

BME Design: Progress reports

Title: Microvascular Channel Bioprinter shutoff valve

Date: 19 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

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										
	Flexible 80A IRE print					2/18/26	1	3.06	\$3.06	
	CEVIC locking mechanism					2/18/26	1	0.32	\$0.32	
	CEVIC locking mech - updated					2/19/26	1	0.24	\$0.24	
Category 2										
									\$0.00	
									\$0.00	
								TOTAL:	\$3.62	

Major team goals for the next week

Next week's individual goals

- Dominique
 - Work on IRE improvements
 - Work on assigned prelim section
- Ana
 - Work on assigned prelim section
 - See progress simulation
- Sophie
 - Finish preliminary report
 - Test new IRE and locking CEVIC
- Steph
 - Finish preliminary report
 - Print out current CEVIC attachment and prototype some physical modifications
- Mahathi
 - Finish preliminary report
 - Test arduino and make adjustments

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...	X	X													
Prototyping															

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

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

Previous week's goals and accomplishments

- Ana
 - Worked on preliminary report
 - Research on scientific journal selected
- Dominique
 - Researched journals and worked on prelim report; perused necessary requirements for the report on the coursepage
- Steph
 - Worked on preliminary report
 - Participated in modeling updates to CEVIC and holder
- Sophie Speece
 - Modeled a new locking mechanism for the CEVIC device
 - Printed the new CEVIC and anew IRE out of flexible 80A resin
- Mahathi
 - Worked on preliminary research on Journal article
 - Met with team on wednesday and got a brief timeline for electronics in the project

Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Mahathi	2/16 2/19	Meeting with Anna Preliminary research on Journal Article	2 1	3	9
Steph	2/18 2/19	Met with Sophie to work on CEVIC design changes Worked on preliminary report	2 1	3	9
Dominique	2/19	Worked on prelim report and researched more journals			>5

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

Sophie	2/18	CEVIC 3D modeling and printing	3	3	8.5
Ana	2/20 2/19	Worked on preliminary report Research on scientific journal selected	2 1.5	3.5	9