LAB #3 (3 LEDs 1 Potentiometer)

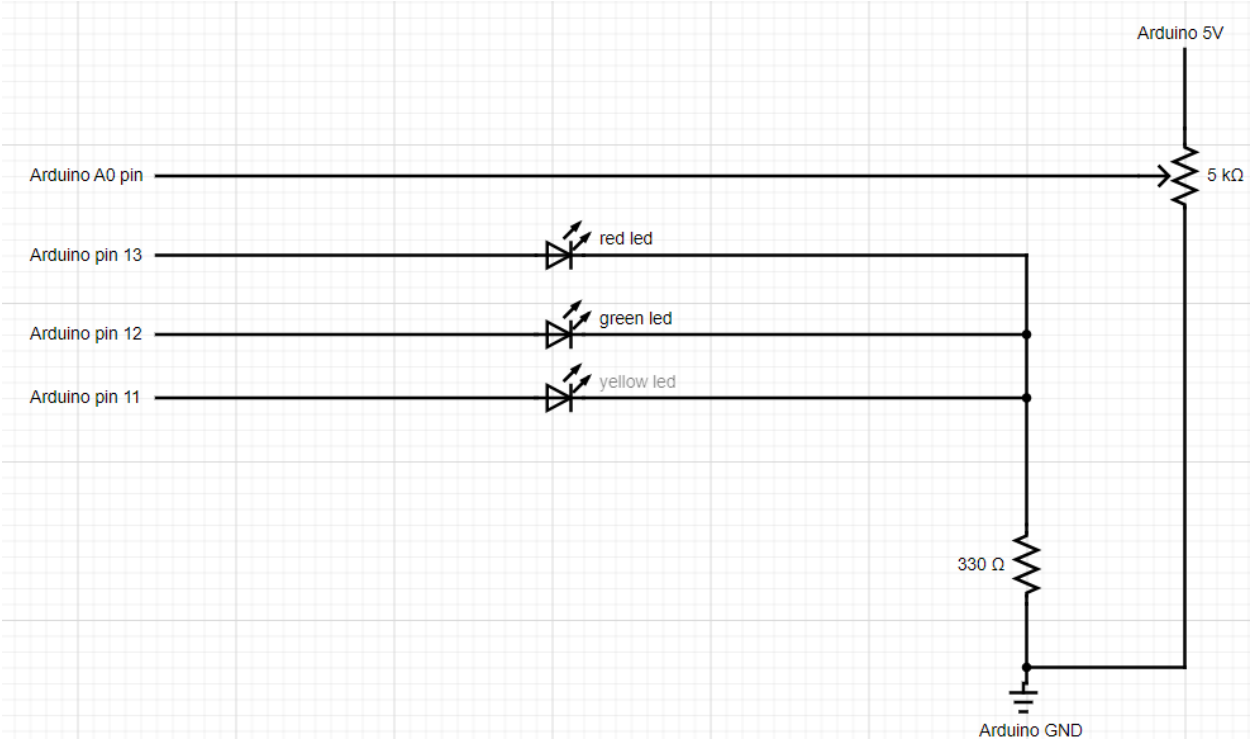
In this lab, we are going to have 3 leds (red, green, yellow) or (you can choose 3 different colors yourself) and the Arduino will read the analog value coming from the Arduino:

- **if the potentiometer reading is less than 100 all leds are off.**
- **If it is less than 340 then only the red led will be on.**
- **If it is less than 680 then the red and green leds will be on and yellow led off.**
- **Otherwise, all leds are on.**

Required components for this lab:

- **Breadboard**
- **Wires (male - male)**
- **3 Led (3 different color if possible).**
- **1 resistor in range of 220Ω to 1KΩ.**
- **1 potentiometer (5KΩ or 10KΩ).**

Circuit diagram



Code

```
#define red 13
#define green 12
#define yellow 11
#define pot A0

int potReading = 0;
void setup() {

  //setting pins connected to leds as output
  pinMode(red, OUTPUT);
  pinMode(green, OUTPUT);
  pinMode(yellow, OUTPUT);

  //setting pin connected to potentiometer as input
  pinMode(pot, INPUT);

  //start a serial communication with arduino to be able to see the values of the potentiometer readings.
  Serial.begin(9600);

}


// function that takes the values (HIGH or LOW) in order of (red, green, yellow) and writes these values to the leds connected.
void turnOnOff(int redValue, int greenValue, int yellowValue){
  digitalWrite(red, redValue);
  digitalWrite(green, greenValue);
  digitalWrite(yellow, yellowValue);
}
```

```
void loop() {
  //read potentiometer value which ranges from 0 to 1023 ---> (2^10)
  potReading = analogRead(pot);

  // send potentiometer value to the computer so we can read its value in the serial monitor
  Serial.println(potReading);

  // if the value is less than 100 turn off all leds
  if(potReading < 100){
    turnOnOff(0,0,0);
  }
  //if Potentiometer reading is less than 340 turn on red led
  else if(potReading < 340){

    turnOnOff(1,0,0);

  }
    //if Potentiometer reading is less than 680 turn on red led, and green led
  else if(potReading < 680){

    turnOnOff(1,1,0);

  }
    //if Potentiometer reading is less than 340 turn on all led
  else{
    turnOnOff(1,1,1);
  }


}
```