

BME 400: Biomedical Engineering Design
A Finger Plethysmograph to Measure Blood Resistivity

Clients:

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September 15th to September 21st

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:

- Continue research on plethysmography and circuitry
- Create a preliminary PDS

Summary of Accomplishments:

- Tyler and Tim completed a preliminary PDS
- All team members continued to review the literature suggested by Prof Webster

This Week's Goals:

- Finish any necessary research
- Begin brainstorming on different components of the design
- Divide up components among team members for continued personal brainstorming

Difficulties:

No difficulties thus far

Activities:

Tim Balgemann: Advisor Meetings: 1.25 hrs
PDS drafting: 1 hr
Research 2.5 hrs
Total: 4.75 hrs

Lucas Vitzthum: Advisor Meetings: 1.25 hrs
Research 2.5 hrs
Total: 3.75 hrs

Nick Harrison: Advisor Meetings: 1.25 hrs
Research 2.5 hrs
Total: 3.75 hrs

Tyler Lark: Advisor Meetings: 1.25 hrs
Research 2.75 hrs
PDS drafting: 1 hr
Total: 5 hrs