

Testing System for Pressure Sensitive Cardiovascular Catheter

Client: Colette Wagner
Nancy Sweitzer, M.D., Ph.D.

Team Members: Danielle Ebben, team leader
Anthony Wampole, communications
Erik Yusko, BWIG
Anita Zarebi, BSAC

Date: *Friday, Nov. 17th to Thursday, Nov. 30th*

Problem Statement:

In order to accurately measure internal blood pressures, a properly calibrated pressure sensitive cardiovascular catheter may be used. The current techniques for calibrating the catheter are unreliable, which causes concern about the validity of the test results. The goal of the project is to devise a testing system which more reliably calibrates and verifies the accuracy of the catheter in both atmospheric tests and tests which simulate internal bodily conditions.

Last Week's Team Goals:

- Decide on one air pump.
- Order parts.
- Begin construction.

Individual Goals:

Danielle: Get materials
Tony: Have Colette fill out ECE parts shop account form
Erik: Finish solidworks design
Anita: Figure out pressure sensor integration

Summary of Accomplishments:

- Met with Kurt Saupe to find components for our design
 - Received a pump that we can use at least for preliminary tests
 - Received a high quality pressure sensor
 - Received air tight seal for catheter presentation into the container
- Ordered materials
- Finished Solidworks drawing
- Began construction of air-tight container
- Worked on Final Paper
- Learned about existing software used for pressure sensor
- Discussed goals for the end of the semester

This Week's Goals:

- Finish constructing container
- Connect Pressure sensor readings to software and calibrate
- Test air/fluid tight seal of box

- Test pump's ability to pressurize the system
- Work on Final Presentation

Project Difficulties: We are progressing rather smoothly now that we have most of the materials we need however, it seems that time is going to be an issue. The programming of the microprocessor to control the air pump may be delayed until next semester.

Activities:

Team: discussed container design and how to proceed with construction 0.5 hours
 Danielle: Order materials, Solidworks, machining, paper 16 hours
 Tony: Paper, notebook, machining 13.5 hours
 Erik: Solidworks, looking up pressure sensor, machining 16.5 hours
 Anita: meet Yee and Saupe, notebook, BSAC, paper, machining 15 hours

Team Total: 277.5 hours

Project Timeline:

<i>Week starting:</i>	<i>Accomplishment/Goal</i>	<i>Completed</i>
Sept. 8 th , 2006	Assemble team, exchange contact info, establish roles	✓
	Meet with client	✓
	Begin researching topic	✓
Sept. 15 th , 2006	Continue research	✓
	start PDS draft	✓
Sept. 22 nd , 2006	Finish PDS	✓
	Create list of questions to ask client	✓
Sept. 29 th , 2006	Meet with client and Divya Vj	✓
	Brainstorm	✓
Oct. 6 th , 2006	Choose three design alternatives	✓
	Split up midsemester presentation	✓
Oct. 13 th , 2006	Work on midsemester presentation	✓
	Analyze design alternatives	✓
Oct. 20 th , 2006	Discuss design with client	✓
Oct. 27 th , 2006	Give midsemester presentation	✓
	Hand in notebooks	✓
	Meet with client to discuss designs	✓
Nov. 3 rd , 2006	Search for materials	✓
	Finalize design	✓
Nov. 10 th , 2006	Gather materials	✓
	Work on prototype	✓
Nov. 17 th , 2006	Work on prototype	✓
Nov. 24 th , 2006	Work on prototype	✓
	Begin final report	✓
Dec. 1 st , 2006	Work on prototype	
	Prepare for final presentation	

Dec. 8 th , 2006	Give final presentation	
Dec. 13 th , 2006	Hand in final paper and notebooks	
	Meet with advisor	

Expenses:

Part	Manufacturer	Part number	Distributor	price	Quantity
Plastic Sheet	McMaster	8560K603	McMaster	\$33.60	1
Latches	McMaster	6082A12	McMaster	\$4.00	6
Plastic tube	McMaster	8532K12	McMaster	\$3.75	1

Total: 71.35