Progress Report Week 8: Week of October 23rd to October 29th 2008

Liver Phantom for MRI Guided Trans-arterial Chemoembolization Simulation

Client: Dr. Wally Block Ph.D. University of Wisconsin – Biomedical Engineering Department
Advisor: Dr. William Murphy Ph.D. University of Wisconsin – Biomedical Engineering Department
Team: Benjamin Engel, Leader
Ryan Carroll, BWIG
Eric Printz, Communicator
Justin Schmidt, BSAC

Problem Statement

Liver cancer treatment can often involve higher, more targeted doses of chemotherapy if delivered directly to the liver. Professor Block's MRI lab is integrating capabilities to guide cancer treatment to the liver using magnetic resonance imaging. Current x-ray treatments significantly over treat the liver because while x-ray can be useful in the visualization of catheters, they can't visualize soft tissue, specifically the tumor. It is proposed to develop a liver phantom that will simulate the arterial vessels of the abdomen as well as the liver in an effort to simulate treatments and train interventional radiologists on the use of the new MRI guided techniques. The project will include adding flow capabilities through the use of a programmable fluid pump to simulate pulsatile flow.

Week 8 Goals

- Obtain parts to begin creating boc for our phantom
- Begin construction of vascular network using Tygon tubing (experiment with a wider variety of adhesives)
- Determine and purchase exactly which parts we need for fittings, and fluid manifold.
- Determine what method we want to use for sealing the box (top that latches on, fixed top, etc.)
- Solder relay switch board, create cables, and begin writing program to control relay switch

Week 8 Activities

Team Member	Accomplishments	Hours	Running Total (Hours)
Benjamin Engel	Team meeting, soldered relay switch board and made cabling, still need to determine best method of controlling (microcontroller or labview), parts research	6	28.5
Ryan Carroll	Team meeting, parts research	5	33
Justin Schmidt	Team meeting, parts research, extensive work to determine proper material for enclosure, looked into latching mechanisms	6.5	28
Eric Printz	Created mock enclosure for spatial positioning of vasculature, began experimenting with junction	6	28

	creation, determined need for some parts associated with vasculature, trip to hospital to measure current phantom		

Week 8 Accomplishments

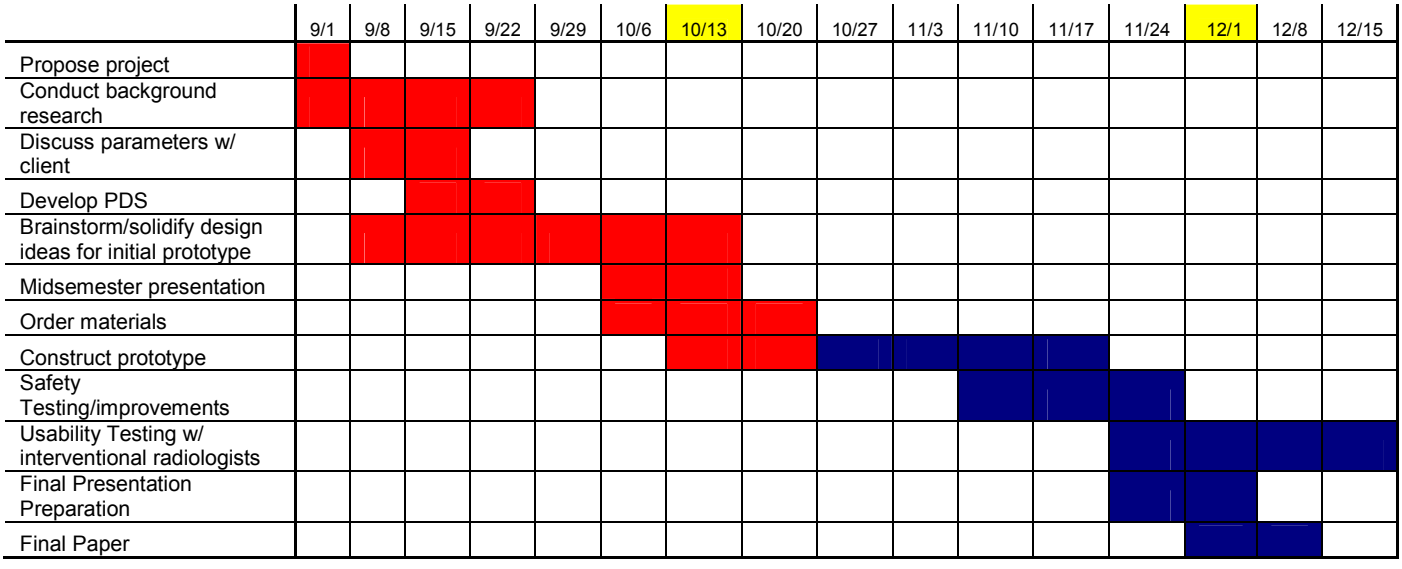
- Put together relay switch and power supply and control cabling (still need to write program)
- Determined and purchased material for enclosure
- Experimented with creation of vasculature
- Trip to hospital to further evaluate current phantom setup
- Created mock enclosure to begin working with

Week 9 Goals

- Write program for control of relay switch
- Experiment with relay switch and program and flow pump
- Continue vasculature creation
- Receive parts for creation of enclosure and begin construction
- Set up meeting with client to discuss lab space, and any difficulties

Schedule

	Scheduled
	Completed
	Monday of Required Presentation



Project Difficulties

Expenses