

Approximating Surface Matrix Band for Dentist to Use for Patients

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Date: April 5th, 2026 - April 9th, 2026

Client: Dr. Donald Tipple

Advisor: Prof. Beth Meyerand

Team:

Roshan Patel - rgpatel3@wisc.edu (Team Leader)

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Problem statement

Surface matrix bands are devices used by dentists to separate adjacent teeth during restorations of interproximal cavities (cavities found in-between two teeth). The matrix band serves to support the restoration material, to provide shape and contour to the tooth being restored, and to protect the adjacent tooth. Ideally, the width of the space between the two adjacent teeth is just large enough to fit one matrix band in order to ensure close proximal contact area, which prevents food impaction and decay. In the case of two cavities on two adjacent teeth, this process is tedious, as the dentist must complete the process from start to finish for each adjacent tooth individually. The goal of this project is to create a dental matrix band that effectively partitions adjacent teeth for more efficient tooth restoration procedures on interproximal cavities by making it possible to complete two adjacent restorations simultaneously.

Brief status update

Dr. Williams is still having trouble getting the laser cutter to fabricate a usable matrix. The team is looking towards other options,

Summary of weekly team member design accomplishments

- Roshan Patel
 - Worked on the executive summary
- Anya Hadim
 - Worked on the executive summary
 - Met with the team to plan final semester timeline
- Keleous Lange
 - Worked on the executive summary
 - Met with the team to plan final semester timeline
- Tanya Predko
 - Met with the team to plan progress of the prototype
 - Worked on the executive summary
- Joseph Koch
 - Worked on executive summary
 - Prototype

Difficulties / advice requests

N/A

Current design

N/A

Materials and expenses

Item	Description	Manufacturer	Mft Pt#	Vendor	Date	#	Cost Each	Total	Link
Category 1: Testing Materials									
Stainless Steel sheet	316 Stainless Steel Shim Stock	McMaster Carr	2317 K51	McMaster Carr	11/07	1	22.55	\$22.55	https://www.mcmaster.com/2317K51/
Brass sheet	260 Brass shim stock	McMaster Carr	3828 271	McMaster Carr	03/09	1	19.53	\$19.53	
Category 2: Final Prototype									
								\$0.00	
								\$0.00	
							TOTAL	\$41.90	

Prelim presentation																
Final Poster																
Meetings																
Client																
Advisor																
Website																
Update																

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

Previous week’s goals and accomplishments

- N/A