

**BME 400 Weekly Progress Report**  
Team #31: Microscope Cell Culture Incubator

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Advisor: Professor Mitch Tyler  
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Progress Report Period: Tuesday, January 17th - Tuesday, January 31st

### **Project Overview**

Live cell imaging systems provide a controlled environment for cells to continue to live in while imaging is performed. Current live cell imaging chambers that are compatible with a standard inverting microscope are expensive and do not perform well with small culture vessels such as microfluidic devices. The team's goal is to design a low-cost incubator for use on a microscope that can sustain cell life while imaging is performed on a variety of cell-culture platforms.

### **Restatement of Second Semester Team Goals**

- Further develop the prototype so that it is user friendly and readily available for extensive testing
- Conduct further testing and systems validation of the model
- Produce comprehensive written report

### **Summary of Team Accomplishments**

- Trevor (BPAG): Researched power supplies and found some possible options.
- Steve (Communicator): Conducted preliminary market research, contacted Kevin Eliceiri about marketability of our design.
- Jenny (BWIG): Developed new prototype plan and discovered possible modeling solution, researched improvements for incubator material, updated PDS
- Jack (Leader): Developed a new project timeline for this semester, created the LabArchives notebook and instituted parliamentary procedure to our meetings
- Peter (BSAC): Attended BSAC meeting, found potential new CO2 sensor and am currently in conversations with vendor. Began designing tests for current systems to evaluate temperature and humidity.

### **Summary of Design Accomplishments:**

## Activities

Person	Date	Activity	Time (hr)	Weekly Total (hrs)	Semester Total
Team	1/20/17	Team meeting	1.0	3.5	3.5
	1/25/17	Advisor meeting	1.0		
	1/27/17	Team meeting	1.0		
	1/27/17	Client meeting	.5		
Trevor	1/25/17	Power Supply research	1.0	1.0	1.0
Steve	1/31/17	Market Research, email Kevin Eliceiri	0.75	0.75	0.75
Jenny	1/25/17	Incubator Materials Research	0.5	1.75	1.75
	1/30/17	Prototype planning and thermal modeling software	0.75		
	1/31/17	Update PDS	0.5		
Jack	1/20/17	Created project timeline and semester goals	1.0	1.75	1.75
	1/30/17	Divide parts of PDS	.25		
	1/31/17	Start with circuit diagram	.5		
Peter	1/27/17	Reviewing test data from last semester	0.5	1.75	1.75
	1/30/17	Researched CO2 sensors	1.0		
	1/31/17	Continued work with CO2 sensor vendor	.25		

## Team Goals for This Semester

- Optimize feedback systems, including when the chamber is opened



PDS		x															
Mid-semester Powerpoint																	
Mid-semester Report																	
Patenting																	
Final Poster																	
Final Report																	
Meetings																	
Team	x	x															
Advisor		x															
Client		x															
Website																	
Updates	x	x															

Colored boxes are anticipated work. X's indicate progress or completion.

**Expenses to date for second semester**

- N/A