

# BME Design: Progress reports

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**Title:** Microvascular Channel Bioprinter shutoff valve

Date: 5 February 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

## 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
<b>Category 1</b>										
									\$0.00	
									\$0.00	
<b>Category 2</b>										
									\$0.00	
									\$0.00	
								<b>TOTAL:</b>	<b>\$0.00</b>	

## 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
  - Look into journals that would be applicable for our paper
  - Write test protocols for clamp
- Sophie
  - Begin IRE improvement fabrication
  - Investigate appropriate journal databases for team paper
- Steph
  - Look into journals that would be applicable for our paper
  - Continue research on newer aspects of project this semester
  - Start with prototype plan
- Mahathi
  -

### Timeline

Task	Jan	February				March				April					May
	29	5	12	19	26	5	12	19	26	2	9	16	23	30	7
<b>Project R&amp;D</b>															
Empathize															
Background...	X	X													
Prototyping															
Testings															
<b>Deliverables</b>															

Progress Reports	X	X													
Prelim presentation															
Final Poster															
<b>Meetings</b>															
Client															
Advisor	x														
<b>Website</b>															
Update	X	X													

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

## Previous week's goals and accomplishments

- Ana
  - Worked on preliminary presentation
  - Created a good timeline for the semester
- Dominique
  - Refined a potential design idea for clamp mechanism
  - Completed assigned section of preliminary presentation
- Steph
  - Worked on preliminary presentation
  - Met with team to be on same page for presentation
- Sophia Speece
  - Completed assigned sections of preliminary presentation
  - Researched material alternatives to Biomed Clear Resin for the IRE in order to prevent leakage
- Mahathi
  - Completed section for the presentation
  - Researched Raspberry Pi uses on Voron

## Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Mahathi	2/03	- Worked on Presentation slides	2	2	2
Steph	2/03 2/05	- Team meeting & work on presentation - Work on & practice presentation	1.5 1.5	3	4
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	02/03  02/04 02/05	Preliminary presentation and material design matrix work Preliminary presentation work Preliminary presentation work, including	1  0.5 1		

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

		formatting and citations		2.5	3.5
Ana	02/03	Worked on preliminary presentation Determined the timeline for the semester	2	2	2.5