Team 12: Week of February 20 – February 26

MATTHEW ESCHBACH
ROBERT STERLING NESBITT
JOSEPH OUELLETTE
SARAH ROBERGE
Project Overview

- Transducer Fabrication
- FEA Modeling
- Mouse Tooth, Jaw Extraction
- Microprocessor
- Ordered EBL transducers
- Sintered coated pellet
- Hydrophone tested transducer
  - not yet functional
- Began machining mouthpiece mold
Work Done
Sterling

Mouthpiece mold
Work Done:
Sterling, Matt, and Sarah

- Sintered pellets
- Gold palladium coated pellet
Work Done
Sterling, Sarah, Matt

Transducer

Sintered mouse pellets

Sintered and unsintered test pellets
Work Done: Matt
Work Done:
Sarah and Joe

- Continued contact with animal facility
  - Setting up training unsuccessful so far
- Practiced on dead mice with new forceps
  - Improved handling capability
  - Better for work in small mouths
Talked to Jim Macione about our circuit.
- Found that there were a lot of problems with the set-up that we were using before.
- Needs to be overhauled.
- Jim said to research half bridges, MOSFETS, Class D audio amplifiers, and pin drivers to work on building a new circuit.
Work Done:
Joe

- Need two MOSFETS set up in a half-bridge to control the circuit correctly.
- When the Drive is on the Flywheel is turned off, and vice versa

http://www.4qd.co.uk/fea/half.html
Class D, or switching, amplifier.

Incorporates half bridges to amplify the signal.

Usually used for audio, but can also be used for ultrasound.
Future Work

- **Sterling**
  - Sinter, gold coat, pole and test transducers
  - Finish machining mouthpiece mold
  - Cut EBL transducers to size and get running with circuit for mouse testing

- **Joe**
  - Talk to Jim to work out the circuit – will take a few weeks to order the correct parts and put them together.
  - Practice tooth removal on mice.
  - Start testing soon.
**Future Work**

- **Sarah**
  - Continue experimental setup with animal facility
  - Practice on live mice
  - Long term: begin animal experimentation

- **Matt**
  - Focus on modeling mouse maxilla
    - Easier geometry
Hours Worked

- Sterling – 24
- Matt – 12
- Sarah – 11
- Joe – 11
- Budget – On track