EXPERIMENT 3

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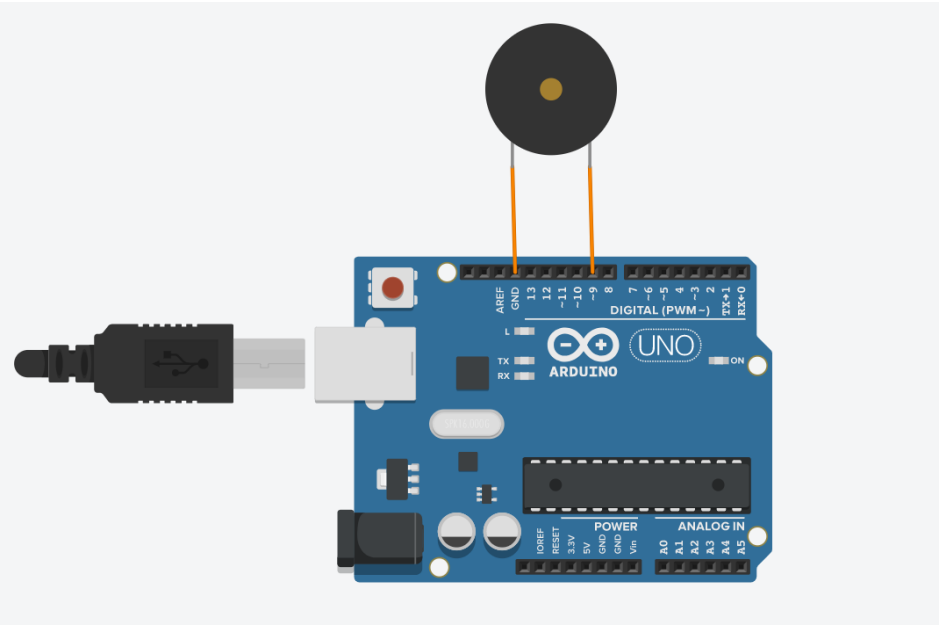
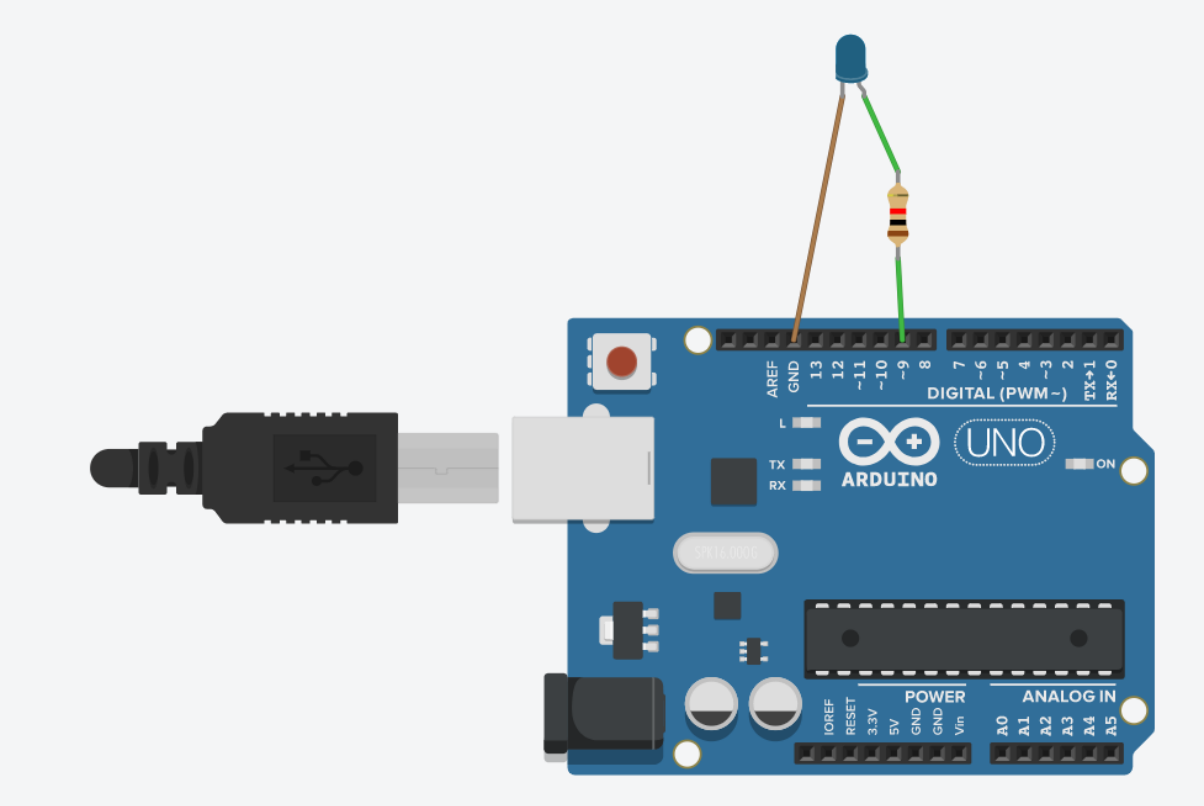
1→Alternately turn ON / OFF the BUZZER

```
void setup()
{
  pinMode(9, OUTPUT);
}
void loop()
{
  for(int i=0; i<5; i++)
  {
    tone(9,440);
    delay(500);
    noTone(9);
    delay(500);
  }
}
```



2. Blink LED without using delay

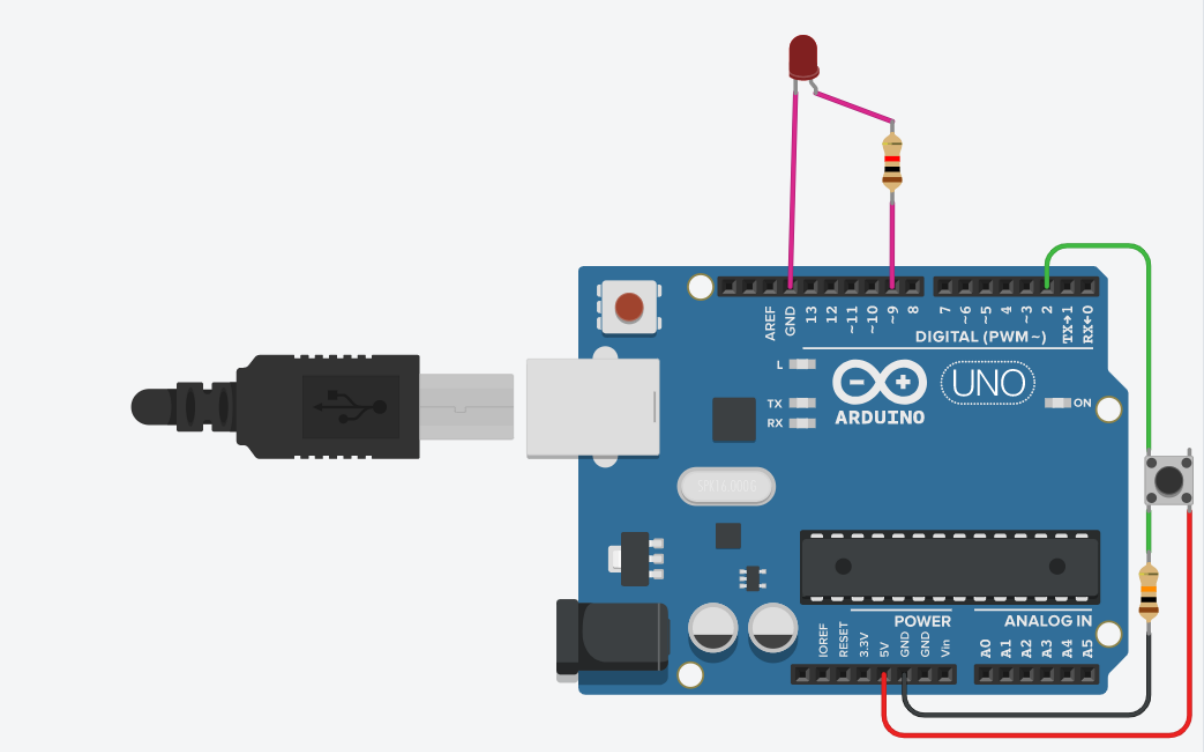
```
 int led_State = LOW;
long previousMillis = 0;

void setup()
{
  pinMode(9, OUTPUT);
}

void loop()
{

  unsigned long currentMillis = millis();

  if(currentMillis - previousMillis > 1000)
  {
    previousMillis = currentMillis;

    if (led_State == LOW)
    {
      led_State = HIGH;
    }
    else
    {
      led_State = LOW;
    }

    digitalWrite(9, led_State);
  }
}
```



3. Demonstrate the use of input pull up

```
void setup()
{
  pinMode(2, INPUT_PULLUP);
  pinMode(9, OUTPUT);

}

void loop()
{
  int buttonState = digitalRead(2);
  if (buttonState == 0)
  {
    digitalWrite(9, HIGH);
```

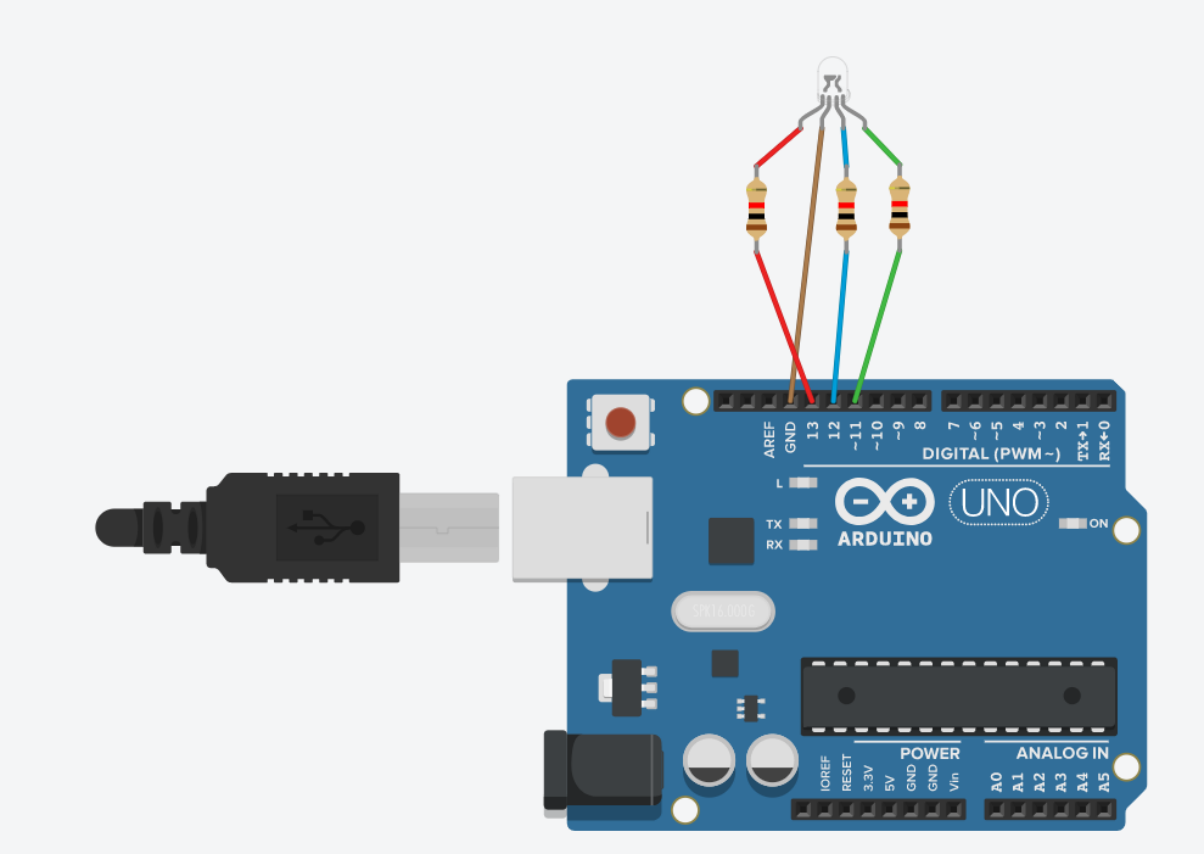
```
  }
  else
  {
    digitalWrite(9, LOW);
  }
}
```



4. Traffic signal using RGB

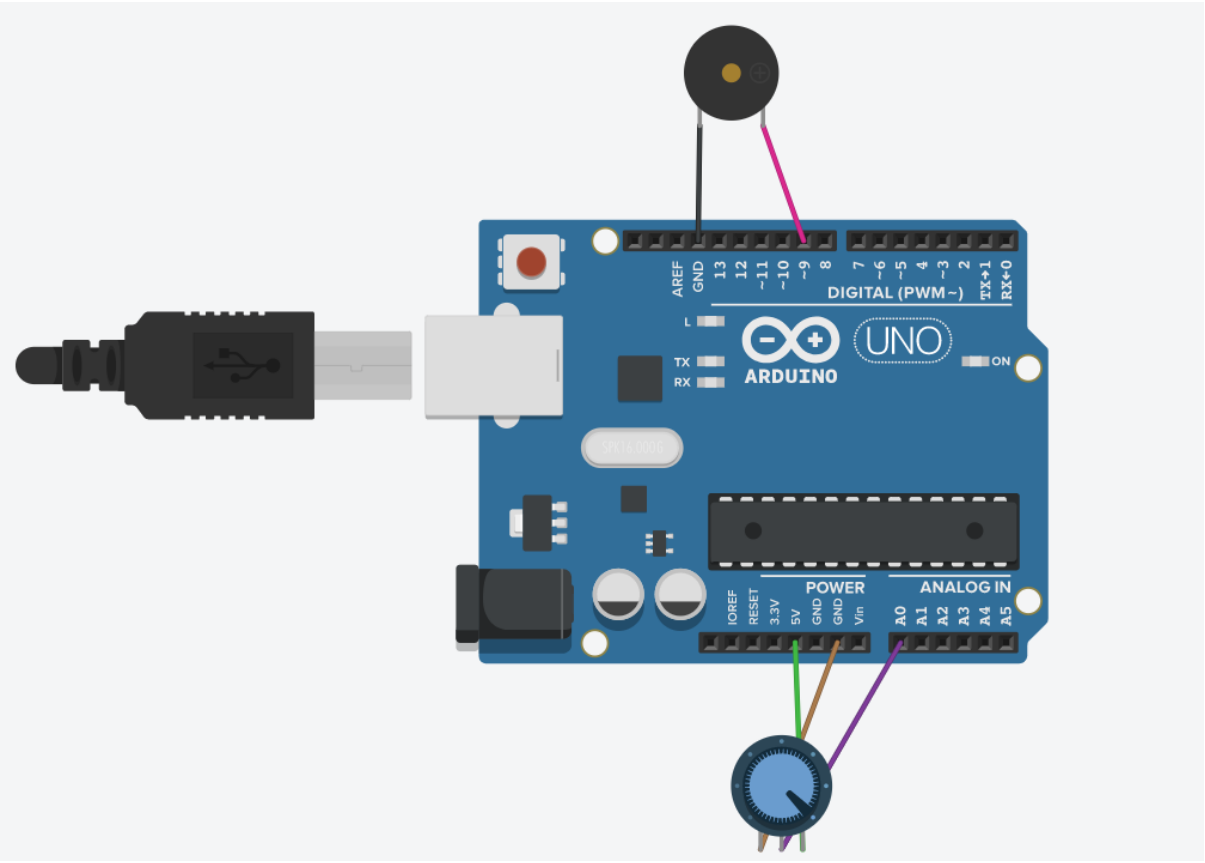
```
void setup()
{
  pinMode(13, OUTPUT);//Red
  pinMode(12, OUTPUT);//Blue
  pinMode(11, OUTPUT);//Green
}
```

```
void loop()
{
  for (int i=0; i<5; i++)
  {
    digitalWrite(13, HIGH);
    delay(500);
    digitalWrite(13, LOW);
    delay(500);
  }

    digitalWrite(12, HIGH);
    delay(1000);
    digitalWrite(12, LOW);
    delay(500);

  for (int i=0; i<5; i++)
  {
    digitalWrite(11, HIGH);
    delay(500);
    digitalWrite(11, LOW);
    delay(500);
  }

}
```



5. Control tone of buzzer with potentiometer

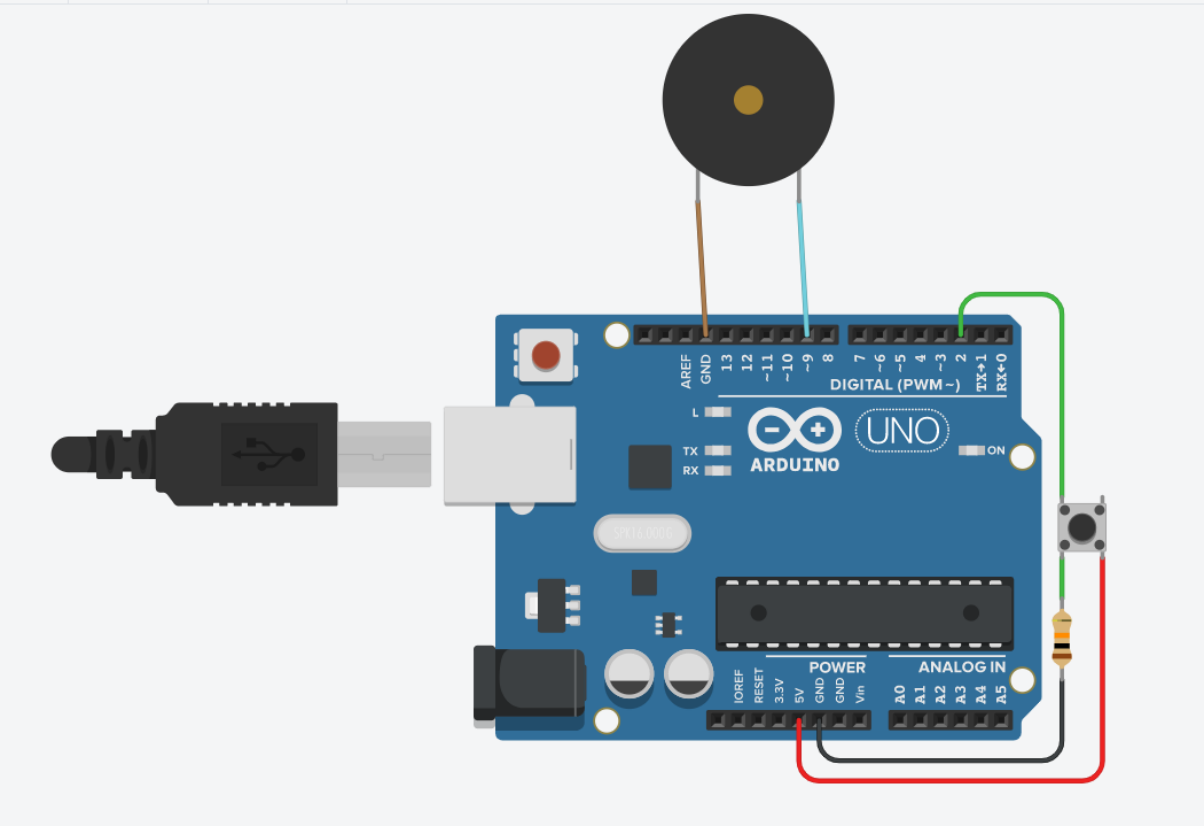
```
void setup()
{
  pinMode(A0, INPUT);
  pinMode(9, OUTPUT);
}
void loop()
{
  int sensorValue = analogRead(A0);
  tone(9,sensorValue);
  delay(500);
  noTone(9);
}
```



6. Play a tune when button is pressed

```
int buttonState = 0;


void setup()
{
  pinMode(2, INPUT);
  pinMode(9, OUTPUT);
}


void loop()
{
  buttonState = digitalRead(2);
  if (buttonState == 1)
```

```
  {
    tone(9, 440);
  }
  else
  {
    noTone(9);
  }
  delay(10);
}
```

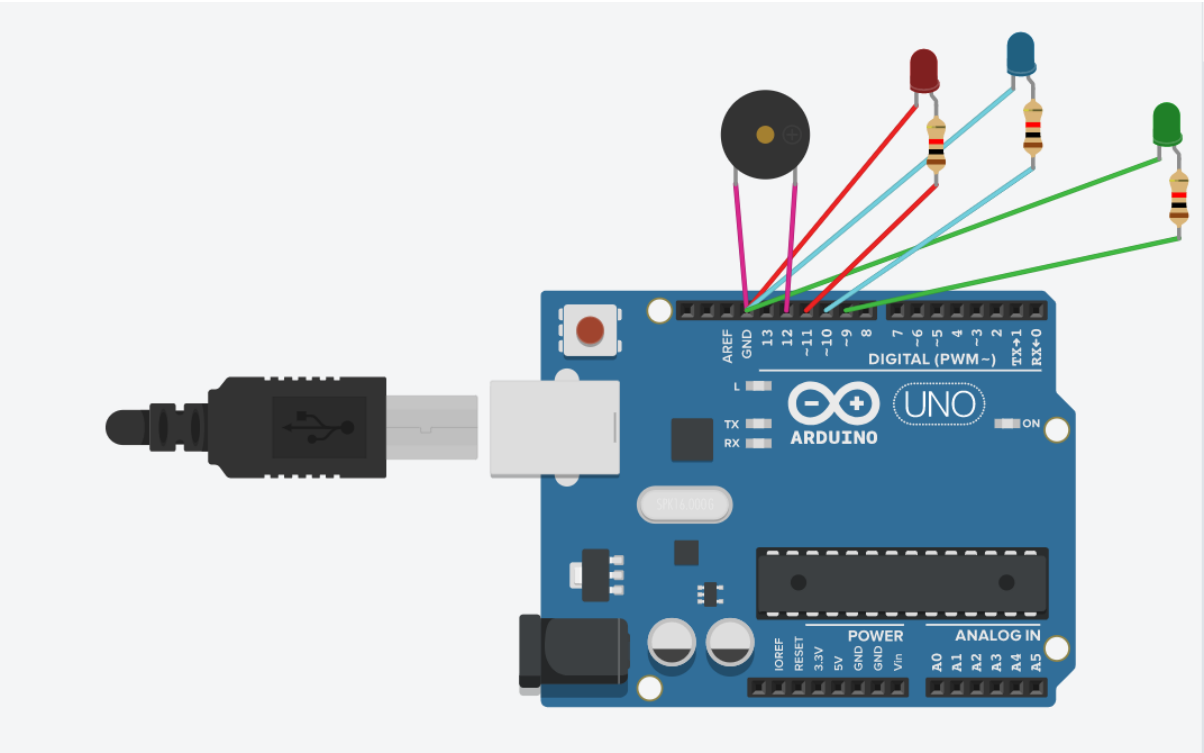


7. Traffic signal with a buzzer

```
void setup()
{
  pinMode(12, OUTPUT);//buzzer
  pinMode(11, OUTPUT);//red
```

```
  pinMode(10, OUTPUT);//yellow
  pinMode(9, OUTPUT);//green
}

void loop()
{
  digitalWrite(11, HIGH);
  delay(4000);
  digitalWrite(11, LOW);
  tone(12, 770);
  delay(1500);
  noTone(12);

  for (int i=0; i<5; i++)
  {
    digitalWrite(10, HIGH);
    delay(1000);
    digitalWrite(10, LOW);
    delay(1000);
  }

  digitalWrite(9, HIGH);
  delay(4000);
  digitalWrite(9, LOW);
  tone(12,770);
  delay(1500);
  noTone(12);
```

}


AREF
GND
13
12
~11
~10
~9
8
7
~6
~5
4
~3
2
TX→1
RX←0
DIGITAL (PWM~)
L
TX
RX
ARDUINO
UNO
ON
POWER
ANALOG IN
IOREF
RESET
3.3V
5V
GND
GND
Vin
A0
A1
A2
A3
A4
A5