BME Design: Progress reports

Title: Microvascular Channel Bioprinter shutoff valve

Date: 18 September 2025

Client: Dr. David Dean
Advisor: Dr. Paul Campagnola
Team:

- Dominique Gooden - *Team Leader*
- Steph Vigmond - *Communicator*
- Mahathi Karthikeyan - *BSAC*
- Sophie Speece - *BWIG*
- Ana Toscano - *BPAG*

Problem statement

Facilitate rapid switching between bioprinter input devices so that microchannels have rapidly decreasing diameter. Also come up with a shutoff mechanism to prevent excess fluid flow from valves.

Brief status update

The team met for a third time on Wednesday, September 17th. At this meeting, the team collaborated on the Product Design Specifications document.

The team submitted the Product Design Specifications paper on Thursday, September 18th.

The team will attend the Outreach Seminar required for BME 400 on Friday, September 19th

Difficulties / advice requests

N/A

Current design

In progress.

Materials and expenses

Item	Description	Manufac-turer	Mft Pt#	Vendor	Vendor Cat#	Date	#	Cost Each	Total	Link
Category 1										
									$0.00	
									$0.00	
Category 2										
									$0.00	
									$0.00	
								TOTAL:	**$0.00**	

Major team goals for the next week

Next week's individual goals

- Dominique
  - Work on research for more entries/communicate with the team on what I missed.
  - Catch up on missed work
- Ana
  - Research the mechanism used by the lab
  - Research specifications of materials in use
  - Get a better sense of the timeline and milestones
- Sophie
  - Narrow down research
  - Continue brainstorming solutions and items for the design matrix
  - Update team website with progress report and PDS
- Steph
  - Research potential solutions & come up with some design ideas
  - Understand mechanism used by lab better - look at Solidworks & STL files
  - Continue to work on research
- Mahathi
  - Come up with design ideas for improved valves in device
  - Continue on research to get a grasp on device

Timeline

Task	Aug	September				October					November				Dec	
	26	4	11	18	25	2	9	16	23	30	6	13	20	27	4	11
Project R&D																
Empathize																
Background…																
Prototyping																
Testings																

BME Design: 200, 300, 301, 400 and 402

Deliverables																
Progress Reports		X	X	X												
Prelim presentation																
Final Poster																
Meetings																
Client			X													
Advisor		X	X													
Website																
Update		X														

Filled boxes = projected timeline
X = task was worked on or completed

Previous week's goals and accomplishments

- Ana
  - Researched competing designs
  - Wrote part of first draft PDS
- Dominique
  - Began drafting research entries into labarchives
- Steph
  - Researched some preliminary design ideas
  - Worked on PDS
  - Communicated with client for some information & meeting times
- Sophia Speece
  - Continued research on the background device and began brainstorming potential solutions
  - Wrote assigned sections of PDS
- Mahathi
  - Did background research on the device including how the initial device looks like and how to improve the valve functions
  - Finished assigned section of PDS

Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Mahathi	9/14 9/15	Did background research for device Worked on PDS and design ideas			
Steph	9/12 9/14 9/17	Worked on research entries Worked on PDS Researched design ideas Worked on research entries	1 2 2	5	8
Dominique	9/12	Began drafting 1 research entry into	1		

	9/14	labarchives Worked on PDS and created progress report 2	2		
Sophie	9/17 9/18	Continued research Wrote assigned sections of PDS Finalized PDS, reformatted, and inserted bibliography	1 1	1 2	2 3
Ana	09/15	Worked on first draft PDS Researched competing designs Estimated costs Updated lab archives	3	3	3