force arm props (PLA)	DI Lab				10/21/2026		$1.30	$1.30	
3-D Print	Force arm props (PLA)	DI Lab				10/23/2026	1	$0.21	$0.21	
3-D Print	Chip-clip prototypes	DI Lab				10/28/2026	1	$0.22	$0.22	
3-D Print	Clip prototypes (2) with ABS	DI Lab				11/04/2026	1	$0.68	$0.68	
Category 2: Online purchases										
Pressure Sensors	Sensor pads	MECCA NIXITY		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
Silicone	Silicone Sheets	WochiTV		Amazon		10/20/26	1	$22.99	$22.99	https://a.co/d/0i9Sw1t5
Headset	VR headset	KIWI		Amazon		10/24/2026	1	$28.99	$28.99	https://a.co/d

		Design								/00W4wW4t
Torsion springs	Pack of 80 assorted torsion springs			Amazon		10/24/2026	1	$8.29	$8.29	https://a.co/d/00W4wW4t
								TOTAL:	**$75.51**	

Major team goals for the next week

1. Fabrication of headset attachment and clip
2. Solidify testing plans

Next week's individual goals

- Anna
  - Alter headset attachment with client feedback
  - Second 3D print
  - Begin fabrication
- Caden
  - Work on attachment design
  - Prepare to meet with client
- Celia
  - Alter design according to client testing results
  - Plan final testing metrics
- Erika
  - Alter clip design according to client feedback
  - Complete clip fabrication
- Owen
  - Start fabrication of headband
  - Develop Testing procedure
- Owynn
  - Finish the final design CAD file
  - 3D print the final design CAD file

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	X	X	X					
Testing					X				X					
Deliverables														
Progress Reports	X	X	X	X	X	X	X	X	X					
Prelim presentation				X										
Final Poster														
Meetings														
Client		X			X		X		X					
Advisor	X	X		X	X	X	X							
Website														
Update	X	X	X	X	X	X	X	X	X					

Filled boxes = projected timeline
X = task was worked on or completed

Previous week's goals and accomplishments

- Anna
  - Attachment piece CAD design
  - Begin designing headset attachment
  - Prepare for client meeting
- Caden
  - Work on attaching headset to CAD mouthpiece
- Celia
  - Brainstorm headset attachment methods
  - Prepare for testing with client
- Erika
  - Alter clip CAD model and print
  - Prepare prototype for client meeting
- Owen
  - Help design headset attachment
- Owynn
  - CAD model the clip design
  - Alter the CAD model based on peer feedback

Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)

Anna van Riessen	11/2/26 11/5/26	CAD meeting Headset attachment design	2 2.5	4.5	30.5
Caden Kleepsies	11/2/2026 11/3/2026	CAD meeting for headset Developed new attachment idea	2 hr .5 hr	2.5	24.5
Celia Oslakovic	11/2/2026 11/4/2026	Worked on CAD clip design Worked on final testing protocol for finished design	1 1	2	25
Erika Daniels	11/3/2026 11/4/2026 11/5/2026	Develop CAD clip design Print clip designs with modified settings Assemble prototypes with silicone	2.5 0.25 0.5	3.25	29.5
Owen Johnson	11/2/2026 11/2/2026	CAD meeting for headset securing Research headband materials	1 1	2	23.75
Owynn Garrelts	11/3/2026	Develop new CAD clip design	3	3	27.5