

Calibrated Eye Dropper

Week 8 & 9: March 13, 2009 – March 26, 2009

Team: Sarah Switalski – Co-Leader
Michelle Tutkowski – Co-Leader
Brooke Sampone – Communicator
Jim Mott – BWIG
Eamon Bernardoni – BSAC

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Problem Statement:

A lab in the Department of Ophthalmology and Visual Sciences needs a device to accurately and efficiently deliver 5 μ L drops of experimental drugs into the cornea of the eye for glaucoma therapy testing in animals. Currently, the client uses standard micropipettes which deliver exactly 5 μ L drops, but this method is time consuming, poses a danger to the safety of the animal and makes drop placement difficult. The objective is to optimize accuracy, efficiency, and animal safety in optical drug delivery.

Previous Week's Goals:

- Finalize dimensions of Eppendorf clip design
- Decide on location of clip on body of pipette
- Research and order pipette piston, spring, and other commercially available pipette parts
- Obtain Eppendorfs and micropipette tips
- Research and decide on material for fabricating Eppendorf clip and pipette casing

Week 8 & 9 Activities:

Individual	Activity	Time (hours)	Weekly Total (hours)	Overall Total (hours)
Michelle	Independent	4.00	6.50	35.25
	Team Meeting	2.50		
	Client Meeting	0		
Eamon	Independent Work	3.00	5.50	47.50
	Team Meeting	2.50		
	Client Meeting	0		
Sarah	Independent Work	3.00	5.50	39.25
	Team Meeting	2.50		
	Client Meeting	0		
Brooke	Independent Work	5.50	8.00	41.50
	Team Meeting	2.50		
	Client Meeting	0		
Jim	Independent Work	1.50	4.00	39.75
	Team Meeting	2.50		
	Client Meeting	0		

Summary of Accomplishments:

The team researched and discussed the possibility of working with the commercially available miniFIX micropipette instead of creating a unique miniaturized micropipette. Two miniFIX micropipettes were ordered from Dynalab. The team decided to order Ultra Precision Compression Springs 7/8" in length from McMaster Carr. Individuals on the team completed training quizzes in order to gain shop certification.

Next Week's Goals:

Individual Goals:

- Brooke: Help format plan to miniaturized a micropipette, keep in contact with client
- Eamon: Help format plan to miniaturized a micropipette, BSAC
- Jim: Help format plan to miniaturized a micropipette, maintain website
- Michelle: Help format plan to miniaturized a micropipette
- Sarah: Help format plan to miniaturized a micropipette, prepare progress report

Team Goals:

- Reevaluate the dimensions of Eppendorf clip design with respect to the miniFIX micropipette
- Decide on location of clip on body of pipette
- Obtain Eppendorfs and micropipette tips
- Research and decide on material for fabricating Eppendorf clip
- Begin fabrication of the miniaturized micropipette

Difficulties:

The team experienced some delay because the shipping of the miniFIX micropipettes took longer than anticipated.

Project Schedule:

Tasks	Jan		Feb				Mar					Apr				May		
	23	29	6	13	20	27	6	11	13	20	27	3	10	17	24	1	6	8
Research	X	X	X	X														
Brainstorming	X	X	X	X	X													
PDS			X															
Prototype Design				X	X	X	X											
Prototype Fabrication								X	X	X								
Testing																		
Meeting with Client		X		X														
Team Meeting	X	X	X	X	X	X	X		X									
Presentation							X											
Written Reports								X										
Peer/Self Evaluations									X									

Expenses:

Two miniFIX micropipettes from Dynalab cost \$39.60.

One packet of three Ultra Precision Compression Springs from McMasterCarr cost \$7.70.