

## **BME 400 - Heart Phantom**

### *Team Members:*

Peter Strohm (Team Leader)  
Lacey Halfen (Team Leader)  
Jess Hause (Communicator)  
Erin Main (BSAC)  
Fan Wu (BWIG)

### *Client:*

Orhan Unal

*Progress Report Week 9 – 11/3/08 to 11/9/08*

### **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.

### **Summary of Accomplishments:**

- Inspected parts
- Obtained acrylic glue from client
- In process of constructing acrylic casing

### **Goals last Week:**

- Continue work on final paper
- Begin construction of prototype once parts arrive
- Research vasculature around heart, decide on model to use

### **Goals this Week:**

- Finish acrylic casing
- Begin constructing the rest of the prototype (vasculature, heart if it arrives)
- Return part list to client

### **Project Difficulties:**

- Acrylic disks are mirrored with aluminum and will have to be returned. We will have to order additional part(s) to construct the end caps of the device. Our team plans on discussing this early this week.
- All cutting and drilling is going well so far.

**Activities:**

Date	Person	Activity	Time Spent
11/4/08	Peter, Lacey, Fan	Advisor meeting	0.50 hr
	Individual	Individual work (obtaining parts, communicating with client, research)	1.50 hr each
11/6/08	Peter, Fan, Lacey	Cut acrylic pieces	3.00 hr
11/7/08	Lacey, Erin, Fan	Drilled holes in acrylic, tapped holes	3.00 hr

**Team Hours:**

Weekly.....14.00 hrs  
 Total.....94.50 hrs

**Project Timeline:**

Aug. 31	Project Proposal (Sept. 2)	Project Selection	x
		Contact Client	x
Sept. 7		Individual Research	x
Sept. 14		Client Meeting (Sept. 19)	x
		Project Timeline	x
		PDS	x
Sept. 21		Research	x
		Individual Brainstorm	x
		Group Brainstorm	x
Sept. 28		Develop Designs	x
Oct. 5		Design Alternatives (2)	x
		Mid-semester PowerPoint	x
Oct. 12	Mid-Semester Presentations (Oct. 17)	Finalize Design Alternatives	x
		Decide on Final Design	x
		Design Matrix	x
		Prepare for Presentation	x
Oct. 19	Design Notebooks (Oct. 22)	Finalize Design	x
		Order Supplies	x
Oct. 26		Work on Design	X
Nov. 2		Work on Design	X
Nov. 9		Work on Design	x
		Begin Paper	x
Nov. 16		Finalize Prototype	
		Continue Working on Paper	
Nov. 23		Testing	
		Complete Paper	
		Design Poster	

Nov. 30	Final Design Presentations (Dec. 5)	Complete Testing
		Prepare for Presentation
Dec. 7	Design Notebooks (Dec. 10)	
	Final Paper (Dec. 10)	
	Client Eval (Dec. 10)	
	Peer/Self Evals (Dec. 12)	