BME 400: Biomedical Engineering Design

A Finger Plethysmograph to Measure Blood Resistivity

Clients:

Prof. John Webster
Dept. of Biomedical Engineering
608-263-1574
Webster@wngr.wisc.edu

Ravi Shankar, PhD
561-306-5652
Shankar4@earthlink.net

Team Members:

Tim Balgemann
Team Leader
Balgemann@wisc.edu

Lucas Vitzthum
Communicator
lvitzthum@wisc.edu

Nick Harrison
BSAC
nharrison@wisc.edu

Tyler Lark
BWIG
lark@wisc.edu

December 2st to December 8th

Problem Statement:

Our goal is to design a finger plethysmograph to measure blood resistivity. Impedance plethysmography may be used to measure arterial volume change that occurs with propagation of the blood pressure pulse in a limb segment. For this measurement, we assume a constant value of blood resistivity. However, blood resistivity may change under both physiological and pathological conditions. Use of an impedance plethysmograph on a finger immersed in a salt-filled beaker may yield a simple method for determining blood resistivity. This may develop into a method that diabetics can use to measure glucose level noninvasively.

Last Week's Goals:

- Test final prototype
- Begin putting the poster together.
- Begin writing the paper.
- Practice presentation

Summary of Accomplishments:

- Finished the finger holder and circuit

- Used ELVIS and Excel to test how the circuit was working.
- Completed the poster
- Presented at the BME Design EXPO

This Week's Goals:

- Finish writing the paper

Difficulties:

No difficulties thus far

Activities:

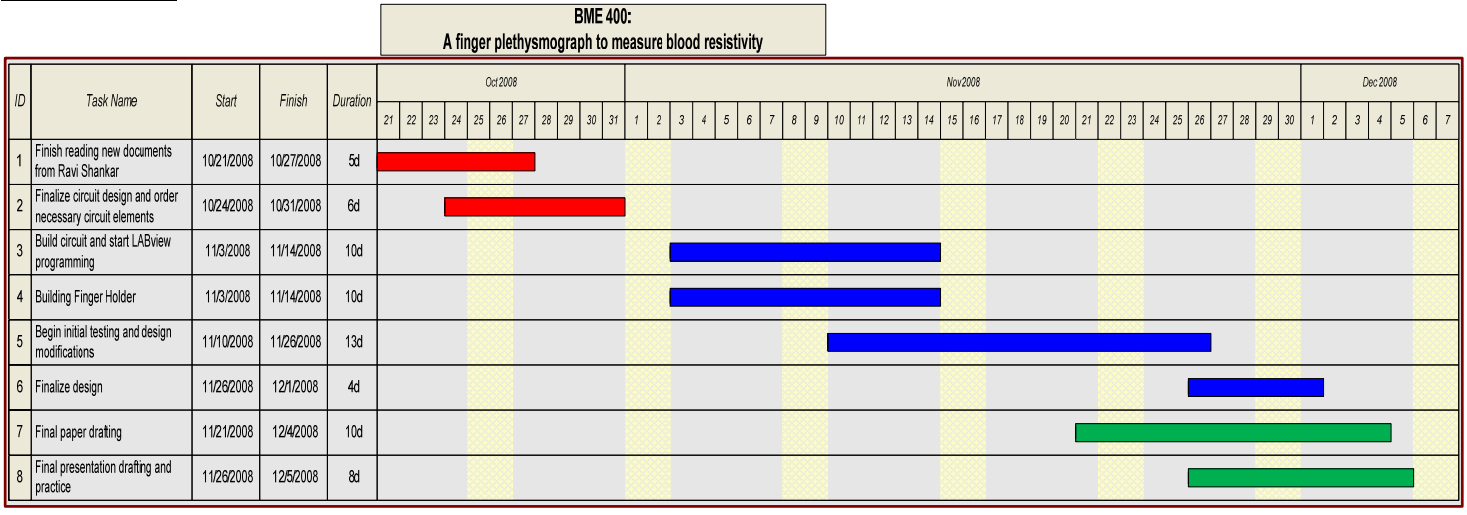
Tim Balgemann: Advisor Meetings: 1 hr
Research 5 hrs
Team Meeting: 2 hrs
Total: 7.5 hrs

Lucas Vitzthum: Advisor Meetings: 1 hr
Research 1 hrs
Team Meeting: 2 hrs
Total: 7.5 hrs

Nick Harrison: Advisor Meetings: 1 hr
Research 1 hrs
Team Meeting: 2 hrs
Total: 7.5 hrs

Tyler Lark: Advisor Meetings: 1 hrs
Research 3 hrs
Team Meeting: 2 hrs
Total: 7.5 hrs

Timeline:



ID	Task Name	Start	Finish	Duration
1	Finish reading new documents from Ravi Shankar	10/21/2008	10/27/2008	5d
2	Finalize circuit design and order necessary circuit elements	10/24/2008	10/31/2008	6d
3	Build circuit and start LABview programming	11/3/2008	11/14/2008	10d
4	Building Finger Holder	11/3/2008	11/14/2008	10d
5	Begin initial testing and design modifications	11/10/2008	11/26/2008	13d
6	Finalize design	11/26/2008	12/1/2008	4d
7	Final paper drafting	11/21/2008	12/4/2008	10d
8	Final presentation drafting and practice	11/26/2008	12/5/2008	8d