

Graduated Bowman Probes

Date: February 20 to February 27, 2026

Client: Dr. James Law

Advisor: Professor Monica Ohnsorg

Team:

Neel Srinivasan nsrinivasan8@wisc.edu (Team Leader/BPAG)

Caden Robinson carobinson5@wisc.edu (BSAC)

Caleb White cwhite@wisc.edu (BWIG)

Cole Miller ctmiller8@wisc.edu (Communicator)

Problem Statement

Bowman probes are the standard instrument used in interrogation of the nasolacrimal (tear duct) system in Ophthalmology. They are available in various sizes and provide tactile feedback to the surgeon when probing the canalicular/nasolacrimal system, allowing them to assess for strictures, discontinuities, obstruction, or other abnormality within its lumen. Probing is typically performed prior to the passage of implants such as nasolacrimal stents (eg. Crawford, Lacriflow, Nunchucku, Monoka), to confirm patency of the nasolacrimal system. Available probes on the market do not have any markings on them which may allow the surgeon to make measurements to points within the canalicular/nasolacrimal lumen (eg. a stricture at 30 mm distal to the punctum), which can be helpful in correlating with imaging findings, or for accurate clinical documentation and therefore inform management of nasolacrimal pathologies. We propose the development of such a stent with inscribed bands corresponding to millimeter markings which may be referenced during canalicular or nasolacrimal probing.

Brief Status Update

This week the team delivered the preliminary presentation and listened to peers' presentations. The team also worked together on the preliminary report and have sent it out to our client, Dr. Law, and Prof. Ohnsorg. The team is planning to meet with Professor Pfefferkorn today (Thursday, February 26th) to discuss the potential of laser annealing and whether it is a route our team can take to achieve our project goals. During our Friday meeting team members will be individually meeting with Prof. Ohnsorg to discuss group dynamics and feedback for each other. The team also received a set of sample probes from Dr. Law for designing, fabrication, and to receive better input from Professor Pfefferkorn.

Summary of Weekly Team Member Design Accomplishments

- Team:
 - Delivered preliminary presentation
 - Completed preliminary report
 - Arranged meeting with Professor Pfefferkorn

- Neel Srinivasan:
 - Worked on individual sections of preliminary report
 - Delivered preliminary presentation with team
 - Researched how the team needs to program laser annealing machine for millimeter markings if Professor Pfefferkorn says this method can be done

- Caden Robinson:
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- Caleb White:
 - Worked with the team to complete the preliminary report
 - Met with Prof. Pfefferkorn, with Neel, to gain insight into the feasibility of the fabrication design
 - Began to research paste and tape options for laser oxidization of material to create color change desired.

- Cole Miller:
 - Worked on sections of preliminary report
 - Delivered preliminary presentation with team

Weekly/Ongoing Difficulties

N/A

Upcoming Team and Individual Goals

- Team:
 - Evaluate design options/fabrication plan based on meeting with Professor Pfefferkorn
 - Begin laser annealing design & fabrication
 - Continue to research and update lab archives
- Neel Srinivasan:
 - Meet with team to discuss design plans after meeting with Professor Pfefferkorn
 - Continue researching how to program the laser annealing machine to achieve precise millimeter markings
 - Update lab archives with preliminary deliverables
- Caden Robinson:
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- Caleb White:
 - Meet with Ohnsorg tomorrow to discuss the preliminary presentation and have a conversation about my performance in the presentation and my feelings of the project thus far
 - Identify specific retail paste or spray marking materials that can be purchased
 - Reach out to Pfefferkorn to discuss using his laboratory equipment for fabrication
- Cole Miller:
 - Meet with our teams advisor for an individual conference
 - Continue to identify how we can use the laser annealing machine for our project.
 - Follow-up with Pfefferkorn to talk about how we can use his lab during our fabrication.

Project Timeline

Project Goal	Deadline	Team Assigned	Progress	Completed
Meet with client	2/2	All	✓	✓
Product Design Specification	2/5	All	✓	✓
Preliminary Presentations	2/20	All	✓	✓
Preliminary Deliverables	2/25	All	✓	✓
Show and Tell	3/20	All	X	X
Poster Presentations	4/24	All	X	X
Final Deliverables	4/29	All	X	X

Expenses

Item	Description	Manufacturer	Part Number	Date	QTY	Cost Each	Total	Link	
Component 1									
Component 2									
Component 3									
TOTAL:							\$0.00		