
Blantyre Malaria Project: Data Acquisition Device

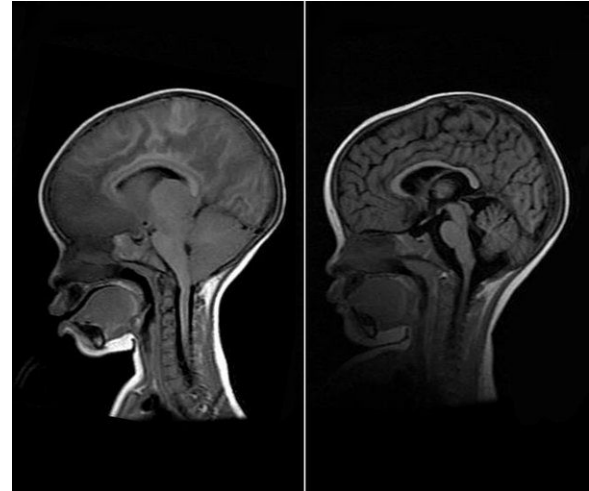
Verification and Validation Presentation
Presenter: Tina Tang, Group 15



<http://www.blantyre-malaria.org/the-science/>

Overview

- Cerebral Malaria
 - Common in Malawi, Africa
- Blantyre Malaria Project
 - Research on treatments
- Data Acquisition Device
 - High resolution data
 - Compatible with environment

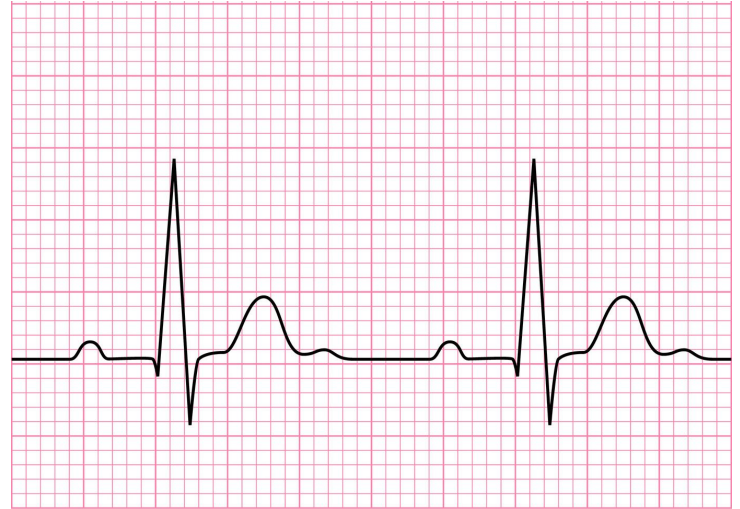


<https://www.npr.org/sections/goatsandsoda/2015/03/18/393367086/how-malaria-in-the-brain-kills-doctors-solve-a-medical-mystery>



Scope Changes

- Only need to collect ECG data
- Real-time data transfer is not required





Design Specifications Changes

Measurement	Only ECG (4-lead)
Transmission	Does not need to be between buildings



Design Schedule and Team Responsibilities

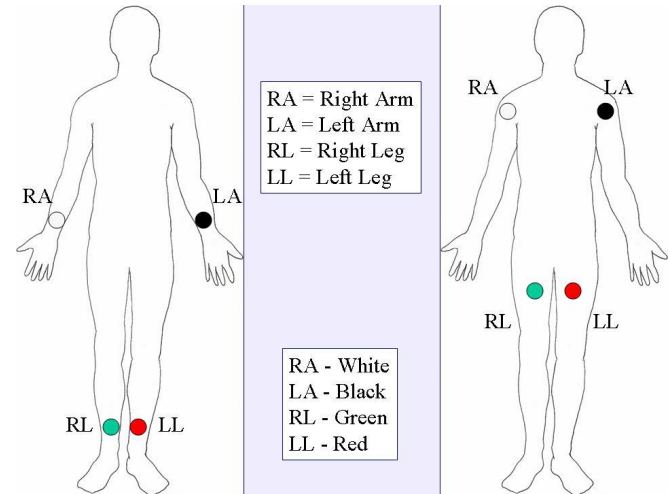
No changes

Verification Plan

High Frequency | Writing Files | Analysis Software | Storage

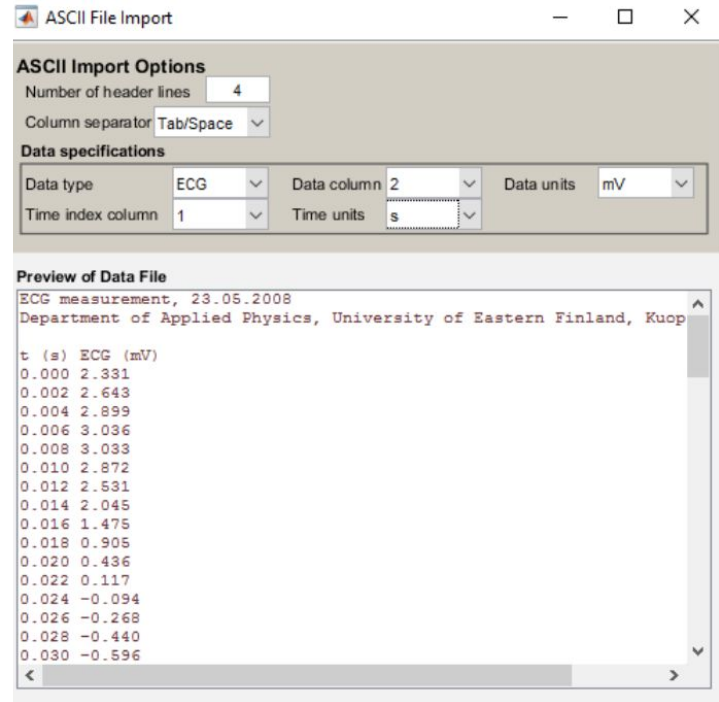
1. High Frequency ECG Data

- Connect subject to patient monitor
- Data displayed in terminal of Raspberry Pi
 - Sampling rate = 200 Hz



2. Writing Files

- Collect data for 5 min
- Put into a text file
- Readable by analysis software



3. Biomedical Signal Analysis Software

- Kubios (HRV analysis software)
 - Input: RR Interval ASCII text files
 - Output: Charts
- Put stress on subject's body
 - Running for 5 min
- Is Kubios able to detect stress?

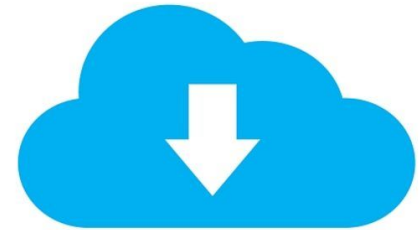


Kubios User Guide



4. Server and Cloud Storage

- Physical server
- Cloud server



Validation Plan

System Integration | Software Updates | Product Reproducibility

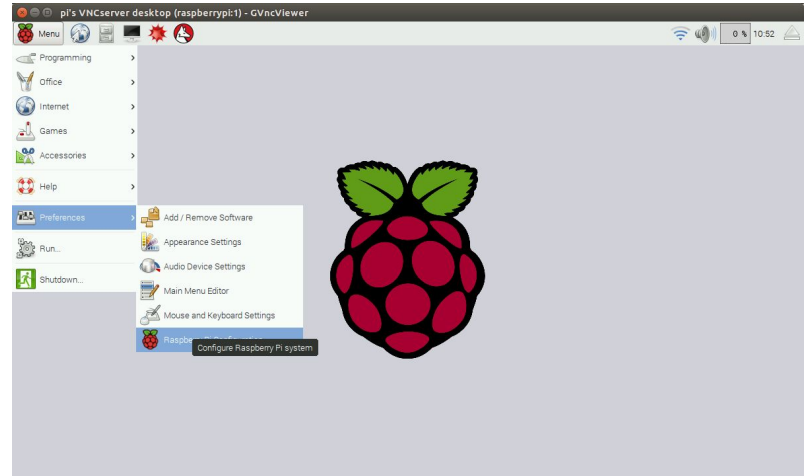
1. Integration

- User Friendly
 - Set up in less than 15 minutes
- Automated System
 - Continuously collects/uploads data for 30 min



2. Software Updates

- Remote access for software updates to:
 - Raspberry Pi
 - Server



3. Product Reproducibility

- User Manual and Materials List
- Take <30 minutes to assemble



amazon.com



FDA Process

- Not used in USA
- No FDA regulations





Overall Status of Project

- Obtained all materials (Raspberry Pi, Patient Monitor, ADC)
- Figured out most of hardware connections
- Writing software for Raspberry Pi
- Working with Etiometry/client on server storage



Resources

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