Assignment 3

Geosc 597-003
Techniques of Geophysical Experimentation

February 9, 2021

Let's do a bit more w/ the Arduino.

Activity 1 - Voltmeter

Do the following:

1. Build an Arduino Voltmeter using the LCD screen – as Clay demonstrated in class #3.
2. Set up the wiring for a blinking LED and use your 10k potentiometer (SIK) to control the blinking rate.
   (a) Measure the voltage with your Arduino Voltmeter and convert the output that you measure from the pot. (sensorValue) to voltage.
   (b) Write the voltage to the serial monitor at the same rate that your LED is blinking.
   (c) What happens when you vary the position of the pot?
3. Produce a fully commented code and write a brief summary of what you've done.

Grading Rubric

Problem	*Points*
#1	25
#2	15
#3	10
Total	50

Activity 2 - Temperature and Humidity Sensor

Build a temperature and relative humidity sensor using the DHT11 chip supplied with your kit. Study the technical docs (link below) and try to do your wiring and write your code from scratch, without using any on-line resources. In the end, if you need help, go ahead and look online and/or see one of us if you need help.
https://github.com/clay-wood/TGE-SP21/tree/main/resources/Elegoo_starter_kit/Datasheet

Document your setup with a wiring diagram or photos (captioned), and concise description as necessary. It should be easy for others to replicate what you've done.

Grading Rubric

Topic	*Points*
Functioning Sensor	10
Original Code	5
Documentation	10
Total	25

What to upload to Canvas

You should upload the following with *consistent file names*:

- Your Arduino codes. Make sure it works before you upload.
  - **Fully comment your code!**
  - **Naming convention:** username_projectX.ino
    Example: cew52_blinky2.ino, cew52_stoplight.ino.
  - Put all Arduino codes for this assignment in a project folder.
- Relevant movies or photos.
  - **Naming convention:** username_LED_bright.mov
- Summary from Activity 1 and your concise project documentation from Activity 2.
- Put all files inside of a directory named: username_assignment3