

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

Client: Dr. John Puccinelli
Advisor: Professor Mitch Tyler
Team: Jack McGinnity - mcginnity@wisc.edu (Leader)
Trevor Zarecki – tzarecki@wisc.edu (BPAG)
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Peter Hartig – phartig@wisc.edu (BSAC)

Progress Report Period: Wednesday, February 8th - Wednesday, February 15th

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): Continued efforts to put the circuit on a single power source.
- Steve (Communicator): Met with Kevin Eliceiri on Market potential, emailed Glass shop, continued Market Research
- Jenny (BWIG): Collected thermal gradient images, preliminary presentation slides
- Jack (Leader): Worked on the circuit with Trevor and also began PCB design
- Peter (BSAC): Worked on CO2 sensor calibration. Worked on prelim presentation. Looked into alternative methods of measuring heat gradients.

Summary of Design Accomplishments:

Activities

Person	Date	Activity	Time (hr)	Weekly Total (hrs)	Semester Total
Team	2/10/17	Team design session	4.0	4.0	8.5
Trevor	2/13/17	Power supply troubleshooting	1.0	1.5	5.25
	2/14/17	Voltage Regulator Research	0.5		
Steve	2/11/17	Market Research	2.0	3.00	5.25
	2/14/17	Meeting with Kevin Eliceiri	1.0		
Jenny	2/13/17	Updates to the preliminary presentation	0.75	1.0	4.5
	2/14/17	Website Updates	0.25		
Jack	2/13/17	Split up deliverables	0.25	2.25	5.25
	2/15/17	PCB work	1.0		
	2/14/17	Work on user interface- LCD screen	1.0		
Peter	2/13/17	Methods of calculating heat gradients	1.0	1.0	4.75

Team Goals for Next Week

- Complete upcoming deliverables
- Complete the circuit with the power supply

Individual Goals

- Trevor: Order a voltage regulator, get the power supply to work.
- Jenny: Prepare for preliminary presentations and deliverables, plan for new prototype design
- Peter: To come a final decision on prototyping and heating as well as the CO2 sensor we will order

Meetings																	
Team	x	x	x	x													
Advisor		x		x													
Client		x															
Website																	
Updates	x	x	x	x													

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

- Expenses to date for second semester**
- Multi-Output AC DC Converter: \$28.48
 - 15Ohm 2W Resistors (2): \$0.40
 - 36Ohm 5W Resistors (2): \$1.12
- Total: \$30.00