

BME Design: Progress reports

Title: Microvascular Channel Bioprinter shutoff valve

Date: 29 January 2026

Client: Dr. David Dean

Advisor: Dr. Paul Campagnola

Team:

- Dominique Gooden - *Co-Team Leader*
- Steph Vigmond - *Communicator*
- Mahathi Karthikeyan - *formerly BSAC; now Co-Team Leader*
- 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

Team is currently preparing their preliminary presentation and establishing revised project goals for the Spring 2026 semester.

Additionally, due to scheduling conflicts in all team members schedules, there will be no BSAC role held within the team.

Difficulties / advice requests

N/A

Current design

See design matrix. In progress.

Materials and expenses

Item	Description	Manufacturer	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
 - Focus on brainstorming improvements for clamp design idea and possibility of incorporating sensor
 - Continue research on clamps
 - Make prototyping plan with Ana
 - Figure out where to order solenoid actuators
- Ana
 - Complete assigned section of prelim presentation
- Sophie
 - Complete assigned sections of preliminary presentation
- Steph
 - Continue research based on meeting with Client on Friday
 - Complete assigned sections of preliminary presentation
- Mahathi
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Timeline

Task	Jan	February				March				April					May
	29	5	12	19	26	5	12	19	26	2	9	16	23	30	7
Project R&D															
Empathize															
Background...															
Prototyping															
Testings															
Deliverables															
Progress Reports															
Prelim presentation															
Final Poster															

Meetings															
Client															
Advisor															
Website															
Update															

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

Previous week's goals and accomplishments

- Ana
 - Met with the whole team to discuss points for this semester.
- Dominique
 - Refined a potential design idea for clamp mechanism
 - Completed assigned section of preliminary presentation
- Steph
 - Met with team
 - Reached out & set up first meeting of the semester with client
 - Began preliminary research on linear actuators
- Sophia Speece
 - Met with team
 - Began considering improvements to current design
- Mahathi
 - Met with the whole team to discuss points for this semester.
 - Started research on linear actuator

Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Mahathi	1/27 1/28	-team meeting - Research on linear actuators			
Steph	1/27 1/28	- team meeting - Preliminary research on linear actuators	0.5 1	1.5	1.5
Dominique	3 Feb 2-3 Feb 1-5 Feb	Team meeting -Refined design idea for clamp mechanism Worked on prelim presentation	0.5 1.5 0.5	2.5	5
Sophie	1/27	team meeting	0.5	0.5	0.5
Ana	1/27	team meeting	0.5	0.5	0.5