Writeup Assignment 2A

§ A

videos link | https://augustauniversity.box.com/s/0yre3zd68b8xkwn7v36trwunudff9m10

I chose to practice implementing 2 of the sensors I will need for my final project.

1. Joystick module
2. Passive Buzzer

§ B

The joystick module is made up of 2 potentiometers which measure the distance the "stick" has moved in on both the x and y axis. To implement it I used 4-pins, ground, 5V, VRx, and VRy. All of which seem self explanatory.

The Buzzer is a 'piezo' element that vibrates causing an audible tone when fed a square wave. It only has a positive and negative wire which get connected to any data pin (so it can receive a wave) and ground respectively.

https://en.wikipedia.org/wiki/Piezoelectricity

§ C

test code for joystick

```
/*
 * This program blinks the onboard led and changes the speed of the blink
 *         based on the direction of the joystick module y-axis
 *
 *     see references for details of joystick implementation source
 */

int ledPin = 13;
int joyPinX = A1;
int joyPinY = A0;

int valueX = 0;
int valueY = 0;

void setup() {
  pinMode(ledPin, OUTPUT);
  Serial.begin(9600);           // see doc references
}

int treatValue(int data) {
  return (data * 9 / 1024) + 48;        // see doc references
}

void loop() {
  valueX = analogRead(joyPinX);
```

```
  valueY = analogRead(joyPinY);

  int blinkDelay = map(valueY, 0, 1023, 50, 1000);      // see doc references
  digitalWrite(ledPin, HIGH);
  delay(blinkDelay);
  digitalWrite(ledPin, LOW);
  delay(blinkDelay);
}
```

test code for passive buzzer

```
/*
 *    This program activates the passive buzzer sensor
 *    tone and noTone functions generate square waves
 */

int buzzer = 8;

void setup() {
  pinMode(buzzer, OUTPUT);
}

void loop() {
  tone(buzzer, 1000);
  delay(500);
  noTone(buzzer);
  delay(500);
}
```

References

1. elegoo board datasheet | https://epow0.org/~amki/car_kit/Datasheet/ELEGOO%20UNO%20R3%20Board.pdf
2. uno blink | https://docs.arduino.cc/tutorials/uno-rev3/Blink/
3. interfacing a joystick | https://docs.arduino.cc/tutorials/generic/interfacing-a-joystick/
3. tone() function | https://docs.arduino.cc/language-reference/en/functions/advanced-io/tone/
4. noTone() function | https://docs.arduino.cc/language-reference/en/functions/advanced-io/noTone/