

EYE DROPPER ASSISTANT, BME 402

Date: 04/11/2024

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Communicator: Eva Coughlin (emcoughlin@wisc.edu)

BPAG: Tommy Kriewaldt (tkriewaldt@wisc.edu)

BWIG: Jenna Krause (jlkrause4@wisc.edu)

BSAC: Tevis Linser (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

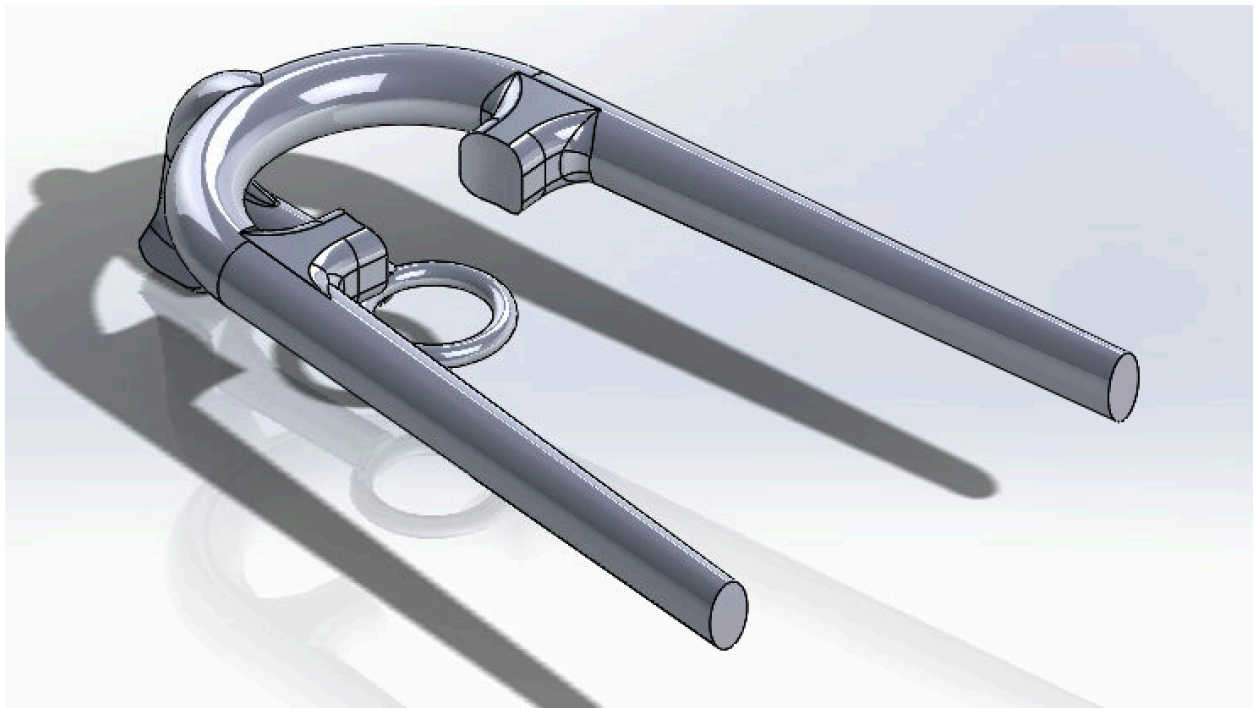
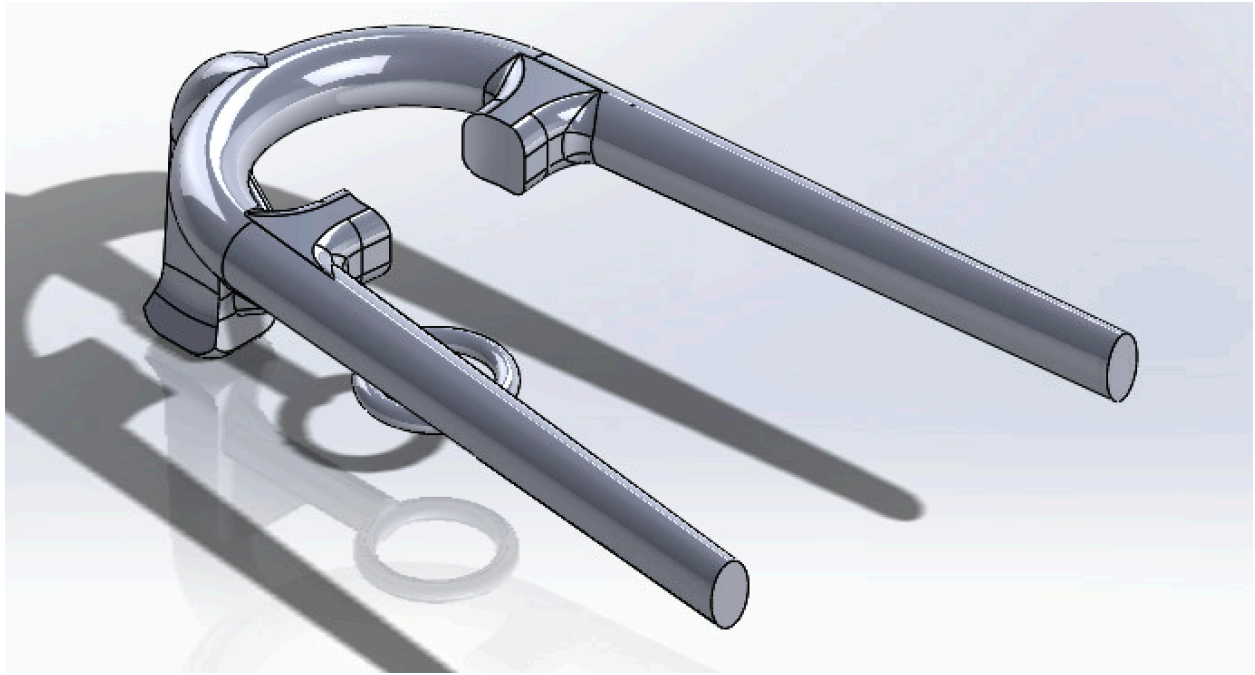
Administration of eye drops is difficult for patients, especially older adults and those with limiting diseases like arthritis. This results in eye drop waste and tip contamination. The team will design a device to assist patients in squeezing the eye drop bottle while releasing a consistent amount of 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 presented at the ShaRk Tank competition. Additionally, the team is working towards finalizing packaging components and analyzing testing data.

Difficulties & Advice Requests: N/A

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
Existing Devices								
Droppy Eye Drop Dispenser	Competing Design	Droppy, Amazon	DR001	9/25	1	9.99	9.99	Link
GentleDrop Eye Drop Guide	Competing Design	GentleDrop, Amazon	ASIN: B0BQBHRKV1	9/25	1	17.99	17.99	Link
Prototyping								
Silicone Eyelash Curler	Prototype Materials (Handle Grips)	PETUNIA SKINCARE, Amazon	ASIN: B00UVLNDVQ	10/25	1	7.49	7.49	Link
MakerSpace Print	Prototype v1	UW Makerspace Ultimaker 3D Print	N/A	10/31	1	4.96	4.96	N/A
MakerSpace Print	Prototype v2	UW Makerspace Ultimaker 3D Print	N/A	11/10	1	5.07	5.07	N/A
MakerSpace Print	Prototype v3	UW Makerspace Bambu Labs 3D Print	N/A	11/13	1	4.5	4.5	N/A
MakerSpace Print	Prototype v3	UW Makerspace Bambu Labs 3D Print	N/A	11/14	1	4.96	4.96	N/A
MakerSpace Print	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
MakerSpace Print	Prototype v4	UW Makerspace Ultimaker 3D Print	N/A	11/17	1	10.08	10.08	N/A
MakerSpace Print	Test Fixture	UW Makerspace Ultimaker 3D Print	N/A	11/29	1	13.78	13.76	N/A
MakerSpace Print	Final Prototype	UW Makerspace Ultimaker 3D Print	N/A	12/1	1	7.36	7.36	N/A
MakerSpace Print	Multiple Final Prototypes	UW Makerspace Ultimaker 3D Print	N/A	12/8	1	11.6	11.6	N/A
MakerSpace Print	Multiple Final Prototypes	UW Makerspace Ultimaker 3D Print	N/A	2/6	1	7.84	7.84	N/A
MakerSpace Print	Prototype Adjusted For IM	UW Makerspace Ultimaker 3D Print	N/A	2/23	1	2.15	2.15	N/A
MakerSpace Print	Parts for Connection Mechanism	UW Makerspace Ultimaker 3D Print	N/A	2/26	1	2.8	2.8	N/A
MakerSpace Print	Prototypes for Testing	UW Makerspace Ultimaker 3D Print	N/A	3/4	1	8.2	8.2	N/A
MakerSpace Print	Prototypes for Testing	UW Makerspace Ultimaker 3D Print	N/A	3/4	1	8.75	8.75	N/A

Research	✓	✓															
Prototyping	✓	✓	✓	✓													
Testing					✓	✓	✓	✓	✓		✓						
Deliverables																	
Progress Reports	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓						
Prelim presentation			✓														
Final Poster																	
Meetings																	
Client		✓		✓		✓		✓			✓						
Advisor	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓						
Website																	
Update	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓						

Project Goal	Deadline	Assigned	Progress	Completed
Preference Human Testing	2/29	All	Completed	Yes
Preliminary Oral Presentation	2/9	All	Completed	Yes
Preliminary Deliverables	2/28	All	Completed	Yes
Show and Tell	3/22	All	Completed	Yes
Executive Summary	4/19	All	In Progress	
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 presented at the ShaRx Tank Presentation. Additionally, the team received packaging boxes.

Individual:

- ❖ Jenna:
 - Attended ShaRx Tank presentation!!
 - Received clamshell packages and put dimensions in the drive
 - Finalize ShaRx Tank slides based on both's feedback
- ❖ Eva:

- Statistically analyzed single drop test results and made conclusions
- Practiced running through slides for ShaRx Tank presentation with Tevis and Kasia
- Attended ShaRx Tank on 4/11!
- ❖ Tevis:
 - Worked with the team to finalize and practice for ShaRx tank
 - Presented at shark tank and connected with notable attendees
- ❖ Tommy:
 - Completed sections of executive summary draft
 - Finalized adjustable prototype SolidWorks model
- ❖ Kasia:
 - Assisted in analyzing single drop test data
 - Finalized ShaRx Tank slides and created backup slides for anticipated questions
 - Presented at ShaRx Tank (AND WON!)
- ❖ Anabelle:
 - Attended ShaRx Tank presentation
 - Began drawing the visuals for the instruction manual