EYE DROPPER ASSISTANT, BME 402

Date: 04/11/2024

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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

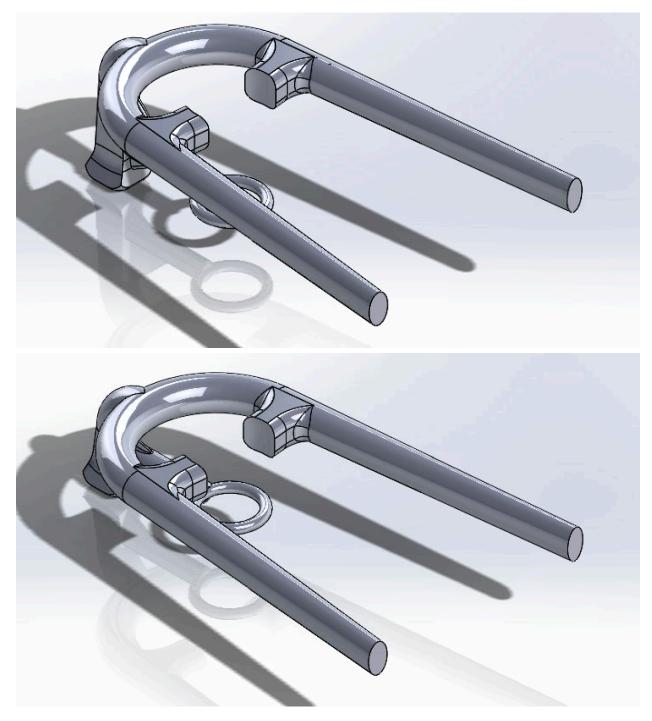
Administration of eye drops is difficult for patients, especially older adults and those with limiting diseases like arthritis. This results in eye drop waste and tip contamination. The team will design a device to assist patients in squeezing the eye drop bottle while releasing a consistent amount of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

		Manufacture				Cost		
Item	Description	r	Number	Date	QTY	Each	Total	Link
			Existing	Devices				
Droppy Eye								
Drop Dispenser	Competing Design	Droppy, Amazon	DR001	9/25	1	9.99	9.99	<u>Link</u>
	Design	Amazon		9/23	1	9.99	9.99	
GentleDrop	Composing	ContloDron	ASIN: BOBQB					
Eye Drop Guide	Competing Design	GentleDrop, Amazon	HRKV1	9/25	1	17.99	17.99	<u>Link</u>
	Design	7.11102011	Protot		-	17.55	17.55	<u>Ellin</u>
	Dratatura			.169				
Silicone	Prototype Materials	PETUNIA	ASIN:					
Eyelash	(Handle	SKINCARE,	BOOUVL					
Curler	Grips)	Amazon	NDVQ	10/25	1	7.49	7.49	<u>Link</u>
		UW						
		Makerspace						
MakerSpace		Ultimaker 3D						
Print	Prototype v1	Print	N/A	10/31	1	4.96	4.96	N/A
		UW						
		Makerspace						
MakerSpace Print	Drototupo v2	Ultimaker 3D Print	NI / A	11/10	1	5.07	5.07	N/A
Print	Prototype v2		N/A	11/10	1	5.07	5.07	
		UW						
MakerSpace		Makerspace Bambu Labs						
Print	Prototype v3		N/A	11/13	1	4.5	4.5	N/A
	, 	UW	· ·					-
		Makerspace						
MakerSpace		Bambu Labs						
Print	Prototype v3	3D Print	N/A	11/14	1	4.96	4.96	N/A
		UW						
		Makerspace						
MakerSpace		Ultimaker 3D						
Print	Prototype v3	Print	N/A	11/15	1	8.16	8.16	N/A

Item	Description	Manufacture r	Part Number	Date	QTY	Cost Each	Total	Link
		UW						
		Makerspace						
MakerSpace Print	Prototype v4	Ultimaker 3D Print	N/A	11/17	1	10.08	10.08	N/A
		UW		11/1/	-	10.00	10.00	
		Makerspace						
MakerSpace		Ultimaker 3D						
Print	Test Fixture	Print	N/A	11/29	1	13.78	13.76	N/A
		UW						
MakarSpace	Final	Makerspace Ultimaker 3D						
MakerSpace Print	Prototype	Print	N/A	12/1	1	7.36	7.36	N/A
		UW	,	,				
	Multiple	Makerspace						
MakerSpace	Final	Ultimaker 3D						
Print	Prototypes	Print	N/A	12/8	1	11.6	11.6	N/A
		UW						
MakerSpace	Multiple Final	Makerspace Ultimaker 3D						
Print	Prototypes	Print	N/A	2/6	1	7.84	7.84	N/A
		UW						
	Prototype	Makerspace						
MakerSpace	Adjusted For							
Print	IM	Print	N/A	2/23	1	2.15	2.15	N/A
	Parts for	UW						
MakerSpace	Connection	Makerspace Ultimaker 3D						
Print	Mechanism	Print	N/A	2/26	1	2.8	2.8	N/A
		UW						
		Makerspace						
MakerSpace	Prototypes for Tosting	Ultimaker 3D		2/4	1	0 1	0 1	NI/A
Print	for Testing	Print	N/A	3/4	1	8.2	8.2	N/A
		UW Makerspace						
MakerSpace	Prototypes	Ultimaker 3D						
Print	for Testing	Print	N/A	3/4	1	8.75	8.75	N/A

Upcoming Team and Individual Goals:

Team:

The team will finish analyzing the testing data to begin finalizing the journal article. Additionally, the team will finish the packaging and instructions for use of the device.

Individual:

- Jenna:
 - ➤ Create template for final poster presentation
 - > Assembly final packing based on the instructions created by Anabelle
 - ➤ Update final executive summary based on feedback.
- ♦ Eva:
 - Begin final poster draft, trying to make room for new testing information and the business model
 - > Edit executive summary based on feedback from Prof. Puccinelli
 - > Help Anabelle with creating instruction manual for how to use the device
- Tevis:
 - > Start analyzing the testing data from retirement community
 - ➤ Begin working on poster presentation items
 - > Work on finalizing and improving packaging
- Tommy:
 - Design and layout instructions for use
 - Create packaging branding and labels
 - ➤ Make changes to executive summary
 - ➤ Make changes to adjustable prototype
- ✤ Kasia:
 - Create label for packaging
 - ➤ Edit and finalize executive summary
 - Reach out to connections from ShaRx Tank about patenting / licensing opportunities
- ✤ Anabelle:
 - Finish drawings for the instructions showing how to use the device and assemble these drawings in an understandable way to make an instruction manual.
 - ➤ Analyze the preference testing results

Timeline:

Task	Jan		Fe	eb				March	า		April				Мау	
	26	2	9	16	23	1	8	15	22	29	5	12	19	26	3	10
Project R&D																

Research	1	1											
Prototyping	1	1	1	1									
Testing					1	√	1	>	1	1			
Deliverables													
Progress Reports	~	1	1	1	1	1	1	1	1	1			
Prelim presentation			1										
Final Poster													
Meetings													
Client		1		1		~		1		1			
Advisor	1	1	1	1	1	~	~	~	1	1			
Website													
Update	~	1	1	1	1	~	1	1	1	~			

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 beth'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