# Day 3 Requirements

Tuesday, July 11, 2023        8:19 PM

Goals:
- Get finishing touches for the first week shopping list and send out the order by 1 pm (w/ Eunice)
  Current List (All prices are ceil'ed)
  - Nano IoT: https://store-usa.arduino.cc/products/arduino-nano-33-iot ($25)
  - Pulse: https://www.amazon.com/PulseSensor-com-Original-Pulse-Sensor-project/dp/B01CPP4QM0/ref=sr_1_3?keywords=arduino+heart+rate+sensor&qid=1689012927&sr=8-3 ($25)

  - SD Module: https://www.amazon.com/HiLetgo-Adater-Interface-Conversion-Arduino/dp/B07BJ2P6X6/ref=sr_1_3?keywords=arduino+sd+card+module&qid=1689103794&sr=8-3 ($7/5)

  - SD card: https://www.amazon.com/Sandisk-SDSDQM-016G-MicroSDHC-Memory-PACKAGE/dp/B001F7AJKI/ref=sr_1_20?crid=8AAKW5MAQTGT&keywords=sd+card&qid=1689173854&rnid=6518301011&s=pc&sprefix=sd+card%2Caps%2C148&sr=1-20 ($7)
  - And Adapter https://www.amazon.com/Samsung-Memory-Adapter-Everything-Stromboli/dp/B084SLRVGT/ref=sr_1_21?crid=8AAKW5MAQTGT&keywords=sd+card&qid=1689173854&rnid=6518301011&s=pc&sprefix=sd+card%2Caps%2C148&sr=1-21 ($6)

  - Batteries: https://www.amazon.com/Amazon-Basics-Performance-All-Purpose-Batteries/dp/B00MH4QM1S/ref=mp_s_a_1_1_ffob_sspa?crid=1P84TDZDMQLQJ&keywords=9v+batteries&qid=1689104657&sprefix=9%2Caps%2C154&sr=8-1-spons&sp_csd=d2lkZ2V0TmFtZT1zcF9waG9uZV9zZWFyY2hfYXRm&psc=1 ($13/8)

  - RTC Module: https://www.amazon.com/AT24C32-Replace-Arduino-Batteries-Included/dp/B09LLMYBM1/ref=sr_1_3?keywords=Arduino%2BRTC&qid=1689181146&sr=8-3&th=1 ($10/2)

- Work on the requirements document (w/ All group members)
- Complete the team evaluation ('')
- Continue researching app solutions and start prototyping the Arduino DAQing software (Individual)
- Continue researching HRV thresholds (w/ Diego?)
- Project Plan (?)

Personal Team Role: Programmer (Head of Software Implementation)

Meeting Times: M-W 12-3, H-F 10-7

Framework being used: Ionic (Easy to use BLE module)

Igziabiheir yimesgen: https://github.com/capacitor-community/bluetooth-le
https://github.com/petewarden/ble_file_transfer

Finalized List:

- Nano IoT: https://store-usa.arduino.cc/products/arduino-nano-33-iot ($25)
- Pulse: https://www.amazon.com/PulseSensor-com-Original-Pulse-Sensor-project/dp/B01CPP4QM0/ref=sr_1_3?keywords=arduino+heart+rate+sensor&qid=1689012927&sr=8-3 ($25)

- SD Module: https://www.amazon.com/HiLetgo-Adater-Interface-Conversion-Arduino/dp/B07BJ2P6X6/ref=sr_1_3?keywords=arduino+sd+card+module&qid=1689103794&sr=8-3 ($7/5)

- SD card: https://www.amazon.com/Sandisk-SDSDQM-016G-MicroSDHC-Memory-PACKAGE/dp/B001F7AJKI/ref=sr_1_20?crid=8AAKW5MAQTGT&keywords=sd+card&qid=1689173854&rnid=6518301011&s=pc&sprefix=sd+card%2Caps%2C148&sr=1-20 ($7)
- And Adapter https://www.amazon.com/Samsung-Memory-Adapter-Everything-Stromboli/dp/B084SLRVGT/ref=sr_1_21?crid=8AAKW5MAQTGT&keywords=sd+card&qid=1689173854&rnid=6518301011&s=pc&sprefix=sd+card%2Caps%2C148&sr=1-21 ($6)

- Batteries: already here

- RTC Module: https://www.amazon.com/AT24C32-Replace-Arduino-Batteries-Included/dp/B09LLMYBM1/ref=sr_1_3?keywords=Arduino%2BRTC&qid=1689181146&sr=8-3&th=1 ($10/2)

Personal Github for the project up, should share it next meeting. Beginnings of App already on there.

# Day 4 Requirements 2

Sunday, July 16, 2023      3:59 PM

Goals:
- Aid with the Requirements documents
- Begin testing the microcontroller setup with Eunice
- Continue researching cutoff values
- Continue developing the app and arduino code
- See missing items to consider purchasing

So far, good start with the app with fake data, need to work on developing the BLE transfer protocol. Also, start writing the code for the Arduino DAQing and file transfer as well. DAQ should be the easiest part and can be worked on first:

Pseudo code:
In setup:

Take an initial time as the start time
Set up all the sensor information

In the code loop:

Check if 5 mins have passed, if so, record the current value for HRV and reset the start time

If there is a peak, calculate the new HRV

(Combining these bits of code: https://emersonkeenan.net/arduino-hrv/#softwaresetup and example PulseSensor library code [https://lastminuteengineers.com/pulse-sensor-arduino-tutorial/])

Other important code segments and schematics:
Arduino RTC: https://lastminuteengineers.com/ds1307-rtc-arduino-tutorial/
Arduino nano SD: https://lastminuteengineers.com/arduino-micro-sd-card-module-tutorial/
Arduino BLE file transfer: https://github.com/petewarden/ble_file_transfer
App BLE: https://github.com/capacitor-community/bluetooth-le