

Testing System for Pressure Sensitive Cardiovascular Catheter

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

Team Members: Marty Grasse, Co-Team Leader
Anthony Wampole, Co-Team Leader
Erik Yusko, BWIG
Danielle Ebben, BSAC
Anita Zarebi, Communications

Date: *Friday, Mar. 2nd, to Thursday, Mar. 8th*

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:

- Compile/Practice/Give mid-semester and outreach presentations
- Place hole for pressure sensor insertion
- Find name of plastic "Swagelok like" device
- Continue work on programming and temperature control

Summary of Accomplishments:

- Found the name of plastic device is a Tuohy Borst adapter or hemostasis valve. We have multiple samples on the way
- We have compiled and practiced both the midsemester and outreach presentations
- Troubleshoot the amplifier saturation

Activities for Past Week:

Team: Meeting to practice presentations, updates	2 hours
Marty: Presentation, amplifier troubleshooting	3 hours
Tony: Presentation logistics, compilation, writing and practicing	6 hours
Erik: Presentation, notebook	3 hours
Anita: Presentation, amplifier troubleshooting	3 hours
Danielle: BSAC meeting, notes, and project, presentation	4 hours

This Week's Goals:

- Drill/tap hole for pressure sensor
- Place extra support screws in wall connection points
- Meet with Burke to solve saturation problem on amplifier
- Meet with Professor Webster to design a “home-grown” amplifier to replace ADInstruments equipment
- Begin writing code for control loops

Project Difficulties: This week, we had to focus most of our efforts on preparing for both the midsemester presentation to the BME 402 course, and for our outreach presentation at LaFollette High School. Both will be given on Friday, March 9th.

Project Timeline:

<i>Week starting:</i>	<i>Accomplishment/Goal</i>	<i>Completed</i>
Jan. 26, 2007	Assemble team, establish roles	✓
	Familiarize Marty with project	✓
	Brainstorm ideas to solve previous design problems	✓
Feb. 2, 2007	Finalize solution for leakage and structural integrity	✓
	Brainstorm ideas for computer control and saline heating	✓
Feb. 9, 2007	Machine box to smaller dimensions	✓
	Update PDS	✓
	Test pressure transducer with measuring equipment	✓
Feb. 16, 2007	Purchased parts	✓
	Begin work on proof of concept	✓
Feb. 23, 2007	Machine catheter fittings	✓
	Begin programming for pressure/temperature control	✓
	Continue work on proof of concept	✓
March 2, 2007	Work on prototype	✓
March 9, 2007	Midsemester Presentation/ Outreach to LaFollette High School	✓
March 16, 2007	Work on prototype	
March 23, 2007	Work on prototype	
March 30, 2007	Work on prototype	
April 6, 2007	Spring Break	
April 13, 2007	Work on prototype	
April 20, 2007	Work on prototype	
April 27, 2007	Work on prototype	
May 4, 2007	Final Poster Presentation	
May 9, 2007	Final Report Due	

Expenses:

Part	Manufacturer	Part number	Distributor	price	Quantity
<i>Plastic Sheet</i>	<i>McMaster</i>	<i>8560K603</i>	<i>McMaster</i>	<i>\$33.60</i>	<i>1</i>
<i>Latches</i>	<i>McMaster</i>	<i>6082A12</i>	<i>McMaster</i>	<i>\$4.00</i>	<i>6</i>
<i>Plastic tube</i>	<i>McMaster</i>	<i>8532K12</i>	<i>McMaster</i>	<i>\$3.75</i>	<i>1</i>
SwageLok	SwageLok		Badger Fluid Systems	\$8.24	1
RTV Silicone Caulk	McMaster	76435T8	McMaster	\$3.34	1
Vacuum Tubing	McMaster	5173K48	McMaster	\$0.10/ft	2 Feet
Screws			Hardware store	\$3.47	18

Total: 86.60

Note: Last semester's purchases are in italics.

Donations:

Last Semester (Fall 2006):

Part	Supplier	Estimated Price
Pump	Kurt Saupe	\$585.00
Pressure Sensor	Kurt Saupe	\$3000.00