

Heating Pad for MicroPET/CT Scanner

Week: Sept 27th – Oct 3rd

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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

- Find information on different polymers for the platform and tubing and order if possible
- Begin Solid Works design

Accomplishments

- We talked to Mahesh from the chemistry department to get information on a couple polymers we could use in our design
- We began working on the new heater. We bought a new casing for the heater and larger nylon screws.
- Began Solid Works design
- Ordered more nichrome wire for heater

This Week's Goals

- Find the polymers that Mahesh tells us to use online and order them

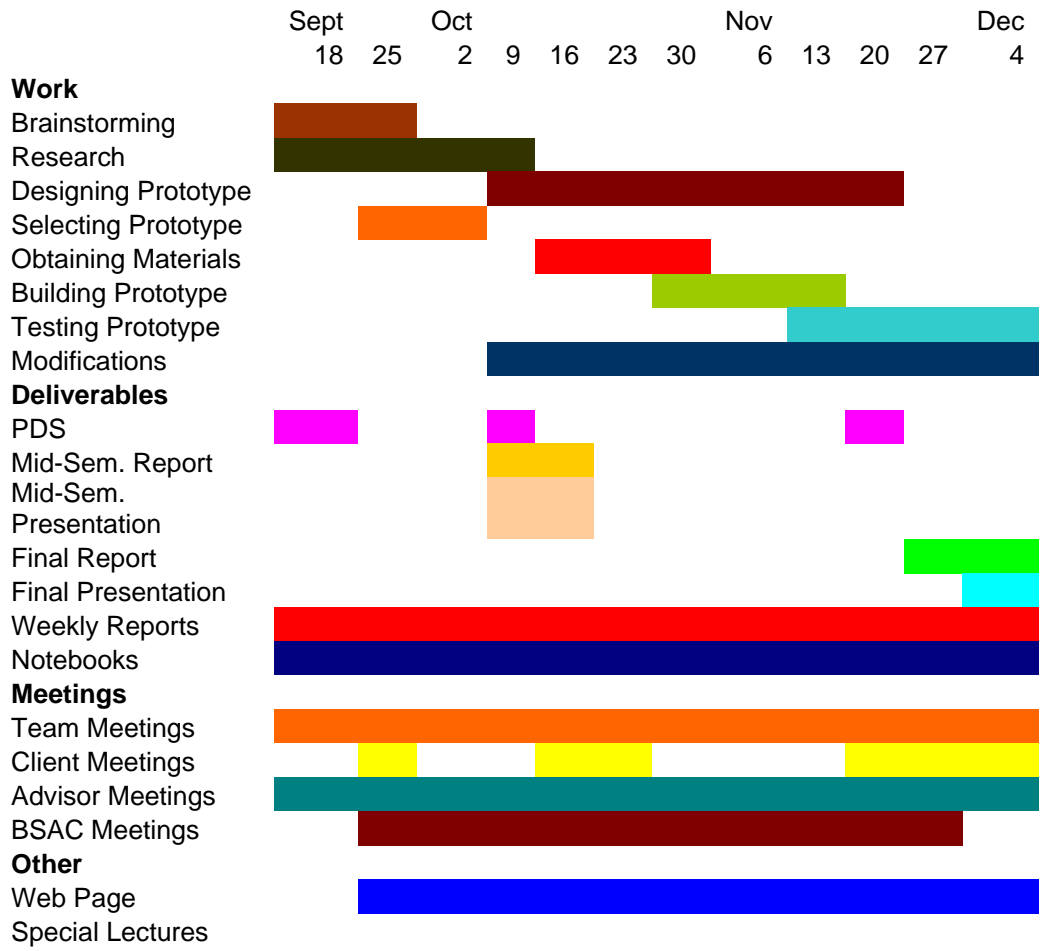
- Finish heater if nichrome comes in

Difficulties

No difficulties to note at this point.

Team Effort

Team Member	Accomplishments	Time (Hrs)	Running Total (Hrs)
Victoria Vasys	Individual Work, platform research	4	11
Eric Bader	Individual Work, solid works	4	11
Eric Printz	Individual Work, Heater work	4	11
Justin Schmidt	Individual Work, Bought materials, Heater work	4	11



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)