

Development of an ultrasound probe holder for arterial function testing (Probe Holder)

Client: James H. Stein, MD

Dept. of Medicine, Cardiology

UW School of Medicine and Public Health

Phone: 263-5131

email: jhs@medicine.wisc.edu

Team: Leon Corbeille (BWIG)

Neal Haas (Communicator)

Peter Kleinschmidt (Leader)

Lein Ma (BSAC)

Progress Report for Week 9: March 27 – April 2

Problem Statement:

To aid in the ultrasonography of arterial reactivity, a simple, stable, adjustable probe holder is needed. The stabilization provided by such a holder could potentially improve probe imaging quality and diagnostic effectiveness. The device should be able to be finely adjusted with 6 degrees of freedom, and free the hands of the technician for the duration of the study.

Last Week's Goals:

- Finalize all materials needed for construction of the first generation prototype.
 - Includes: Clamp, Base, Metal Surface, Arm Cradle, All fasteners and attachments, Foam for arm cradle
- We would like to have all or most of these materials ordered or purchased within the next week to begin construction in April.
- Complete shop certifications

Summary of Accomplishments

- Purchased construction materials as outlined in budget below
- Still need to Order: Foam, Cylinder for Arm Cradle. Both to be ordered from McMaster-Carr.
 - Also need hardware for attachment (will likely use ½" wood screws for metal plate and 1" wood screws for cradle.) Will purchase locally (Dorn Hardware?).
- All team members have completed shop certification quizzes. Though some more training may be asked, we should be able to start construction. Neal has certification for Drills and Saws already.

This Week's Goals

- Obtain final materials for construction: Arm Cradle tubing and foam padding, hardware for attachment of cradle to the
- Begin construction of major parts including:
 - Cutting base board to size
 - Attach metal mounting plate for magnetic base
- Pending arrival of parts, begin constructing and attaching arm cradle.

Project Difficulties:

No major difficulties

Team Activities

Members	Activity	Time Spent	Total
Team	Team Meeting, Ethics Workshop	2.00 hr.	22.00 hr
Lein	Supplies Research, BSAC	2.00 hr.	13.00 hr
Leon	Research, Website, Notebook Prep.	2.00 hr.	14.00 hr.
Peter	Progress Report, Supplies Purchasing, Supplies Research	2.50 hr.	14.00 hr.
Neal	Communications, Design, Transportation	1.50 hr.	11.25 hr.

Project Timeline

Task	Jan.		February				March				April				May	
	23	30	6	13	20	27	6	13	20	27	3	10	17	24	1	8
Project Development																
Brainstorm/Design Development																
Finalize Design																
Prototyping																
Deliverables																
Progress Reports																
Mid-semester Paper																
Mid-semester Presentation																
Final Paper																
Final Poster																
Meetings																
Client																
Advisor																
Website																

Budget/Expenses

Item	Product No.	Supplier	Cost
4x2 PVC Pipe*	611942112760	Home Depot	5.74
Sheet Metal (1'x1')	43374560329	Home Depot	5.84
Emory Paper	76607478559	Home Depot	5.47
23 3/4 x 48 Melamine	40933106189	Home Depot	11.98
1x4x2 Poplar	10286399428	Home Depot	2.63
Positioning Arm	9560384	MSC-Direct	193.81
Sales Tax			1.61
Total			227.08

*To be returned, size won't work