Design Review 4 Agenda

ECG Home Monitoring Group
Dr. Schafer
Stinson-Remick 205
12:00 PM April 28, 2023

Leader: Alex Beck
Scribe: Josh O'Brien

Agenda

1. Design Review 4
   a. Go over design requirements
   b. Demonstration of end to end functioning, integration of all subsystems (System Integration Test)
   c. Discuss PCBA board successes/failures
   d. Discuss ECG subsystem
   e. Discuss pulse ox subsystem
   f. Discuss wireless subsystem
   g. Show website containing team documentation - should we put a document on explaining how our project changed from EEG Alarm to ECG Home Monitoring?
2. Next week
   a. Poster needs to be finalized & printed
   b. 3D printing housing for board + battery
   c. What is the agenda for next week's demonstration?
3. Comments and Questions

Design Review 4 Notes

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1. Potential ideas to increase connectivity to simulator
    a. Heart Rate and SPo2 are correct
    b. Sinus rhythm is mostly correct, but connection is finicky so sometimes inaccurate
2. Demonstration of System APplication Test (SAT)
3. How does someone connect to the board?
    a. Have to change the resistor
    b. ECG leads stuck to chest, SPo2 will have to connect to finger
    c. 3D print wearable piece for board
        i. Header pins might not have good connection when worn
4. Boost converter is working fine when connecting to laptop, but is acting up (drops to 0.8V) when powered exclusively by battery
    a. Removing the boost converter would not cause too much trouble because 5V is only needed for green LED on SPo2, which we won't be using
    b. Board works off 9V battery when Pulse Ox is not connected
        i. Battery might not be able to source enough current
        ii. DC-DC boost converter has fluctuating current, with or without battery
        iii. Remove 5V converter
5. Board modifications
    a. Current pins are not designed for crimping, but the housing we have is fine. Need MOLEX pins that are designed specifically for crimping
        i. We got 4 from Wizard Chess and need ~14 more. Order from DigiKey
6. Moving forward
    a. How to demonstrate. Not realistic to hook up ECG to a bunch of different people, but we can do pulse