Wearable Sensor: Arduino

Procedure

* **Record the exact current time**
* Plug red wire from the battery into slot 15
  + Make sure the Arduino turns on blue light
    - If there’s no blue light, change the battery
* Check the built-in LED (green)
  + If flashing rapidly, that means the SD card isn’t recognized. Unplug the power and take out the SD card. Plug the power back in then reinsert the SD card.
* It’ll collect data throughout the day! Once in a while, make sure the blue light is still on and the Arduino isn’t flashing rapidly. To check if data is being collected correctly, the LED should blink once every minute.
* At the end of the day, unplug the power and take out the SD card. Insert into sd card reader on laptop and copy data from DATA.TXT to local file or Google Sheets. Put the SD card back.
  + In order to preserve battery power, it’s best to not collect data when you’re going to sleep since the values are just going to be 0’s.
* Wiring Guide (sensor on top and arduino on the bottom):
  + Battery
    - black (GND 18 left)
    - red (VIN 15 right)
  + [Sensor](https://learn.adafruit.com/adafruit-as7262-6-channel-visible-light-sensor/arduino-wiring-test)
    - GND (sensor 4 left) to GND (Arduino 18 left)
    - VIN (sensor 2 left) to 5V (Arduino 18 right)
    - SCL (sensor 5 left) to pin 3 (Arduino 20 left)
    - SDA (sensor 6 left) to pin 2 (Arduino 19 left)
  + SD Card Module (back of breadboard)
    - GND to GND (Arduino 18 left)
    - Red wire: 5V to 5V (Arduino 18 right)
    - White wire: CS to pin 4 (Arduino 21 left)
    - White/Grey wire: MOSI to MO (Arduino 13 left)
    - Blue wire: SCK to SCK (Arduino 13 right)
    - Brown wire: MISO to MI (Arduino 14 right)

Stationary Sensor: Raspberry Pi

Setup

* [RPi and Sensor Wiring](https://learn.adafruit.com/assets/58748)
* Plug in power
* Optional: Set up Wifi
  + If you have a monitor, plug the HDMI cable to the Pi’s HDMI port and set up the wifi
  + Enter `ping google.com` in the terminal to check if there’s a wifi connection
  + Enter `sudo reboot`
  + If wifi is set up, [this Google Sheet](https://docs.google.com/spreadsheets/d/1a2zb5rGkZf21K3Y75TSlwKAPjoVbYT5QcgH4OA1YRCk/edit?usp=drive_web&ouid=101710634571803468067) will be updated
* Data will be logged in as7262\_readings.txt within the Pi
  + To check, `vim as7262\_readings.txt` and check latest reading at the bottom
* At the end of the day, export the data from readings.txt to Google Drive (not necessary if Google Sheet is updated)

Acceleration: Google Research Journal ([Here](https://play.google.com/store/apps/details?id=com.google.android.apps.forscience.whistlepunk))

Setup

* Start the app
* Click the new experiment button (button on bottom right)
* Start a new experiment (label it with the date)
* Add x tracking, y tracking, and z tracking.
* Following that, hit the red button to begin.
* At the end of the day, stop and upload to the google drive.

GPS Location: GPS Logger ([Here](https://play.google.com/store/apps/details?id=com.mendhak.gpslogger))

Setup

* Start the app
* Go to settings. Make sure it has a sampling rate set to sample at 60 second intervals.
* GO TO LOGGING DETAILS AND SWITCH ON “LOG TO CSV”
* Start logging.
* Upload the data from logging at the end of the day.
* Delete the local data.

Redo this process everyday.