

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

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**Team:** Leon Corbeille (BWIG)

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Lein Ma (BSAC)

### **Progress Report for Week 10: April 3 – April 9**

#### **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:**

- 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.

#### **Summary of Accomplishments**

- All parts have been ordered. Some modifications in the parts selected were made.
  - Identified alternative foam for use with the cradle. Will be using a closed cell polyurethane foam to allow for easier cleaning (vs. open celled)
- All team members now have shop certification for all tools required for construction
- Retrieved necessary hardware for construction, set to begin Friday, April 10<sup>th</sup>.

#### **This Week's Goals**

- Construction: Cut base to size, attach metal mounting plate, begin sizing mounts for arm cradle.
- If possible: cut tubing to arm cradle specifications. Begin foam forming and attachment.
  - Pending arrival of supplies
- Specify modifications to clamp (Outer Diameter of the clamp must be reduced to be accommodated by the positioning arm.

#### **Project Difficulties:**

The clamp identified is only available from large scale chemical suppliers. All sources identified require a minimum order of \$50 (The clamp will cost ~\$26). Solutions are being worked out.

## Team Activities

Members	Activity	Time Spent	Total
Team	(Individualized Below)		22.00 hr
Lein	Construction Planning, Notebook Prep, Research	1.50 hr.	14.50 hr
Leon	Research, Website, Notebook Prep.	2.00 hr.	16.00 hr.
Peter	Progress Report, Shop Certification, Supplier Research	2.00 hr.	16.00 hr.
Neal	Communications, Design, Research	2.50 hr.	13.75 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
<b>Project Development</b>																
Brainstorm/Design Development																
Finalize Design																
Prototyping																
<b>Deliverables</b>																
Progress Reports																
Mid-semester Paper																
Mid-semester Presentation																
Final Paper																
Final Poster																
<b>Meetings</b>																
Client																
Advisor																
<b>Website</b>																

## Budget/Expenses – Updated April 2, 2009

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
<b>Total</b>			<b>227.08</b>

\*To be returned, size won't work