

# EYE DROPPER ASSISTANT, BME 402

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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.

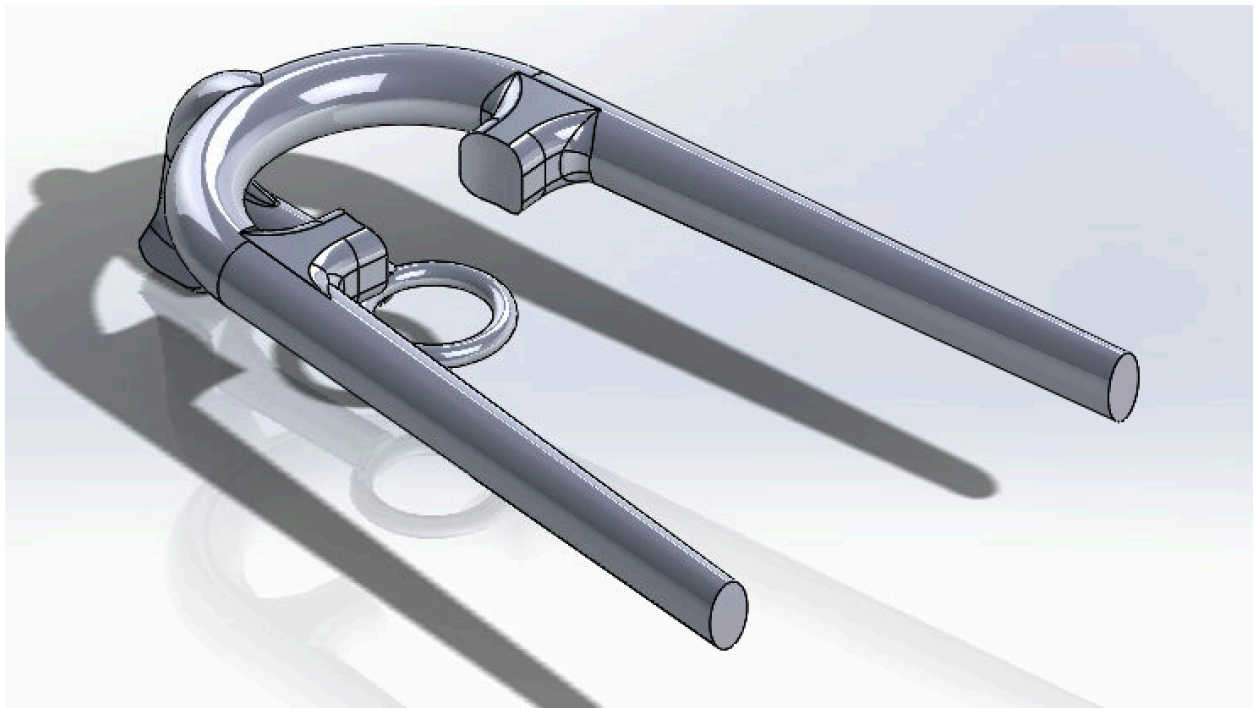
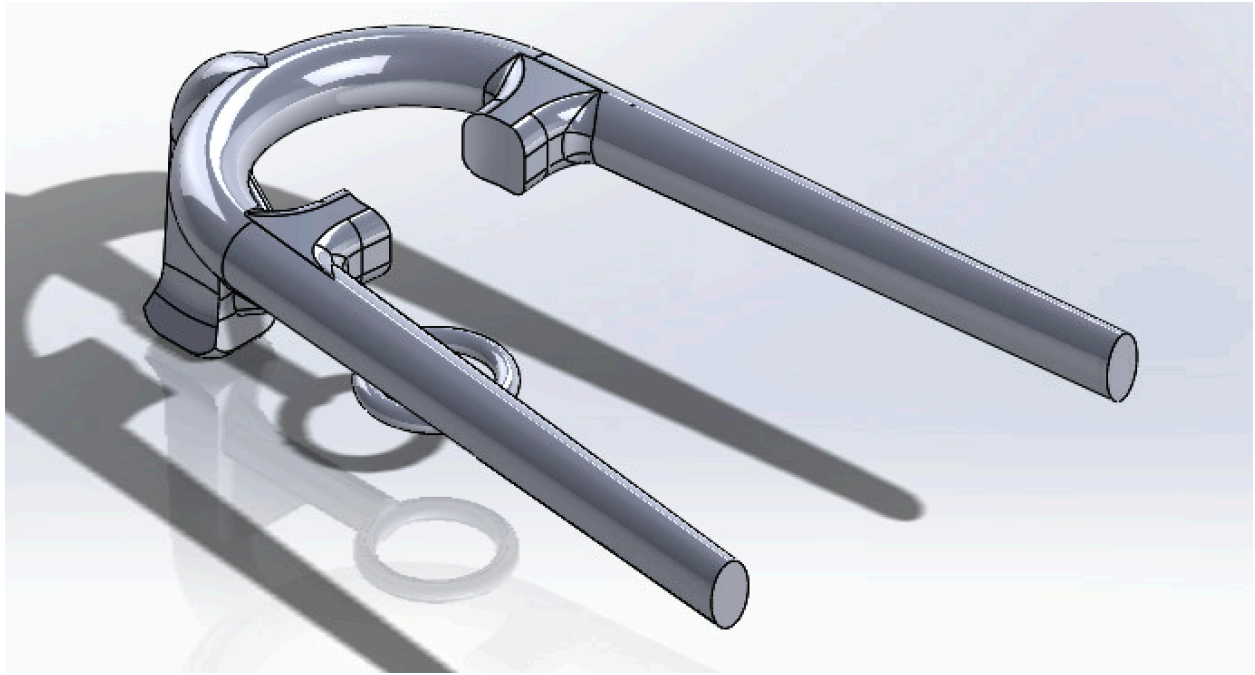
## Brief Status Update:

The team is traveling to the Oakwood retirement community to complete preference testing. The results from the study will help determine whether or not the device is successful in creating a mechanical advantage for users, as well as determine which version of the device users will prefer. The team also hopes to gain feedback regarding any changes that should be made to the device.

## Difficulties & Advice Requests:

Team members are learning more about how to approach the business side of engineering. The current difficulty the team is having is creating presentations that are approached as a business pitch rather than an academic study.

### Current Design:



### Design Changes:

- Nose piece removed and platform implemented for user to rest on eyebrow bone.
- Altered the squeezing mechanism to be more uniform for injection molding.
- Separated components to allow for less complex injection molding procedures.

## 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

Item	Description	Manufacturer	Part Number	Date	QTY	Cost Each	Total	Link
<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
<b>MakerSpace Print</b>	Multiple Final Prototypes	UW Makerspace Ultimaker 3D Print	N/A	2/6	1	7.84	7.84	N/A
<b>MakerSpace Print</b>	Prototype Adjusted For IM	UW Makerspace Ultimaker 3D Print	N/A	2/23	1	2.15	2.15	N/A
<b>MakerSpace Print</b>	Parts for Connection Mechanism	UW Makerspace Ultimaker 3D Print	N/A	2/26	1	2.8	2.8	N/A
<b>MakerSpace Print</b>	Prototypes for Testing	UW Makerspace Ultimaker 3D Print	N/A	3/4	1	8.2	8.2	N/A
<b>MakerSpace Print</b>	Prototypes for Testing	UW Makerspace Ultimaker 3D Print	N/A	3/4	1	8.75	8.75	N/A



Prototyping	✓	✓	✓	✓													
Testing					✓	✓											
<b>Deliverables</b>																	
Progress Reports	✓	✓	✓	✓	✓	✓											
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	Completed	Yes
Preliminary Deliverables	2/28	All	Completed	Yes
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:* The team prepared for preference testing by creating a script and gathering necessary materials. The team also continued working on simplifying the design of the device while maintaining the overall functionality.

*Individual:*

- ❖ Jenna:
  - Looked over feedback notes from Shark Tank meeting
  - Look into potential packaging quote options
- ❖ Eva:

- Communicated with Laura Conger from IRB regarding our future plans with submitting another application for administering eye drops into eyes
- Completed the recommended IRB consultation request form
- Met with client to plan for preference testing and create a merged document for screening, script, and survey
- ❖ Tevis:
  - Printed the prototypes for testing
  - Communicated with paula about WID opportunities
  - Started researching how to get an accurate quote
- ❖ Tommy:
  - Planned for and attended outreach session
  - Measured 2 large eye drop bottles
- ❖ Kasia:
  - Met with Client to create a script for preference testing
  - Improved Shark Tank presentation
  - Discussed plan for next IRB application
- ❖ Anabelle:
  - Met with team to discuss plans for the preference testing
  - Discussed initial plans for the second IRB application