

BME Design: Progress reports

Title: Microvascular Channel Bioprinter shutoff valve

Date: 12 March 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	Manufac-turer	Mft Pt#	Vendor	Vendor Cat#	Date	#	Cost Each	Total	Link
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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	
	Updated servo & CEVIC holder					2/26/26	1	0.15	\$0.15	
Category 2										
									\$0.00	
									\$0.00	
								TOTAL:	\$3.77	

Major team goals for the next week

Next week's individual goals

- Dominique
 - Resume testing with Mahathi
 - Plan team wide testing dates
 - Research testing limit quantitative metrics to compare
- Ana
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- Sophie
 - Complete new print of locking CEVIC without channels being filled in
 - Complete secure holder for the Servo
 - Complete testing for both electrical mechanical components
- Steph
 - Print more CEIVC & update holder
 - Make a plan for integrated testing
- Mahathi
 - Compile Testing information
 - Do more research on improving motor function
 - Research quantitative metrics

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

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

Previous week's goals and accomplishments

- Ana
 - Created tests for integration
 - Decided on circuit topology
 - Met with Mahathi and dominique for testing
- Dominique
 - Updated testing protocols with Mahathi and Ana
 - Brainstormed new testing objectives and metrics
- Steph
 - Looked into CEVIC and KSMs printing incorrectly
 - Updated model of holder
- Sophie
 - Problem solving for the filled in CEVIC prints
 - 3D modeling of CEVIC-Servo connector with linear actuator attachment capability
- Mahathi
 - Met with Ana and Dominique finalized testing protocols
 - Created Code for testing

Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Mahathi	3/10 3/11	Met with Dominique and Ana Code	1 2	1 2	15
Steph	3/12	Met with Sophie for printing issues & modeling	3	3	19.5
Dominique	3/10	Met with Mahathi and Ana	1	1	
Sophie	3/12	met with Steph to problem solve print issues and 3D modeling	3	3	16.5

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

Ana	03/10 3/11	Meeting with Mahati and Domenique Finalizing the integration testing	0.5 1	1.5	14
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