Heating Pad for MicroPET/CT Scanner

Week: Oct 25th – Oct 31st

Client: Dr. Robert Jeraj
Dept. of Medical Physics
UW Medical School
Phone: 608-263-8619
Cell: 608-345-5378
Email: rjeraj@wisc.edu

Advisor: Dr. Brenda Ogle
2144 Engineering Centers Building
Phone: 608-265-8267
Email: ogle@wisc.edu

Team: Justin Schmidt – Team Leader
Eric Printz – Communications
Victoria Vasys - BWIG
Eric Bader – 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
- Make the power source for the heater
- Test the heat output at the end of the PVC connection by the Mouse House
- Put the wrap around tube together for the back of the Mouse House
- Cut the polyethylene platform for the Mouse House

Accomplishments
- Made power supply for heater
- Tested the heater with the nichrome
- Made the wrap around tube for the back of the Mouse House
- Cut the polyethylene platform for the Mouse House

This Week's Goals
- Make an alternative design for the heater
- Test the new heater design to make sure it works without malfunctioning

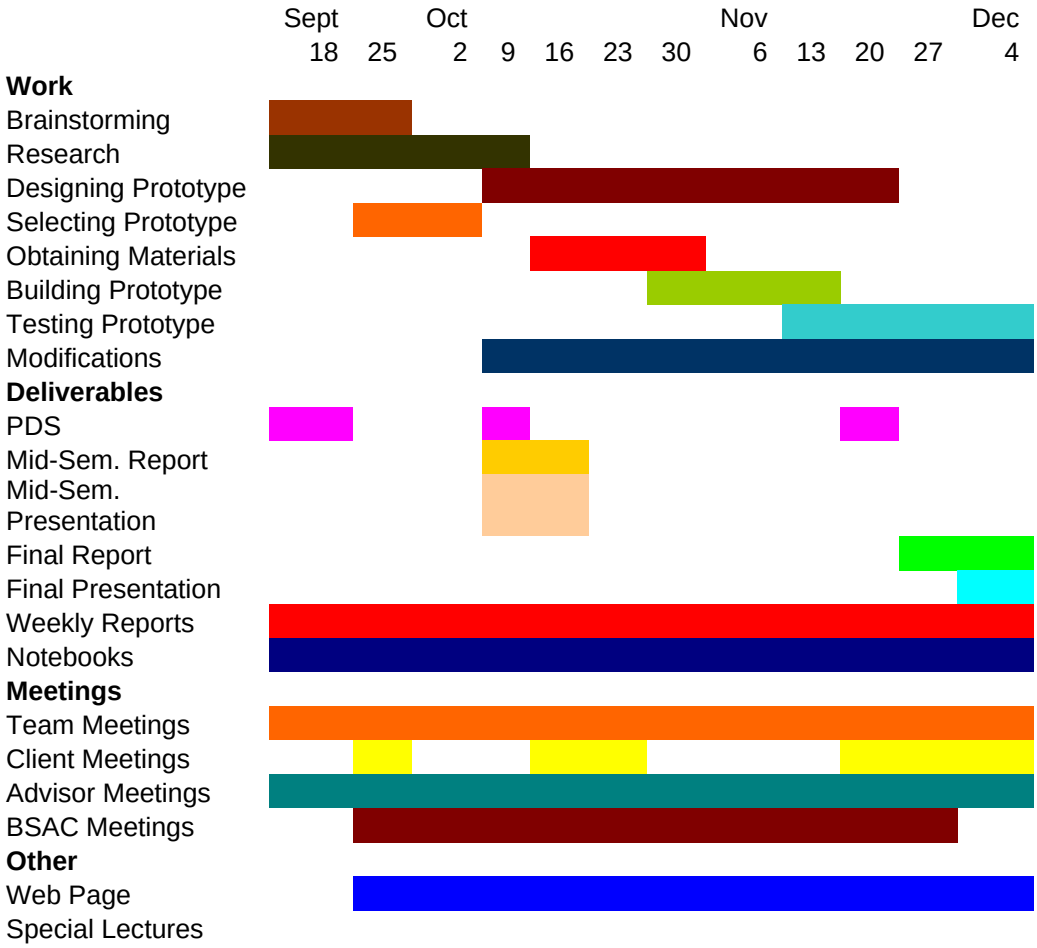
- Finishing putting together the Mouse House
- Decide on the material we're going to buy for the insulation to the Mouse House

Difficulties

The nichrome melted and we must come up with an alternative design for the heater

Team Effort

Team Member	Accomplishments	Time (Hrs)	Running Total (Hrs)
Victoria Vasys	Individual Work, Heat transfer eqns., Mid-semester presentation	4	27
Eric Bader	Individual Work, Solid works, Mid-semester presentation	4	27
Eric Printz	Individual Work, Design work, Mid-semester presentation	4	27
Justin Schmidt	Individual Work, Bought materials, Design work, Mid-semester presentation	4	27


Sept
Oct
Nov
Dec
18
25
2
9
16
23
30
6
13
20
27
4
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:

Item	Cost
Plastic Fusion Glue (Home Depot)	$3.90 + tax
2 PVC Tube Caps (Home Depot)	$2.40 + tax (for both, $1.20 each)
2in x 2ft PVC tube (Home Depot)	2.18 + tax
Low Density Polyethylene Sheet (0.09" thick) (SmallParts.com)	$2.70 + shipping
Low Density Polyethylene Sheet (0.125" thick) (SmallParts.com)	$3.15 + shipping
Polycarbonate Tubing (13/4" Outer Diam., 1/8" Wall, 24" long) (SmallParts.com)	$13.30 + shipping
Nichrome Wire	$12.03 (including tax and shipping)
Nuts and Bolts for Heater Construction	$0.59 + tax
Plastic Tubing	$5.72 + tax
Tubing Valves	$0.79 x 7 = $5.53 + tax
Spring for heater construction	$0.79 + tax
PVC for test scan	$3.00
Nylon screws, nuts, and high temperature wire couples (True Value)	$7.14
Additional tubing valves (Menards)	$6.66
Fish Tank Air Pump (Pet World Warehouse)	$33.78
TOTAL----------	$116.05 (including tax and shipping)