

Heating Pad for MicroPET/CT Scanner

- Week:** April 20th – April 26th
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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

- Continue building our prototype

Accomplishments

- Installed the nichrome wire in the tube heater.
- Glued on tubing valves to the tube heater to attach our tubing to.

This Week's Goals

- Drill the last two holes in the tube heater for the electrical wires to go through.
- Drill the holes in the end caps of our mouse's tube to attach our tubing to it.
- Try to find some material to put on the end caps of the mouse's tube to fully seal the top chamber off from the bottom chamber of the mouse's tube.
- Create Poster
 - Practice Final Presentation

Difficulties

No difficulties to note at this point.

Team Effort

Team Member	Accomplishments	Time (Hrs)	Running Total (Hrs)
Ryan Carroll	Individual Work, glue tubing valves	6	52
Ben Engel	Individual Work, mount nichrome in tube heater	6	52
Eric Printz	Individual Work, mount nichrome in tube heater	6	52
Justin Schmidt	Individual Work, contact client	6	52

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)