

**BME 402 - Heart Phantom**  
*Progress Report Week 5 – 2/20/09 to 2/26/09*

*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:**

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

**Summary of Accomplishments:**

- Met with client and finalized design
- Drilled holes in end caps and in heart chamber
- Assembled casing
- Cut and attached through wall tubing
- Created high definition block

**Goals this Week:**

- Finish construction of phantom (interconnections of tubing, pump connections)
- Powerpoint for mid-semester presentations
- Leak testing for casing and tubing connections
- Flow testing

**Project Difficulties:**

- None for this week.

**Activities:**

Date	Person	Activity	Time Spent
2/20/09	Peter & Erin	Met with client	1.5 hr
2/23/09	Team	Holes in end caps and marked heart chamber for drilling	1.5 hr
2/26/09	Team	Assembled casing, high definition block, connected polycarbonate tubing	2 hr

**Team Hours:**

Weekly..... 5 hrs  
 Total..... 36.25 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	x
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)		