**EWH Aspirator**

*Client: Dr. John Webster*

*Team Members: Lucas Vitzthum (Leader)*

*Tyler Lark (BSAC)*

*Nick Harrison (Communications)*

*Fan Wu (BWIG)*

*April 21\(^{th}\) - April 27\(^{th}\)*

*Progress Report #12*

**Problem Statement**

The objective of this project is to design a suction machine that can be manufactured from locally available materials with the ability to run off batteries, electrical power (when available) or human power. This device should provide the broadest range of possible applications while still remaining under the 100$ price limit.

**Last Week’s Goals**

- Obtain rheostat/ voltage controller
- Determine means to test prototype. (flow rate, vacuum range)
  Possibly contact Jim Davis in Chem Dept. about Lab View?
- Finish Diaphragm prototype
- Construct sphignomonometer bulb prototype?

**Summary of Accomplishments**

Found fittings to connect tubing to aspirator, receptacle and hand piece.

Researched finding an alternative motor with slower RPM. Determined necessary resistance to control motor speed. Purchased power resistors from ECE parts shop. (10 Ohm light bulbs will be used in field if resistors are absent)

Built the Aspirator! Connected tubing to receptacle and aspirator. Glued on diaphragm made from balloons and lab gloves. Initially pilot studies looked positive (aspirator was able to suck up water of counter).

**This week’s Goals**

- Test pressure/ flow rate with Jim Maynard on Monday
- Mount aspirator on Friday at 2:00
- Write and print poster by Tuesday next week
**Project Timeline**

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/26</td>
<td>Form team, contact client, assign team roles, set up client meeting</td>
</tr>
<tr>
<td>2/2</td>
<td>Literature search, create problem statement, begin PDS</td>
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<tr>
<td>2/9</td>
<td>PDS, brainstorming, begin developing designs</td>
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<tr>
<td>2/16</td>
<td>Brainstorming</td>
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<tr>
<td>2/23</td>
<td>Decide on 3 design alternatives, prepare for mid-semester presentation</td>
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<tr>
<td>3/2</td>
<td>Finish Mid-Semester Presentation</td>
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<tr>
<td>3/9</td>
<td>Present, work on written report</td>
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<tr>
<td>3/16</td>
<td>Hand in written report/PDS/ design notebooks. Decide on final design</td>
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<tr>
<td>3/23</td>
<td>Work on final design</td>
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<tr>
<td>3/30</td>
<td>Work on final design</td>
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<tr>
<td>4/6</td>
<td>Spring Break Start EWH proposal</td>
</tr>
<tr>
<td>4/13</td>
<td>Work on final design/ Begin testing Send EWH proposal to client and advisor</td>
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<tr>
<td>4/20</td>
<td>Test prototype Finish EWH proposal</td>
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<tr>
<td>4/27</td>
<td>Finish Testing prototype, begin preparing poster and paper</td>
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<tr>
<td>5/4</td>
<td>Final Poster Presentation</td>
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<tr>
<td>5/9</td>
<td>Hand in final written report and notebooks</td>
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<tr>
<td>5/11</td>
<td>Final meeting with advisors</td>
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**Activities**

Lucas:
- Found fittings for connecting tubing to aspirator, receptacle and hand piece. (2.5 hrs)
- Met with Amit in BME 310 lab to determine necessary resistance to slow motor (6 hrs)
- Attended Weekly Meeting and finished constructing aspirator (3.5 hrs)

**Total: 12 hours**

Fan:
- Attended Weekly Meeting and finished constructing aspirator (3.5 hrs)
Met with Amit in BME 310 lab to determine necessary resistance to slow motor (2 hrs)

**Total: 5.5 hours**

**Tyler:**
Attended Weekly Meeting and finished constructing aspirator (3.5 hrs)
Purchased power resistors from ECE parts shop (.5 hr)
**Total: 4 hours**

**Nick:**
Found fittings for connecting tubing to aspirator, receptacle and hand piece. (2.5 hrs)
Met with Amit in BME 310 lab to determine necessary resistance to slow motor (6 hrs)
Attended Weekly Meeting and finished constructing aspirator (3.5 hrs)
Contacted Jim Davis about pressure testing (.5 hrs)

**Total: 12.5 hours**