

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

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**Team:** Leon Corbeille (BWIG)

Neal Haas (Communicator)

Peter Kleinschmidt (Leader)

Lein Ma (BSAC)

### **Progress Report for Week 6: February 27 – March 5**

#### **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:**

- Refine design ideas
- Identify force criteria for stabilization
- Complete mid-semester presentation and present on Friday, March 6<sup>th</sup>.
- Begin finalizing design and drafting preliminary orders for supplies

#### **Summary of Accomplishments**

- Discussed possible rotational positioning options. Look into concept of camera tripod for additional rotational ideas.
- Selected and ordered a positioning arm for basis of design
  - Will test the arm for ability to achieve fine positioning
  - Need to determine if this will be adequate or if a micrometer based positioning system will be needed to supplement fine-tuning
- Discussed in greater detail the procedure for ultrasonography.
- Obtained dimensions for variety of probes needing accommodation.
- Wrote mid-semester presentation and prepared slides
  - Will be giving presentation to classmates and advisors Friday, March 6<sup>th</sup>
- Began work on mid-semester design paper

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

- Write mid-semester design paper
- Refine positioning and holding ideas for rotational control
- Identify need for micropositioning
- Begin identifying raw material sources for construction of prototype (e.g. arm cradle, mounting table)

#### **Project Difficulties:**

None to report

**Team Activities**

Members	Activity	Time Spent	Total
Team	Advisor Meeting, Meeting with Dr. Korcarz, Group Research, Presentation preparations.	3.00 hr.	15.00 hr.
Lein	Presentation preparation, Notebook records, BSAC meeting	2.00 hr	9.00 hr.
Leon	Presentation preparation, writing for paper	1.00 hr	7.00 hr.
Peter	Progress Report, Research, Presentation slides	2.00 hr	8.50 hr.
Neal	Communications, Research, Brainstorming	1.75 hr	6.75hr.

**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**

No expenses incurred