

Heating Pad for MicroPET/CT Scanner

Week: Nov 8th – Nov 14th

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Team: Justin Schmidt – Team Leader
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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

- Test the output of the heater by the entrance of the Mouse House
- Finish putting together the Mouse House
- Buy the insulation for the Mouse House

Accomplishments

- Tested the heat output at the entrance to the Mouse House
- Tested the heat output in the upper chamber of the Mouse House
- Bought the insulation for the Mouse House

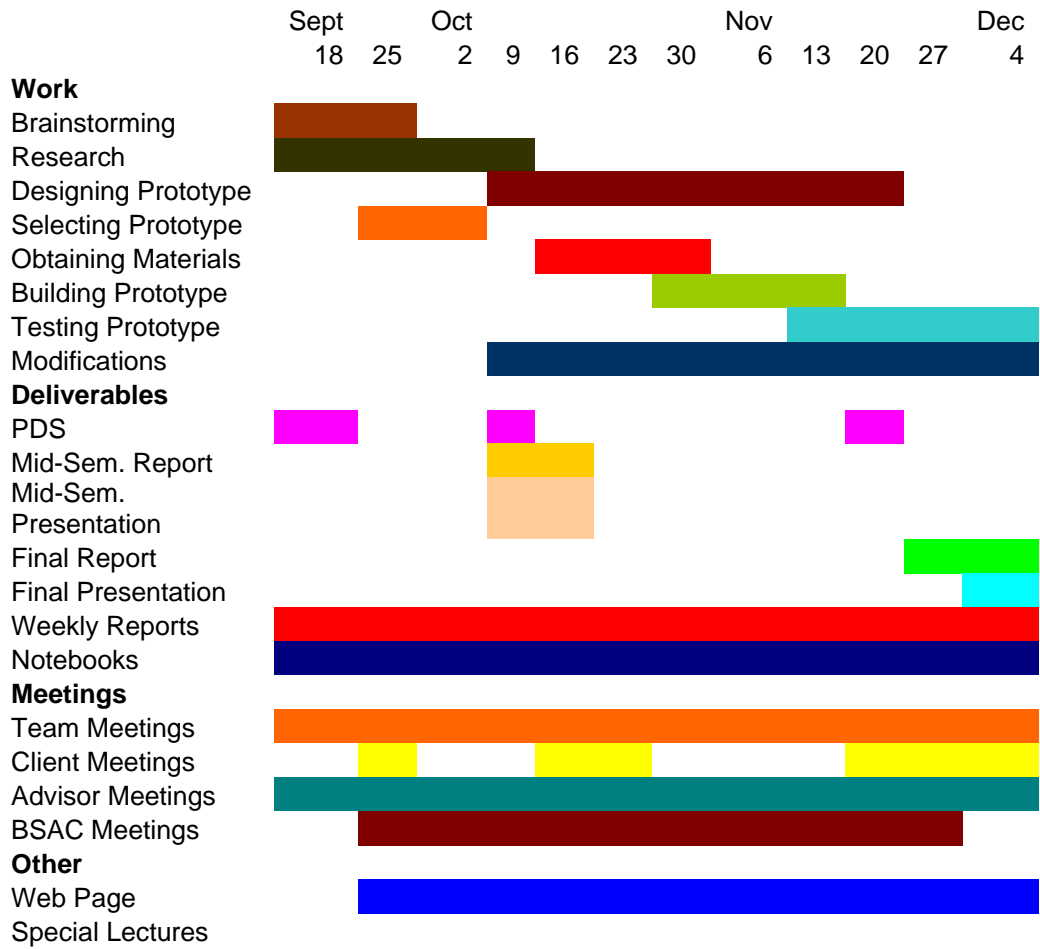
This Week's Goals

- Put on the insulation for the Mouse House once it arrives
- Buy insulation for the heater
- Test the heat output in the upper chamber with the insulation on
- Finish putting together the Mouse House

Difficulties

Team Effort

Team Member	Accomplishments	Time (Hrs)	Running Total (Hrs)
Victoria Vasys	Individual Work, Design work	4	35
Eric Bader	Individual Work, Design work	4	35
Eric Printz	Individual Work, Design work	4	35
Justin Schmidt	Individual Work, Bought materials, Design work	4	35



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 (1 3/4" 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)