

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

Client: James H. Stein, MD

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Team: Leon Corbeille (BWIG)

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Peter Kleinschmidt (Leader)
Lein Ma (BSAC)

Progress Report for Week 5: February 20 – February 26

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:

- Define semester goals for fine tuned ability of prototype.
- Refine design concepts and potential material suppliers
- Begin formulation of design proposals
- Begin preparation of mid-semester design presentation
- Begin outline and preliminary work on mid-semester design report
 - Divide tasks and responsibilities

Summary of Accomplishments

- Held very productive meeting with Prof. Frank Fronzcak
 - Identified several options for both positioning and mounting
 - Began to look at holders for dial-indicators as a starting point.
 - Found a product that will be very appropriately suited for the task consisting of two ball joints and a hinge joint, much like the anatomy of a human arm.
 - Product available at MSC-Direct for low cost. Example (but not final choice):
<http://www1.mscdirect.com/CGI/NNSRIT?PMPXNO=1759502&PMT4NO=59133695>
 - Beginning to formulate design options for probe mounting to the positioning device.
- Ready to present ideas and verify if more fine-tuned control is needed
 - Meeting scheduled for Friday afternoon to discuss this.
- Began synthesizing brainstorm ideas in preparation for mid-semester
 - Divided tasks and began to prepare report and presentation
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This Week's Goals

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

Project Difficulties:

None to report

Team Activities

Members	Activity	Time Spent	Total
Team	Advisor Meeting, Meeting with Prof. Fronczak, Brainstorm Session	3.00 hr.	12.00 hr
Lein	Research, Brainstorming, Mid-semester preparations	2.00 hr	7.00 hr
Leon	Website, Brainstorming, Research	2.00 hr	6.00 hr.
Peter	Progress Report, Research, Brainstorming, Mid-semester work	2.00 hr	6.50 hr.
Neal	Communications, Research, Brainstorming	1.75 hr	5.00 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

No expenses incurred