

Lab 3: Sensing Potentiometers

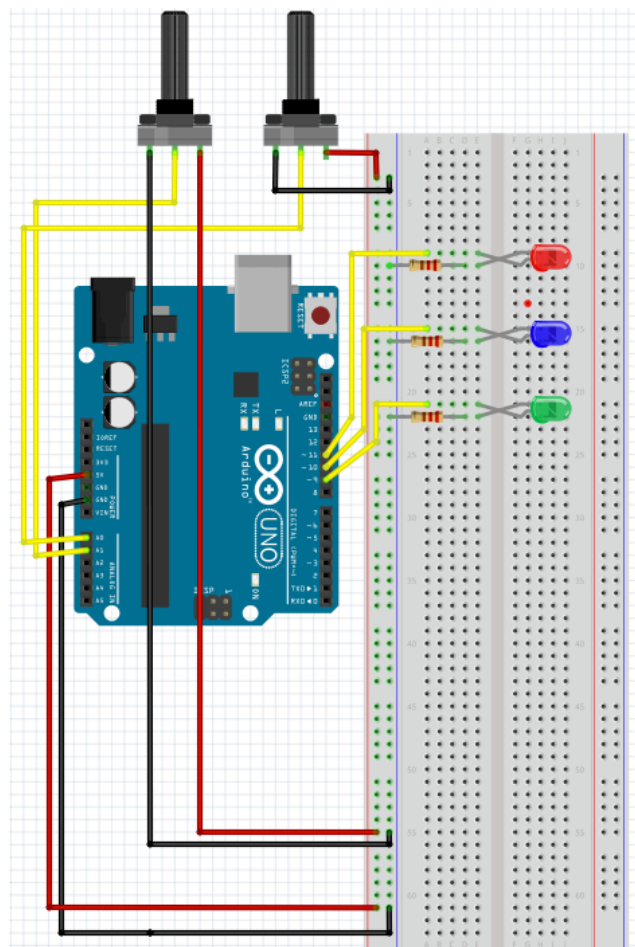
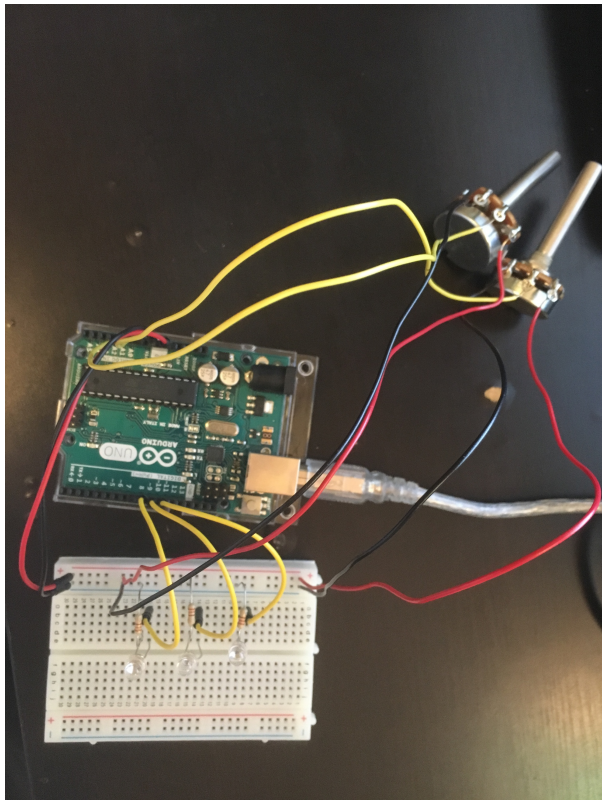
Description

Previously in class, I was able to solder two potentiometers. I used these two potentiometers to control the lighting of three RGB LED lights. The first potentiometer (P0 that is connected to A0/see code) controls the blinking rate of the LED lights. The more turned to the clock-wise, the slower the blinking will become. The second potentiometer (P1 that is connected to A1/see code) controls the brightness of the LEDs. Turning it clock-wise makes the LED bright. Arduino with blue and red LED.

One major difficulty was that even after setting up the Arduino and circuits, and proper code, my potentiometer for controlling brightness was not working. After several trials and wasting some time, I realized that my LEDs were not connected to PWM pins. I realized LEDs had to be connected to PWM because they had analog inputs to change the brightness. After relocating the wires, I was able to control the brightness. Moreover, since the potentiometer values ranged from 0 to 1024, I had to manually input (brightness/5) to control the brightness.

Components

- 1 Arduino
- 3 LED (red, blue, and green)
- 3 Resistor (220 Ω)
- 1 Breadboard
- 2 Potentiometers
- 11 Jumper wires



Code

```
/*
  Lab 3: Sensing Potentiometers
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  Info C262
*/

int sensorPin_P0 = A0; // Analogue input for Pot 0 that controls blinking speed
int sensorPin_P1 = A1; // Analogue input for Pot 1 that controls brightness of LEDs
int ledPin_R = 11;     // LED pin for Red
int ledPin_B = 10;     // LED pin for Blue
int ledPin_G = 9;      // LED pin for Green
int blink_rate = 0;    // variable to store the value coming from the sensor
int brightness = 0;    // variable to store the value coming from the sensor

void setup() {
  // declare the ledPin as an OUTPUT:
  pinMode(ledPin_R, OUTPUT);
  pinMode(ledPin_B, OUTPUT);
  pinMode(ledPin_G, OUTPUT);
}

void loop() {
  // read the value from the sensor:
  blink_rate = analogRead(sensorPin_P0); //assigning blink_rate to pot0 value
  brightness = analogRead(sensorPin_P1); //assigning brightness to pot1 value
  // turn the ledPin on
  analogWrite(ledPin_R, brightness/5);
  analogWrite(ledPin_B, brightness/5);
  analogWrite(ledPin_G, brightness/5);

  // stop the program for <blink_rate> milliseconds:
  delay(blink_rate);
  // turn the ledPin off:
  analogWrite(ledPin_R, 0); //set brightness to 0
  analogWrite(ledPin_B, 0); //set brightness to 0
  analogWrite(ledPin_G, 0); //set brightness to 0

  // stop the program for for <blink_rate> milliseconds:
  delay(blink_rate);
}
```