**Heating Pad for MicroPET/CT Scanner**

**Week:** February 2 - February 8

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**Team:**  
Eric Printz – Team Leader  
Justin Schmidt – Communications  
Ryan Carroll – BWIG  
Ben Engel – BSAC

**Problem Statement**
During anesthesia metabolism slows down, which can lead to hypothermia and eventual death. For prolonged microPET or microCT scans, where animals are kept for an extended period of time under anesthesia, it is important to keep the animals at steady temperature. Currently heating lights are used to provide that; however they lead to non-uniform and poorly controlled temperature regulation. Therefore, we proposed to design a heating pad that could be used to provide controllable and steady temperature during prolonged scans. Because of the imaging requirements, the heating pad should not contain metal parts.

**Last Week’s Goals**
- Identify the main obstacles that we will have to overcome in our design  
- Research on potential design alternatives  
- Take a look at the microPET/CT scanner  
  - Record how large the opening in the scanner is as well as the ideal size for our device.  
- Write PDS

**Accomplishments**
- We each researched different topics to help with our overall understanding of the project and to help with the development of design alternatives. Each of us researched the following:  
  - Ryan-temperature related stuff  
  - Justin-pumps  
  - Ben microPET/CT and current devices
- Eric-alternatives to water as a heat source (perhaps some type of gel)
- We met with our client for the second time and got to see the microPET/CT scanner as well as take a tour of the radiation oncology and imaging parts of the hospital which was extremely interesting.
  - We determined that the size of the table that our device will sit on is approximately 1 ¾ inches wide with a curved bottom which dips down ½ inch below the top plane of the able.
  - The opening that the table slides through is 4 ¾ inches in diameter.
  - We will want to keep in mind that the mouse must be provided with anesthesia via a small device which the mouse’s nose sits in during the procedure.
- We also wrote the PDS and plan to post that on the website during class on Friday.

This Week’s Goals
- Discuss the research that everyone did.
- Start brainstorming on design alternatives in class.
- Research design alternative ideas.

Difficulties
- The main difficulty in designing this device is, not surprisingly, the small size requirements that the device has.

Team Effort

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<tr>
<th>Team Member</th>
<th>Accomplishments</th>
<th>Time (Hrs)</th>
<th>Running Total (Hrs)</th>
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<tr>
<td>Ryan Carroll</td>
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<td>Ben Engel</td>
<td>Class time, Client Meeting, Research</td>
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<td>Eric Printz</td>
<td>Class Time, Client Meeting, Research, Progress Report</td>
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<td>Justin Schmidt</td>
<td>Class Time, Client Meeting, Set Up Meetings, Research</td>
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## Project Schedule

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### WORK
- Brainstorming
- Research
- Designing Prototype
- Selecting Prototype
- Obtaining Materials
- Building Prototype
- Testing Prototype
- Modifications

### DELIVERABLES
- PDS
- Mid-Sem. Report
- Mid-Sem. Presentation
- Final Report
- Final Presentation
- Weekly Reports
- Notebooks

### MEETINGS
- Team Meetings
- Client Meetings
- Advisor Meetings
- BSAC Meetings

### OTHER
- Web Page
- Special Lectures

### Expenses to Date:
- No expenses to report at this time