Bio-Sensor Wearable Development Board

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Date 8/31/2020

Outline

- Schedule
  - Gantt Chart update
- Progress update
  - Current progress
  - Path forward

SCHEDULE

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Schedule Gantt chart

Task	6/3-8/16	8/16-8/23	8/23-8/30	8/30-9/6	9/6-9/13	9/13-9/20	9/20-9/27
ELECTRONICS DEVELOPMENT							
-SCHEMATIC GENERATION	✖						
-PCB LAYOUT AND ROUTING	✖						
-HARDWARE DEBUGGING	✖	✖	✖	●			
FIRMWARE DEVELOPMENT							
-PROJECT STACK ORGANIZATION	✖						
-SENSOR DRIVERS	✖	✖	✖				
-RTT AND SERIAL DATA LOGGING	✖	✖					
-FIRMWARE DEBUGGING	✖	✖	✖	●			
-NEUROMOTOR PEDIATRIC WEARABLE				●			

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PROGRESS TO DATE

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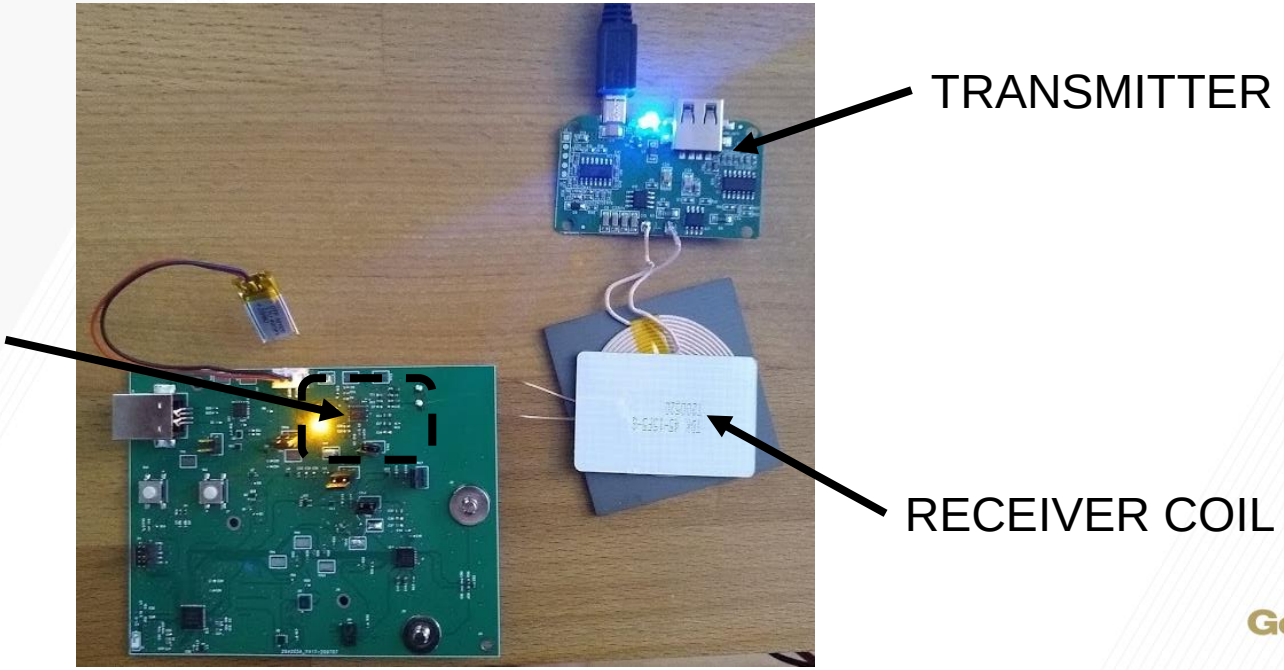
Progress from last week

- Firmware
  - I2C to USB driver (finished)
  - MAX30003 driver (finished)
- Hardware
  - Debugging wireless charging (Finished)
    - Ordered larger wireless induction coils

Wireless charging: Inductive

- Hardware
  - Current wireless charging coil:
    - TDK 45-15F5-G (48.2mm x 32.2mm x 1.0mm)
  - Try to reduce inductive coil size
    - WR222230-26M8-G (22 mm x 22mm x 0.87 mm)



Wireless charging: RF

- RF Harvesting
  - Battery and battery-less electronics
  - 7 mA continuous @ 0.5 meter
- Companies contacted for development kit:
  - Humavox
    - Still waiting for a response
  - Energous
    - In conversation to receive 10 units of their receivers
  - Powercast
    - Digikey
      - Transmitter (TX91503 $99.00)
        - Battery-less receiver module (P2110B $48.33)
        - Battery charging receiver module (P1110B $32.00)
        - Development kit (P1110-EVAL-PS $420.00)

PATH FORWARD

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Path forward (8/31/20 – 9/7/20)

- Firmware:
  - DAQ slave protocol
    - Python client for wired DAQ
  - BLE testing
- Hardware:
  - Wireless charging
    - Inductive: try to optimize the receiver coil size
    - RF: waiting for samples
- Pediatrics Wearable:
  - Kickoff meeting 8/31/20

APPENDIX

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