BME 402 - Heart Phantom

Progress Report Week 4 – 2/13/09 to 2/20/07

Team Members:
Jessica Hause (Co-Team Leader)
Erin Main (Co-Team Leader)
Lacey Halfen (Communicator)
Peter Strohm (BSAC)
Fan Wu (BWIG)

Client:
Orhan Unal
Advisor:
Willis Tompkins

Problem Statement:

This project consists of designing a heart phantom to be used for the initial testing of a new, solenoid-tipped catheter awaiting FDA approval. This catheter will ultimately be used to treat atrial fibrillation under MRI guidance. The transparent phantom will be used to test the maneuverability of the catheter under MRI guidance as well as the high resolution imaging capabilities in the vicinity of the solenoid tip. It will consist of clear tubing of various sizes representing tortuous vasculature leading to a single heart chamber. All "veins" must terminate at one end of the phantom and be sealed so they may be filled with a saline solution in either a static or dynamic state without risk of leaking.

Goals last Week:

- Order parts
- Finalize PDS
- Solidworks drawing of vasculature layout
- Drill holes into heart chamber
- Begin working on prototype for this semester once parts arrive

Summary of Accomplishments:

- Ordered parts
- Finalized PDS
- Created a solidworks drawing of the vasculature layout
- Submitted applications for shop passes
- Marked locations for holes to be drilled in the heart

Goals this Week:

- Begin working on prototype using parts that have recently arrived
- Test seal of plastic tubing within a drilled hole
- Drill holes in heart chamber

Project Difficulties:

- Obtaining shop passes has slowed our progress this week.

Activities:

Date	Person	Activity	Time Spent
	Individual	Edited PDS, submitted applications for shop	0.5 hr each
2/16/09	Team	Discussed the use of polycarbonate or flexible tubing through acrylic holes	1 hr
2/15/09	Team	Created solidworks drawing of vasculature	2 hr
2/19/09	Team	Marked location of holes to be drilled in heart	1 hr

Team Hours:

Weekly…….. 6.5 hrs
Total…….. 31.25 hrs

Project Timeline:

Jan. 18 - Jan.24		Project Selection	x
		Contact Client	x
Jan. 25 - Jan. 31		Individual Research	x
		Client Meeting	x
		Brainstorm	x
		PDS	x
Feb. 1 - Feb. 7		Finalize Design	x
		Order Parts	x
Feb. 8 - Feb. 14		Construction	x
Feb. 15 - Feb. 21		Construction	
Feb. 22 - Feb. 28		Construction	
Mar. 1 - Mar. 7	Midsemester Presentations (Mar. 6)	Midsemester Powerpoint	
Mar. 8 - Mar. 14	Design Notebooks (Mar.11)	Construction/Testing	
Mar. 15 - Mar. 21	Spring Break	Spring Break	
Mar. 22 - Mar. 28		Construction/Testing	
Mar. 29 - Apr. 4		Construction/Testing	
Apr. 5 - Apr. 11		Testing	
Apr. 12 - Apr. 18	Engineering Expo	Testing	
Apr. 19 - Apr. 25		Testing	
		Poster	
Apr. 26 - May 2	Poster Presentation (May 1)	Poster	
		Final Report	
May 3 - May 9	Design Notebooks (May 6)	Final Report	
	Final Report (May 6)		
	Peer and Self Evals (May 6)		