

Project Title: An airway pressure device for use in an MRI machine

Team Members:

Laura Sheehan - Leader
Jon Cappel – Communications
Noelle Simatic – BWIG
Kevin Johnson – BSAC

Client: Victor Haughton, M.D.

UW Department of Radiology
3252 Clinical Science Center-E3
Phone: 263-5306
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Advisor: Mitch Tyler

Date: 11/11/05 – 11/17/05

Problem Statement: Our client Dr. Haughton is currently studying CSF flow during Valsalva maneuvers performed by children with Chiari I malformations. Current research suggests that CSF flow decreases during Valsalva maneuvers in these patients. The airway pressure device would help monitor the exhalation force exerted by each child during a Valsalva maneuver in the MR suite. Knowing the pressure exerted by each patient in the study would be extremely beneficial for data analysis and accuracy.

Last Week's Goals:

Friday:

Attend human subjects presentation
Plan out electronics work
Make a list of part needed for the supports
Finalize design and measurements for the supports
Time permitting: shorten up the tube in the machine shop (to make the design lighter)

Over the weekend:

Shop for support parts (Noelle and Laura) and Al box (Kevin)

Monday (5 pm at ECB shop):

Shorten tube
Build supports
Electronics work

Tuesday (if needed):

Additional supports building and electronics work

Individual Goals:

Laura – Progress report, outline paper/presentation, prototyping, testing
Jon – Prototyping, send reminders to team regarding meetings, testing
Noelle – Work on project website, prototyping
Kevin – Prototyping, testing

Summary of Accomplishments:

- Attended human subjects presentation
- Finished designing supports, bought parts, and built supports
- Completed prototype construction
 - Sanded down plug
 - Lathed a new stopper
 - Shorten device overall
 - Drilled hole for tubing piece
 - Secured stopper with epoxy
- Began electronics work
- Tested device with compressed air and vacuum – works great!

This Week’s Goals:

Friday:

Electronics work

Over the weekend:

Testing in the MR

Next week:

Redesigning (if necessary)
 Poster and paper work

Project Difficulties: None

Activities:

Laura – Progress report, work on paper: 3 hours

Jon – In-class meeting, prototype construction meeting: 4 hours

Noelle – Work on project website, in-class meeting, prototype construction meeting: 4 hours

Kevin – In-class meeting, prototype construction meeting: 4 hours

Team Total Hours for this Week: 15 hours

Project Schedule for the Remainder of the Semester:

Goals/Deadlines: Prototype finished by 11/18, Testing on 11/19 and 11/20

Tasks	November		December	
	18	25	2	9
Prototyping and Calibrating				
Signal Display Work				

Testing				
PDS				
Final Poster Presentation				
Meet with Client				
Progress Reports				
Website				
Final Meeting with Advisor				

Expenses:

Radio Shack

12' BNC Coaxial Cable	\$11.99
2 BNC Connectors	\$8.98
Project Enclosure Box	\$4.97
Tax	\$1.47
Radio Shack Total	\$27.37

Omega Engineering

Transducer	\$36
2 Transducer Connectors	\$10
Standard Shipping	\$8
Omega Total	\$49

Hardware Hank

Epoxy	\$4.99
PVC	\$1.29
Tubing Barb	\$.99
Rubber Bands	\$.67
Tubing for Compressed Air	\$8.00
Tax	\$.88
Hardware Hank Total	\$16.82

Running Total	\$93.19
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