

## **Olfactory Conditioning Apparatus for Fruit Flies**

**Week 7** – March 12 to March 25, 2009

**Team Members:** Rob Bjerregaard – Team Leader  
Graham Bousley – Communicator  
Chuck Donaldson – BSAC  
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### **Problem Statement:**

The aim of this project is to improve or completely re-design a device that is currently used to test fruit flies' olfactory sense, memory, and ability to learn. The current device is producing some inaccurate results because the fruit flies experience changes in air pressure and airflow. Airflow and pressure change need to be kept at a minimum while odors are introduced and cleared from the device.

### **Restatement of Last Week's Goals:**

The team's goals from last week were to test the current model for airflow and to begin acquiring necessary parts.

### **Summary of Accomplishments:**

- Center sliding piece Solidworks design is now compatible with “air-pushing” layout.
- Necessary tubing and connection components have been picked out, but not purchased yet.

### **Team Goals:**

- Talk to client about imminent purchases
- Analyze odor sources and mineral oil containers
- Order center sliding component
- Run smoke tests on current device – document on film
- Purchase tubing components
- Continue research on shocking and pressure monitoring

**Activities:**

Rob	3.16.2009	Begin revision of center sliding component on Solidworks	1 hr	4 hr
	3.23.2009	Team meeting – divide tasks	1 hr	
	3.23.2009	Finish revision of center sliding component on Solidworks	2 hr	
Graham	3.23.2009	Team meeting – divide tasks	1 hr	3 hr
	3.25.2009	Individual Research	2 hr	
Chuck	3.22.2009	Individual Research	1 hr	2 hr
	3.23.2009	Team meeting – divide tasks	1 hr	
Scott	3.17.2009	Preliminary smoke collection, begin looking for available hardware online and in local hardware stores	2 hr	7.5 hr
	3.18.2009	Continue searching for available parts in local stores	1.5 hr	
	3.23.2009	Team meeting – divide tasks	1 hr	
	3.24.2009	Researched specific parts, connections, and feasibility at local hardware store “Fastenal,” deduced price estimate for tubing assembly, came up with 2 basic layouts	3 hr	

**Difficulties:**

(Same as previous progress report):

“The most difficult portions of constructing the device will be incorporating pressure gauges, possibly displaying pressures in real-time and recording the data. *This is not a design requirement*, but in an attempt to make a more versatile apparatus, the design team feels it is worthwhile to include this component as a secondary goal.

“Another difficult portion of construction will be etching in a permanent electric grid. The team really needs to focus on this aspect of the design.”

**Project Timeline:**

	February				March				April				
Tasks	4	11	18	25	4	11	18	25	1	8	15	22	29
Project research													
Brainstorming													
PDS													
Prototype design													
Prototype building													
Actual device design													
Ordering													
Expected shipping													
Device manufacturing													
Testing													
Re-designing													
Re-testing													
Presentation													
Progress report													
Website													

**Expenses:**

Nothing has been purchased yet, but tubing and connections have been estimated to cost just under \$200.