

## Heating Pad for MicroPET/CT Scanner

**Week:** Oct 12<sup>th</sup> – Oct 16<sup>th</sup>

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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

- Finish connecting the PVC between the heater and the Mouse House
- Finish the heater (put the nichrome on and glue the PVC to the cap)
- Get in contact with a professor that can find an insulation for the Mouse House
- Glue the PVC to the cap of the Mouse House
- Write the Mid-semester presentation and paper

### Accomplishments

- Put together the PVC between the Mouse House and heater
- Continued working on the heater
- Put together our Mid-semester presentation

### This Week's Goals

- Finish putting together the heater
- Test the heat output at the end of the PVC connection by the Mouse House

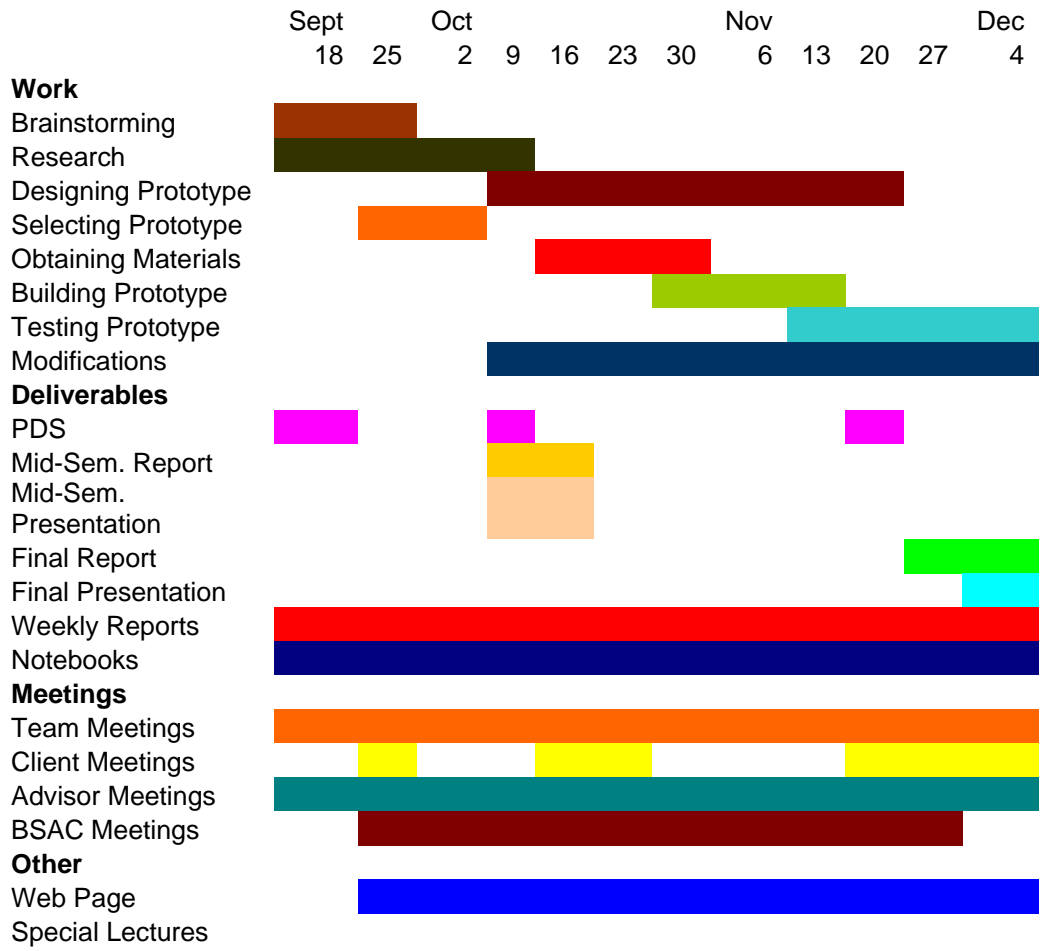
- Write the Mid-semester paper
- Put the wrap around tube together for the back of the Mouse House
- Cut the polyethylene platform for the Mouse House

**Difficulties**

Finding a thin insulation material for around the Mouse House

**Team Effort**

Team Member	Accomplishments	Time (Hrs)	Running Total (Hrs)
Victoria Vasys	Individual Work, Heat transfer eqns., Mid-semester presentation	4	19
Eric Bader	Individual Work, Solid works, Mid-semester presentation	4	19
Eric Printz	Individual Work, Design work, Mid-semester presentation	4	19
Justin Schmidt	Individual Work, Bought materials, Design work, Mid-semester presentation	4	19



**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)