EXPERIMENTO TEMPERATURA

Materiais:

- **Arduino;**
- **Jumpers;**
- **Proto-Board;**
- **Diodo 1N4148;**
- **Resistor 2K2 (vermelho, vermelho, vermelho).**

Figura 1 - Montagem

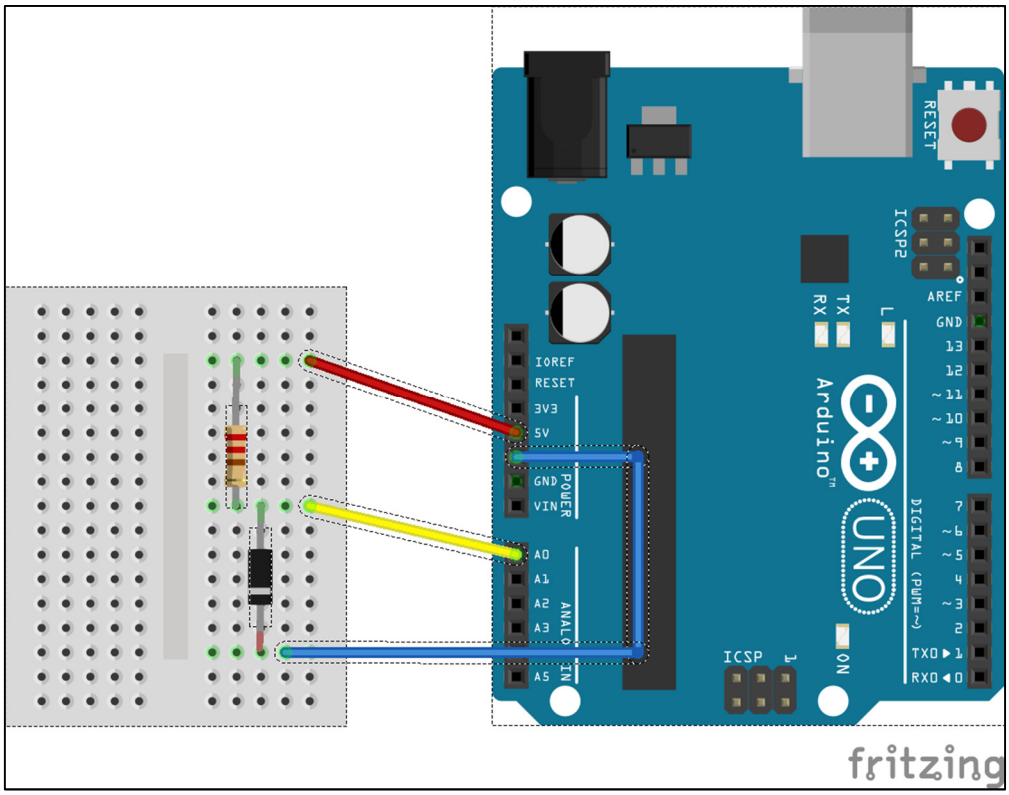
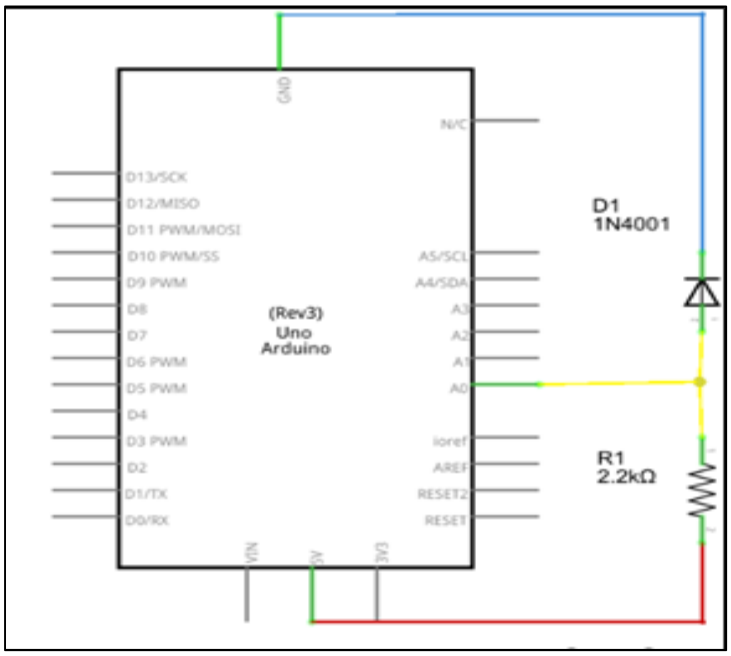


Figura 2 – Esquemático



Sketch 1

```
float celsios= 0;


int tempo=0;
float t1=0;


void setup() {
 Serial.begin(9600);
analogReference(INTERNAL);
}
void loop() {
  t1 = map(analogRead(0),472,638,1000,0);
  celsios= t1/10;
```

```
  tempo =millis()/1000;


Serial.print (tempo);
Serial.print (" Temperatura = ");
Serial.print (celsios,1);
Serial.println (" *C");
 delay(1000);
}
```

Sketch 2

```
float celsios = 0;
float kelvin = 0;
float fahrenheit = 0;


int tempo=0;
float t1=0;


void setup() {
 Serial.begin(9600);
analogReference(INTERNAL);
}
void loop() {
  t1 = map(analogRead(0),472,638,1000,0);


  celsios= t1/10;
  kelvin = celsios + 273;
```

```
fahrenheit = (1.8 * celsios) + 32;


  tempo =millis()/1000;


Serial.print ("tempo(s): ");
Serial.print ( tempo);
Serial.print("\t");


Serial.print (" Celsios = ");
Serial.print (celsios,1);
Serial.print("\t");


Serial.print (" Kelvin = ");
Serial.print (kelvin,1);
Serial.print("\t");


Serial.print (" Fahrenheit = ");
Serial.println (fahrenheit,1);


 delay(1000);
}
```

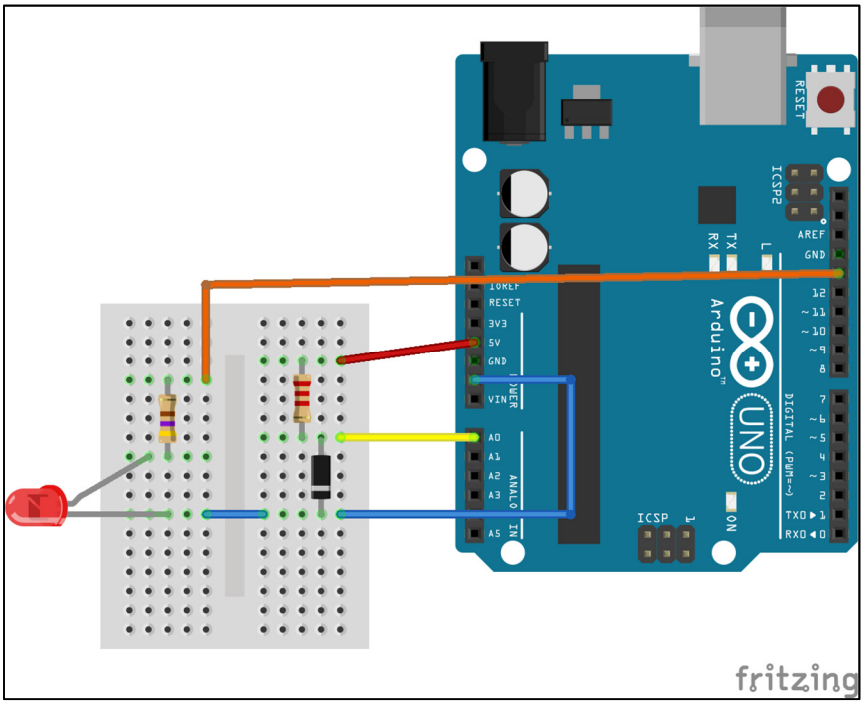
Sketch 3

```
float celsios = 0;
const float alfa = 0.95;


int tempo=0;
    float t1=0;


void setup() {
 Serial.begin(9600);
analogReference(INTERNAL);
}
void loop() {
  static float valor_filtrado = 0.0;
   t1 = map(analogRead(0),472,638,1000,0);
   celsios= t1/10;
   valor_filtrado = (alfa * valor_filtrado) + ((1-alfa)*celsios);
   tempo =millis()/1000;


Serial.print (" Temperatura = ");
Serial.print (celsios,1);
Serial.print ("  ===>  ");
Serial.println (valor_filtrado,1);
 delay(1000);
}
```

Sketch 4

```
float celsios= 0;
int tempo=0;
float t1=0;
int led = 2;
void setup() {
Serial.begin(9600);
analogReference(INTERNAL);
pinMode(led, OUTPUT);
}
void loop() {
t1 = map(analogRead(0),472,638,1000,0);
celsios= t1/10;
tempo =millis()/1000;
Serial.print (tempo);
Serial.print (" Temperatura = ");
Serial.print (celsios,1);
Serial.println (" *C");
if (celsios > 32)
{
  digitalWrite(led, HIGH);
}
else
{
digitalWrite(led, LOW);
}
delay(1000);
}
```

Figura 3 – Montagem para o sketch 4



Link para arquivos no Git Hub:

https://github.com/Nairon66sousa/arduino_e_temperatura