

Approximating Surface Matrix Band for Dentist to Use for Patients

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Date: March 8th, 2026 - March 13th, 2026

Client: Dr. Donald Tipple

Advisor: Prof. Beth Meyerand

Team:

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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

We have connected with Dr. Williams and have begun material testing on the new laser cutter. We have purchased brass to use as a good prototype material, despite it not being ideal for a final product. We have also started transferring our laser cutting files to Easy

CAD to hopefully improve the cut path. Dr. Williams is also using fixtures to help with the warping on the laser cutter.

Summary of weekly team member design accomplishments

- Roshan Patel
 - Meeting with Dr. Williams
 - Began Material MTS Testing
- Anya Hadim
 - Meeting with Dr. Williams
 - Researched ideas regarding sandwiching of the material, thinning the brass, and a heat sink plate
- Keleous Lange
 - Meeting with Dr. Williams
 - Researched laser cutting
- Tanya Predko
 - Met with Roshan and Joseph to begin materials testing; obtained and recorded dimensions of testing coupons.
- Joseph Koch
 - Met with Dr. Williams
 - MTS testing
 - Ordered materials

Difficulties / advice requests

N/A

Current design

N/A

Materials and expenses

Item	Description	Manufac-turer	Mft Pt#	Vendor	Date	#	Cost Each	Total	Link
Category 1: Testing Materials									
Stainless Steel sheet	316 Stainless Steel Shim Stock	McMaster Carr	2317 K51	McMas ter Carr	11/07	1	22.55	\$22.55	https://www.mcmaster.com/2317K51/

Prototyping																
Testings																
Deliverables																
Progress Reports																
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