**EWH Aspirator**

*Client: Dr. John Webster*

*Team Members:*  
  Lucas Vitzthum *(Leader)*  
  Tyler Lark *(BSAC)*  
  Nick Harrison *(Communications)*  
  Fan Wu *(BWIG)*

*Feb Mar 29- April 19 (Spring Break)*

*Progress Report #9*

**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**

- Decide on source of vacuum  
  - Talk to ME professors  
  - Investigate what sources will provide enough suction/flow rate  
- Start designing/fabricating one way valves  
- Begin writing EWH funding proposal.

**Summary of Accomplishments**

Individually researched a component of the aspirator. Everyone researched ways to turn rotation of the axle into translation of a piston.

Met for weekly meeting on Tuesday. Tyler shared his flapper valve prototype and everyone shared their research from the week. Finally came up with complete design idea!!

Met with Professor Fronzak, he was very helpful and informative. Suggested that a starting motor would be okay as long as we ran it at a low enough duty cycle. Described several ways to turn rotation into translational motion.

**This week’s Goals**
• Tyler & Nick- Meet up in Green Bay. Shop for windshield wiper apparatus and car battery
• Lucas & Fan- Meet it Minneapolis, purchase starting motor, flywheel.
• Everyone- Look for parts that can be used as: joints and pin connectors
• Keep in contact over spring break with findings

**Project Timeline**

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
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<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>
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<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:
- Researched available motors/duty cycles (.5 hr)
- Weekly Meeting (1.5 hrs)
- Met with advisor/attended lecture (1 hr)
- Met with Prof Fronzak (1 hr)

**Total: 4 hours**

Fan:
Met with Prof Fronzak (1hr)
Weekly Meeting (1.5 hrs)
Met with advisor/attended lecture (1hr)
**Total: 3.5 hours**

Tyler:
- Weekly Meeting (1.5 hrs)
- Created/ tested “flapper” prototype (.5 hr)
- Met with advisor/attended lecture (1hr)
**Total: 3.5 hours**

Nick
- Researched Piston/Flywheel design (.5 hr)
- Met with Prof Fronzak (1hr)
- Weekly Meeting (1.5 hrs)
- Met with advisor/attended lecture (1hr)
**Total: 4 hours**