

# EYE DROPPER ASSISTANT, BME 402

**Date:** 02/02/24

**Client:** Dr. Beth Martin ([beth.martin@wisc.edu](mailto:beth.martin@wisc.edu))

**Advisor:** Tracy Puccinelli ([tracy.puccinelli@wisc.edu](mailto:tracy.puccinelli@wisc.edu))

**Co-Team Leaders:** Kasia Klotz ([kmklotz@wisc.edu](mailto:kmklotz@wisc.edu)), Anabelle Olson ([amolson27@wisc.edu](mailto:amolson27@wisc.edu))

**Communicator:** Eva Coughlin ([emcoughlin@wisc.edu](mailto:emcoughlin@wisc.edu))

**BPAG:** Tommy Kriewaldt ([tkriewaldt@wisc.edu](mailto:tkriewaldt@wisc.edu))

**BWIG:** Jenna Krause ([jlkrause4@wisc.edu](mailto:jlkrause4@wisc.edu))

**BSAC:** Tevis Linser ([linser@wisc.edu](mailto:linser@wisc.edu))

Note: Team member Tommy is currently participating in a Co-Op and is devoting time to that position. Tommy will work on what he can this semester for the project but due to this conflicting commitment his contributions *may* be limited.

## Problem Statement

Administration of eye drops is difficult for patients, especially older adults and those with limiting diseases like arthritis. This results in eye drop waste and tip contamination. The team will design a device to assist patients in squeezing the eye drop bottle, while releasing a consistent amount of solution per drop. This device will improve the administration of eye drops for the patient while minimizing eye drop waste.

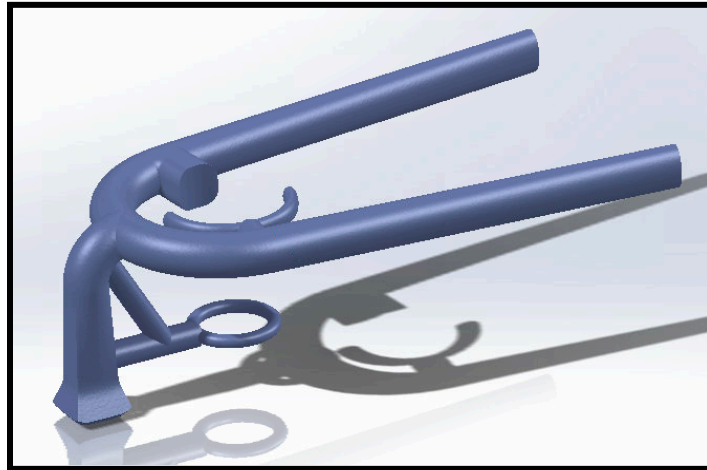
## Brief Status Update:

The team met with the client and advisor to establish goals for the project this semester. The team also met to learn more about the mentorship outreach program.

## Difficulties / Advice Requests :

We would like to learn more about the BME outreach mentorship program and hope we are able to do so following the first meeting today.

## Current Design:



## Design Changes:

- Nose piece removed and platform implemented for user to rest on eyebrow bone.

## Materials and Expenses:

Item	Description	Manufacturer	Part Number	Date	QTY	Cost Each	Total	Link
<b>Existing Devices</b>								
<b>Droppy Eye Drop Dispenser</b>	Competing Design	Droppy, Amazon	DR001	9/25	1	9.99	9.99	<a href="#">Link</a>
<b>GentleDrop Eye Drop Guide</b>	Competing Design	GentleDrop, Amazon	ASIN: B0BQBHRKV1	9/25	1	17.99	17.99	<a href="#">Link</a>
<b>Prototyping</b>								
<b>Silicone Eyelash Curler</b>	Prototype Materials (Handle Grips)	PETUNIA SKINCARE, Amazon	ASIN: B00UVLNDVQ	10/25	1	7.49	7.49	<a href="#">Link</a>
<b>MakerSpace Print</b>	Prototype v1	UW Makerspace Ultimaker 3D Print	N/A	10/31	1	4.96	4.96	N/A

<b>MakerSpace Print</b>	Prototype v2	UW Makerspace Ultimaker 3D Print	N/A	11/10	1	5.07	5.07	N/A
<b>MakerSpace Print</b>	Prototype v3	UW Makerspace Bambu Labs 3D Print	N/A	11/13	1	4.5	4.5	N/A
<b>MakerSpace Print</b>	Prototype v3	UW Makerspace Bambu Labs 3D Print	N/A	11/14	1	4.96	4.96	N/A
<b>MakerSpace Print</b>	Prototype v3	UW Makerspace Ultimaker 3D Print	N/A	11/15	1	8.16	8.16	N/A
<b>MakerSpace Print</b>	Prototype v4	UW Makerspace Ultimaker 3D Print	N/A	11/17	1	10.08	10.08	N/A
<b>MakerSpace Print</b>	Test Fixture	UW Makerspace Ultimaker 3D Print	N/A	11/29	1	13.78	13.76	N/A
<b>MakerSpace Print</b>	Final Prototype	UW Makerspace Ultimaker 3D Print	N/A	12/1	1	7.36	7.36	N/A
<b>MakerSpace Print</b>	Multiple Final Prototypes	UW Makerspace Ultimaker 3D Print	N/A	12/8	1	11.6	11.6	N/A

### **Upcoming Team and Individual Goals:**

*Team:*

The team will travel to Sun Prairie this week for the first day of outreach. A client meeting has been scheduled for Friday where the team will present the new design iterations. Preliminary presentations are approaching quickly, so the team will begin working on that as



Prelim presentation																
Final Poster																
<b>Meetings</b>																
Client																
Advisor																
<b>Website</b>																
Update																

Project Goal	Deadline	Assigned	Progress	Completed
Preference Human Testing	2/29	All	In Progress	
Preliminary Oral Presentation	2/9	All	Not Started	
Preliminary Deliverables	2/28	All	Not Started	
Show and Tell	3/22	All	Not Started	
Executive Summary	4/19	All	Not Started	
Final Poster Presentation	4/26	All	Not Started	
Final Deliverables	5/1	All	Not Started	

## Summary of Weekly Team Member Design Accomplishments

### Team:

Over break, the team updated the current prototype to include a platform nose rest which replaced the past nose bridge rest. This allows for a more universal support and allows for different positioning of the device. The team also began working on the initial presentation for the mentor outreach program. The team established deadlines for the semester. The team also finished the necessary training for the IRB.

### Individual:

#### ❖ Jenna:

- Start and complete the 2 trainings that correspond to the IRB
- Worked on creating the outreach slides for Sun Prairie
- Worked on Moldex simulation
- Set up a meeting for Moldex results and injection molding possibilities

#### ❖ Eva:

- Submitted IRB and communicated with IRB staff
- Discussed outreach with Prof. Puccinelli and met with team to decide on project and create initial presentation
- ❖ Tevis:
  - Completed Moldex simulation for the new design
  - Printed and did prelim feasibility testing with the new prototype
  - Started the IRB training and certification modules
- ❖ Tommy:
  - Began IRB training in CITI
  - Met with team to discuss packaging and outreach program
  - Worked on outreach presentation slides
- ❖ Kasia:
  - Completed necessary IRB training
  - Created presentation for outreach
  - Discussed packaging options for product
- ❖ Anabelle:
  - Finished human subjects training for IRB
  - Created presentation for the mentor outreach program

### Activities:

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Jenna	1/29-2/1 1/29-1/31	Outreach Work IRB Training	4 hrs 2 hrs		
Eva	1/26 1/29-1/31	Completed IRB submission process and communicated with IRB staff Outreach project	2 hr 1 hr	3 hr	3 hr
Tevis					
Tommy	1.28 1.29	Worked on Outreach presentation Started IRB training	1 hr 1 hr	2 hr	4 hr
Kasia	1.29 1.30	Finished IRB training Finished Outreach presentations	3 hr 1 hr		
Anabelle	1.28 1.28	Finished trainings on IRB Worked on outreach presentation	3hr 1hr		