# Calibrated Eye Dropper

**Week 11:** April 3, 2009 – April 9, 2009


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

**Client:** B'Ann Gabelt
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**Problem Statement:**

A lab in the Department of Ophthalmology and Visual Sciences needs a device to accurately and efficiently deliver 5µL 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 5µL 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:**

- Perform trial testing with PMMA sample on donated pipette from client
- Begin fabrication of modified MiniFIX pipette
- Obtain Eppendorfs and micropipette tips
- Discuss testing procedure for prototype
- Discuss possible design for Eppendorf holder

**Week 11 Activities:**

| Individual | Activity | Time (hours) | Weekly Total (hours) | Overall Total (hours) |
|---|---|---|---|---|
| Michelle | Independent | 2.25 | 4.25 | 42.75 |
| | Team Meeting | 2.00 | | |
| | Client Meeting | 0.00 | | |
| Eamon | Independent Work | 2.00 | 4.00 | 56.50 |
| | Team Meeting | 2.00 | | |
| | Client Meeting | 0.00 | | |
| Sarah | Independent Work | 2.00 | 4.00 | 46.25 |
| | Team Meeting | 2.00 | | |
| | Client Meeting | 0.00 | | |
| Brooke | Independent Work | 1.50 | 3.50 | 50.00 |
| | Team Meeting | 2.00 | | |
| | Client Meeting | 0.00 | | |
| Jim | Independent Work | 2.50 | 4.50 | 57.50 |
| | Team Meeting | 2.00 | | |
| | Client Meeting | 0.00 | | |

**Summary of Accomplishments:**

The team began fabrication of the modified MiniFIX pipette by fitting a MiniFIX pipette inside a more ergonomic grip from a different pipette. Fabrication included hollowing out an area for the thumb lip of the MiniFIX pipette to rest while the MiniFIX is inside of the ergonomic grip. The team also contacted Greg Gion to obtain additional PMMA materials.

**Next Week's Goals:**

**Individual Goals:**

- Brooke: Prototype fabrication, keep in contact with client
- Eamon: Prototype fabrication, BSAC
- Jim: Prototype fabrication, maintain website
- Michelle: Prototype fabrication,
- Sarah: Prototype fabrication, prepare progress report

**Team Goals:**

- Continue fabrication of modified MiniFIX pipette
- Obtain hygienist polish containers for Eppendorf holder

- Research potential covers for Eppendorf holder
- Discuss testing procedure for prototype
- Work on the design and fabrication of a tip ejector modified to work with the MiniFIX

**Difficulties:**

There are no difficulties at this time.

**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 | X | X | | | | | | |
| Testing | | | | | | | | | | | | | | | | | | |
| Meeting with Client | | X | | X | | | | | | | X | | | | | | | |
| Team Meeting | X | X | 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.

The team received a trial sample of PMMA from Greg Gion.