

Pulse Oximeter Team

Progress Report #8

2/14/09 – 2/27/09

Team Members

Bogdan Dzyubak – Communicator
Joe Helfenberger—BWIG
Jonathan Meyer—Leader
Matthew Parlato—BSAC

Clients

Amit Nimunkar
Jonathan Baran

Advisor

Dr. John Webster PhD.

Problem Statement

The purpose of this project is to develop a low-cost pulse oximeter for use in developing countries. It will be integrated with an innovative medical technology platform which uses a handheld processing device to record and display patient data. The oximeter must be rugged, durable, inexpensive, and must deliver data to the handheld processing device as an analog signal.

Team Goals

Previous goals for this week

- Develop testable mechanical design
- Investigate rapid prototyping

Goals for the next two weeks

- Finish the SolidWorks model
- Identify and acquire a suitable plastic
- Begin prototyping

This week's accomplishments

- Met with Eamon Bernardoni and discussed prototyping options
- Identified ear dimensions
- Developed a SolidWorks model of the probe
- Researched plastics

Project Schedule

The table below is a Gantt chart of the projected timeline. Dark colors are used for completed stages, and light colors for incomplete stages.

Tasks	January		February				March				April				May	
	23	30	6	13	20	27	6	13	20	27	3	13	17	24	1	8
Project Development																
Research	█	█	█	█												
Brainstorm				█	█											
Design					█	█	█	█	█	█						
Prototype										█	█	█	█	█	█	
Deliverables																
Progress reports	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
Midsemester presentation							█									
Midsemester report								█								
Final presentation															█	
Final report																█
Communication																
Advisor Meetings		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
Client Meetings	█	█								█	█	█	█	█	█	█
Website		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█

Difficulties

SolidWorks is a difficult program to install.

Activities

Date	Time	Team member(s)	Activities
3.13.09/3.22.09	3 h	Bogdan	Researched earlobe thickness and length
3.17.09	1 h	Matt	Attempted to install SolidWorks
3.20.09	1 h	Matt	Researched ear dimensions
3.13.09/3.22.09	~2 h	Joe	Looked up ear dimensions, attempted to install SolidWorks
3.13.09/3.22.09	~5 h	Jonathan	Learned SolidWorks, researched ear length dimensions
3. 23.09	~3 h	Jonathan	Developed SolidWorks model of probe
3.25.09	1.3 h	Team	Identified aspects of the SolidWorks model that need improvement
3.26.09	~1 h	Jonathan	Learned COSMOS Xpress to determine the deformation and state of stress of the SolidWorks model under a given load.
3.26.09	0.75 h	Matt	Developed mathematical formula to determine the probe dimensions necessary to achieve the desired range of motion
3.26.09	0.5 h	Joe	Researched plastics

Expenses

Items	Cost
4 photodiodes (2mm×2mm)	< \$20