INSTITUTO FEDERAL
SANTA CATARINA

Oficina de Arduíno

Projeto de Extensão APROEX 01/2016:

“Disseminação da ciência e da tecnologia através de experiências didáticas.”

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Voluntários: Fernando, Layssa, Stephany.

Coordenador do Projeto: Pedro Armando da Silva Jr., Elen Lobato.

IFSC Câmpus São José

Ministério da Educação

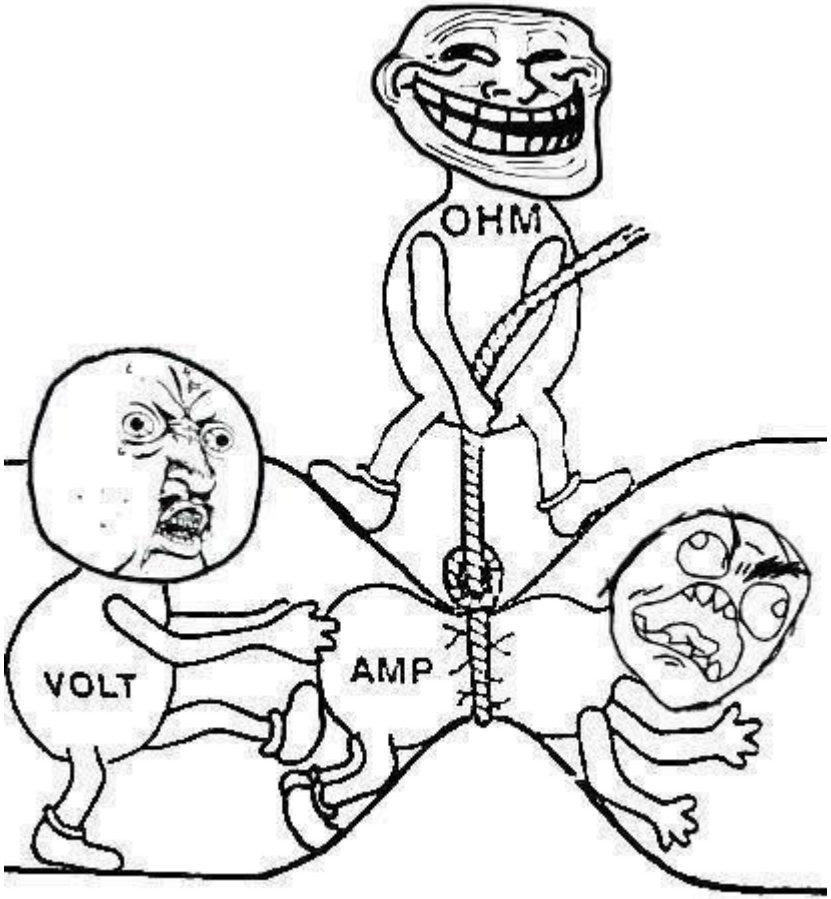
BRASIL

Conceitos Básicos

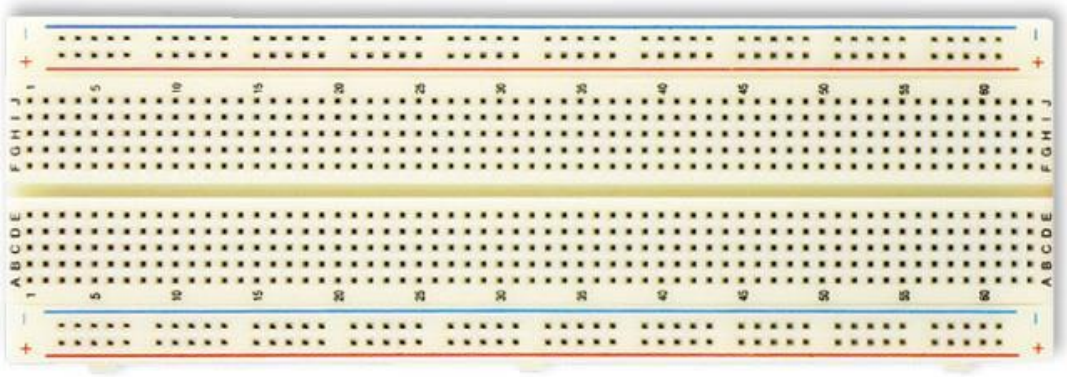
- Resistência: oposição a passagem de corrente elétrica, ou seja, o resistor limita a corrente no componente;

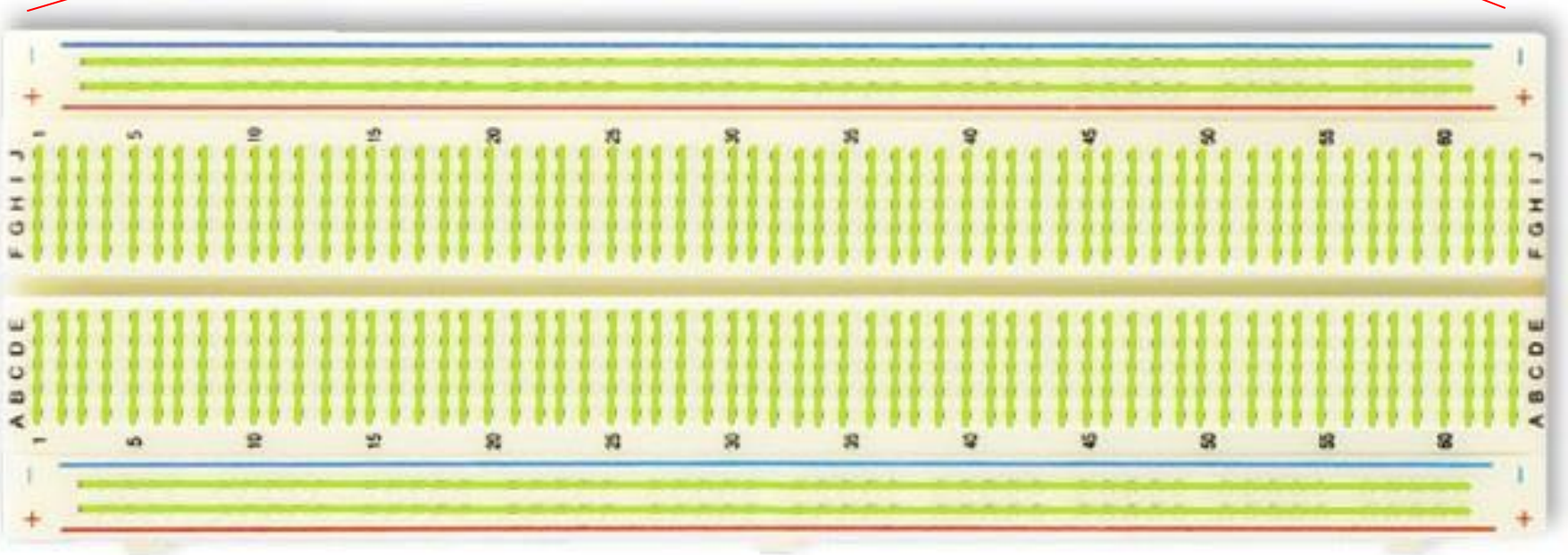
- Corrente elétrica: fluxo de elétrons em um condutor;

- Tensão elétrica: diferença de potencial entre dois pontos (+ e -), responsável pela alimentação elétrica de um circuito (V=RI);



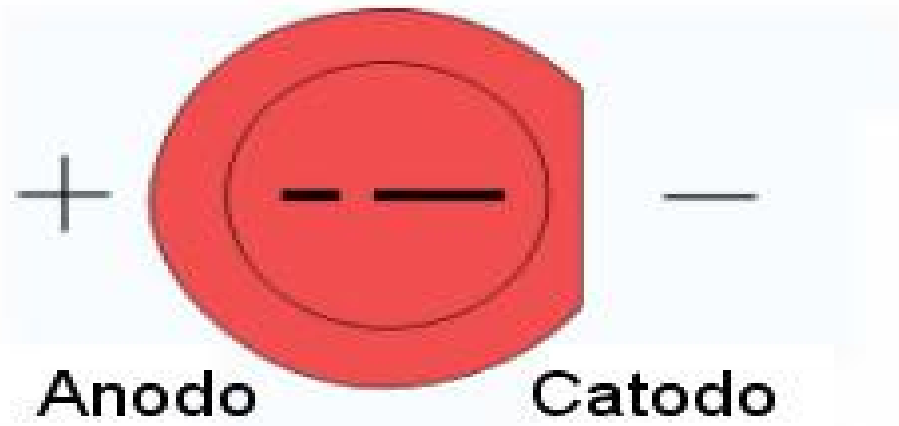
Matriz de Contato (Protoboard)

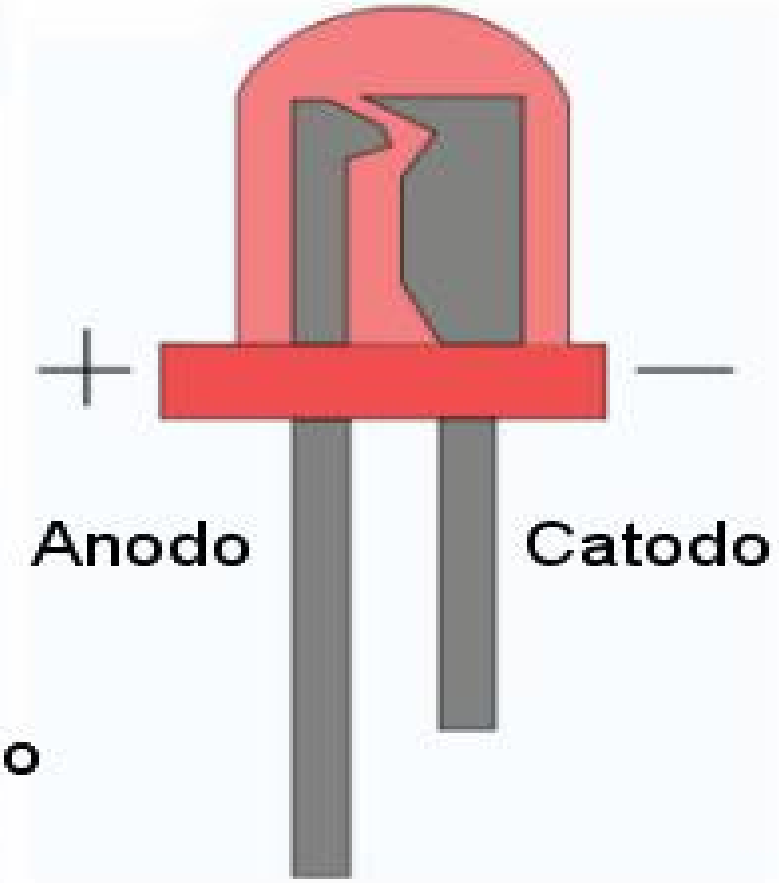


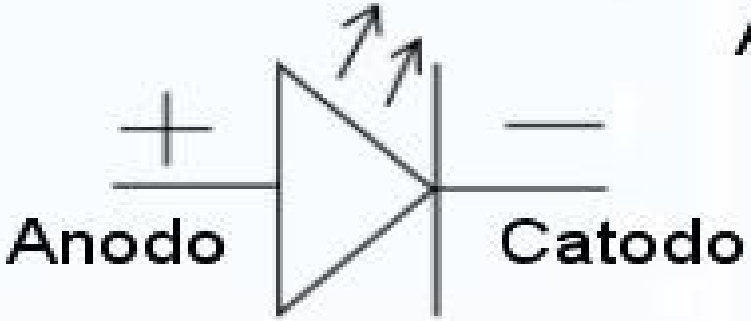


Conexões da protoboard

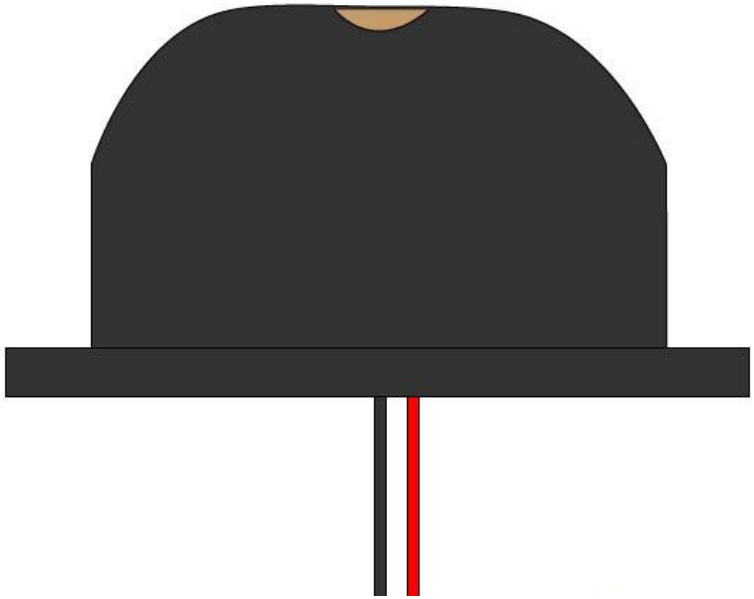
LED



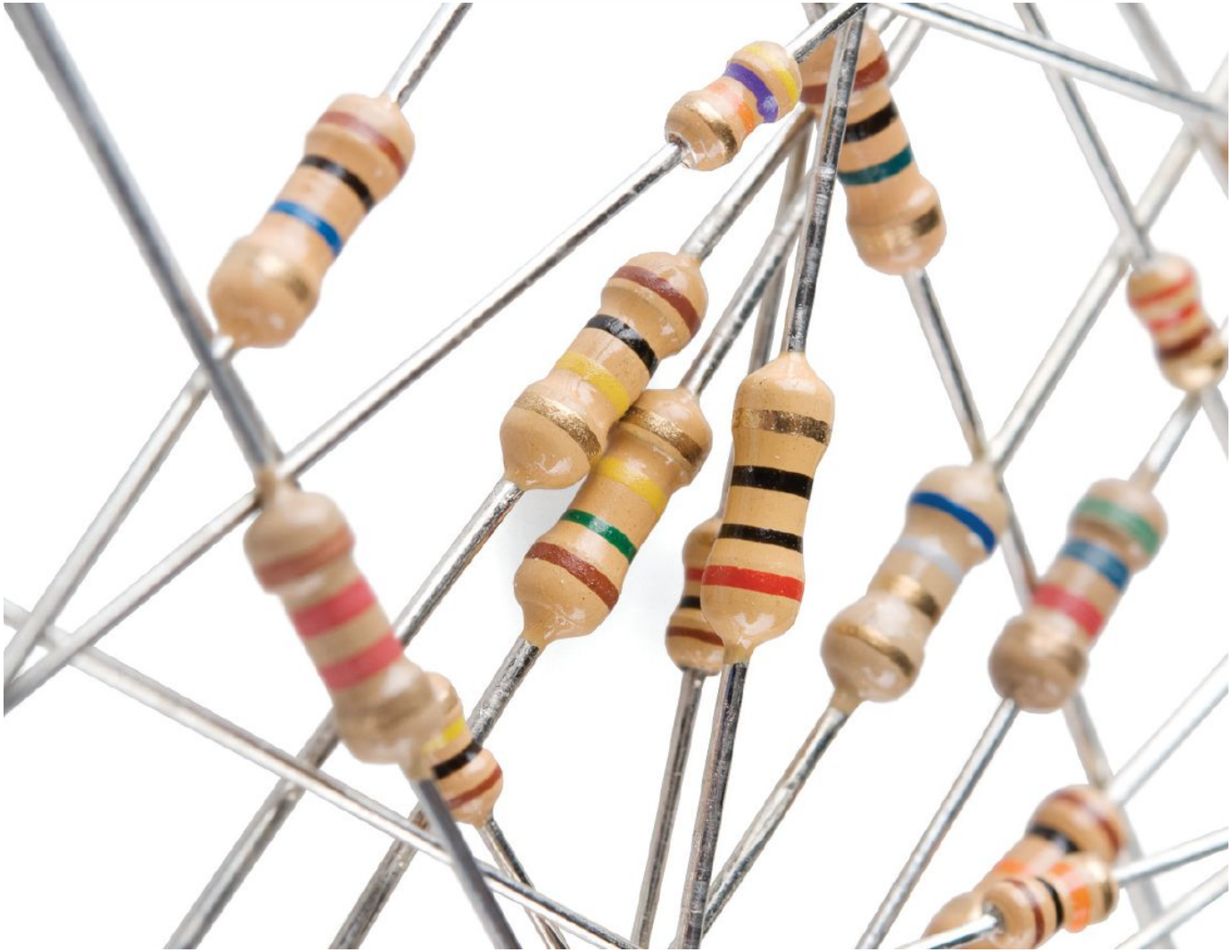




Buzina (Buzzer)

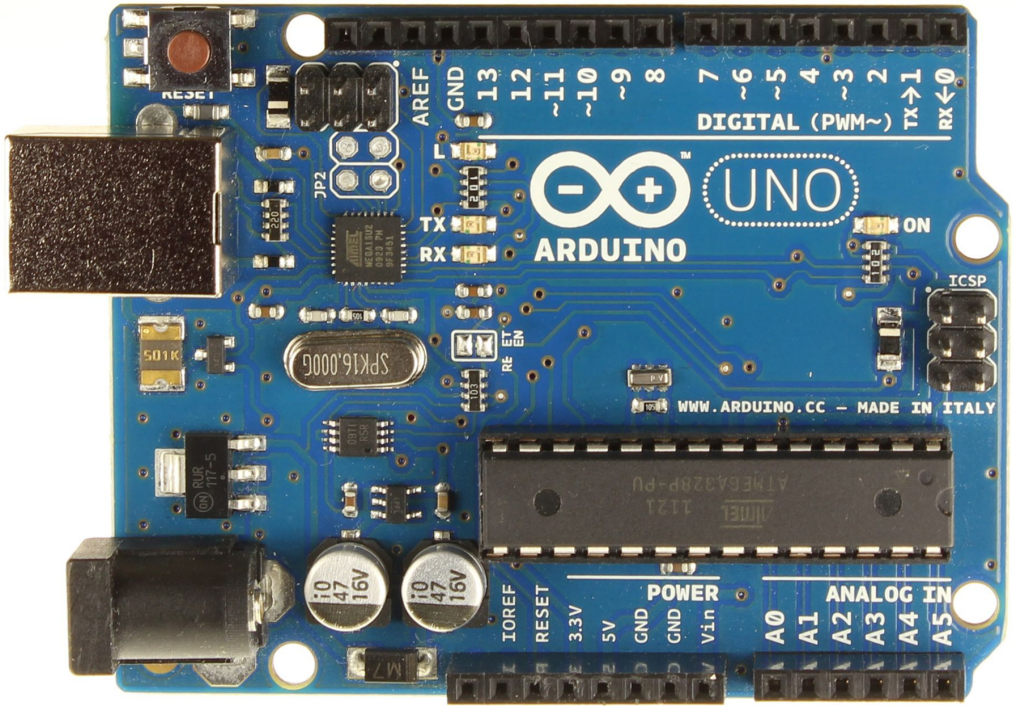


Resistor



Arduino

- Microcontrolador utilizado em projetos de automação (ex: acender um led);
- Possui portas analógicas e digitais que podem ser programadas;
- No nosso caso, será utilizado as portas digitais como fonte de alimentação do circuito;



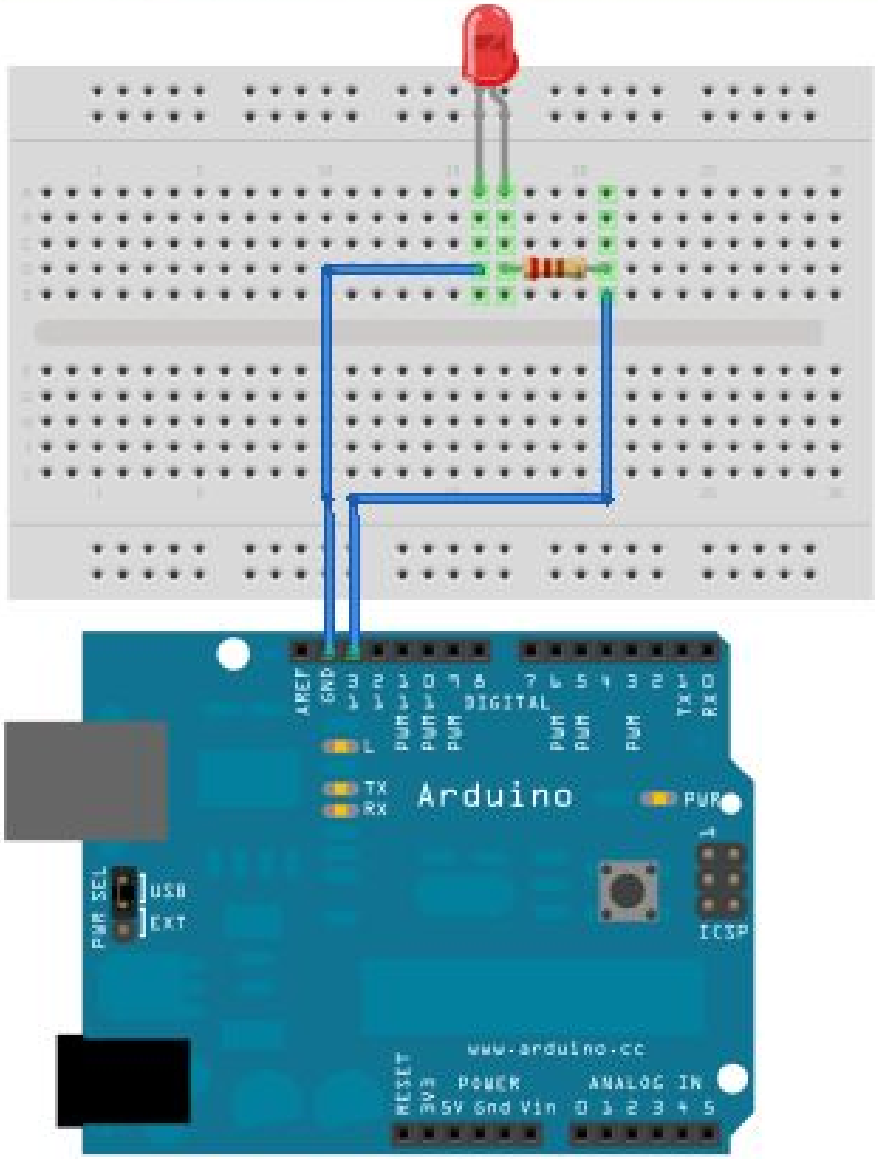
Hora de trabalhar!

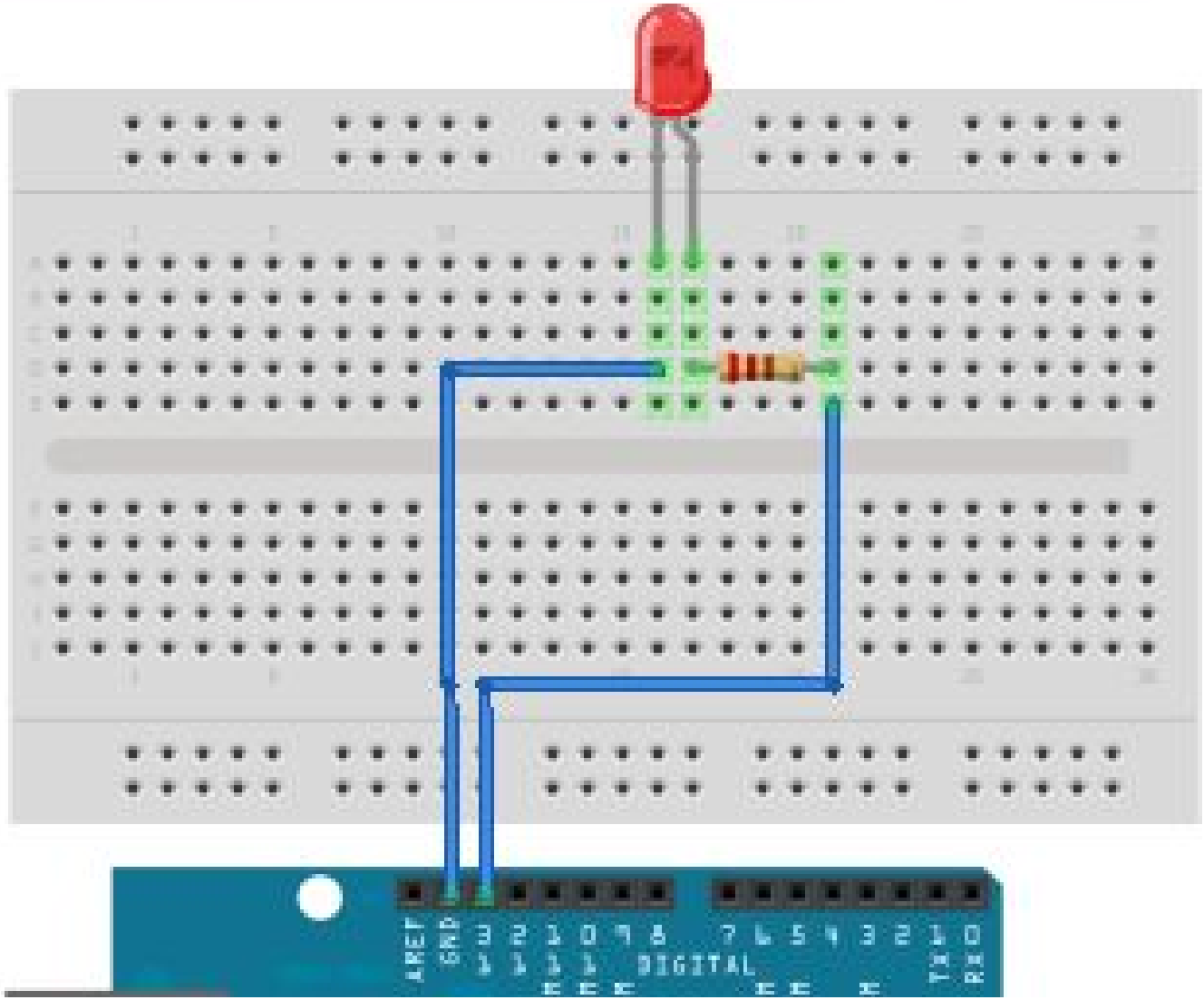
Montagem 1

Pisca LED

Uma conexão no GND.

Outra conexão no 13.




AREF
GND
13
12
11
10
9
8
7
6
5
4
3
2
1
0
DIGITAL
TX
RX

Programação

acende_led §

```
//Acender LED
int pausa=100;
int LED = 13;

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

void loop(){

  digitalWrite(LED,HIGH);
  delay(pausa);
  digitalWrite(LED,LOW);
  delay(pausa);

}
```

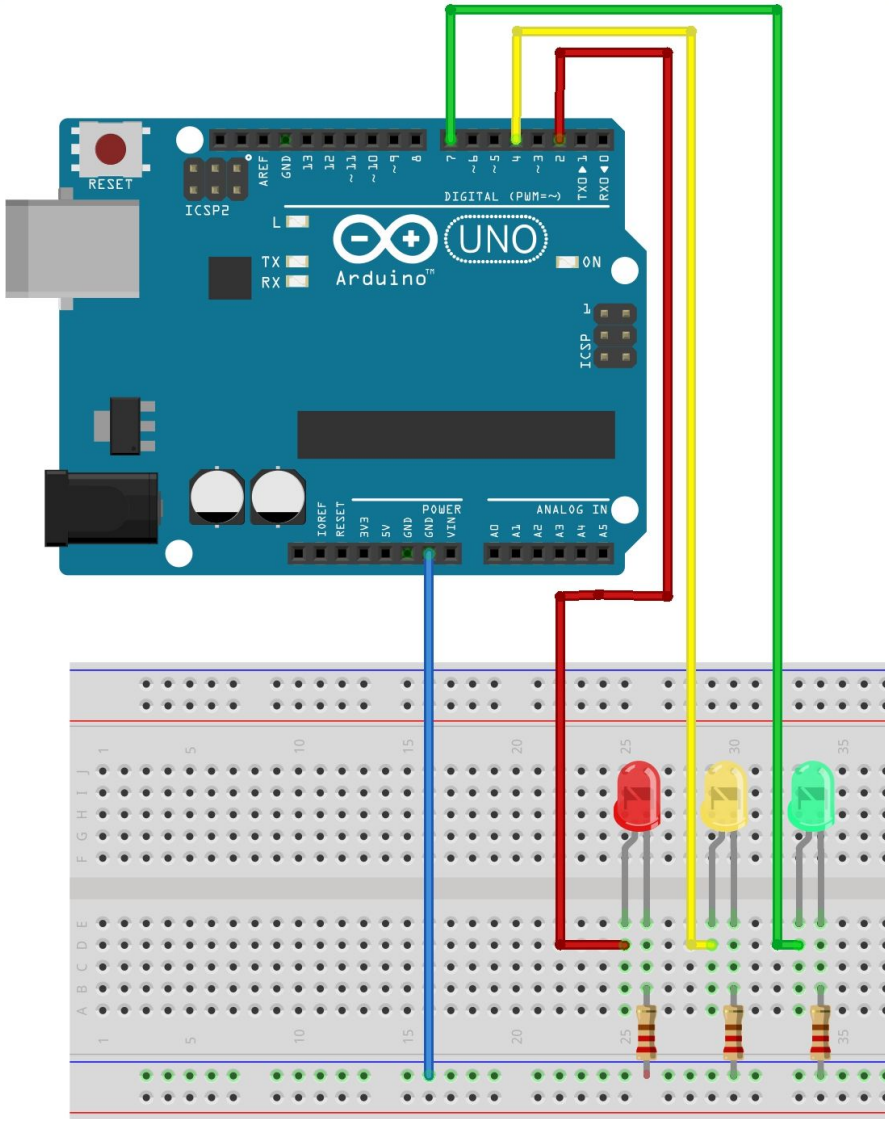
Montagem 2

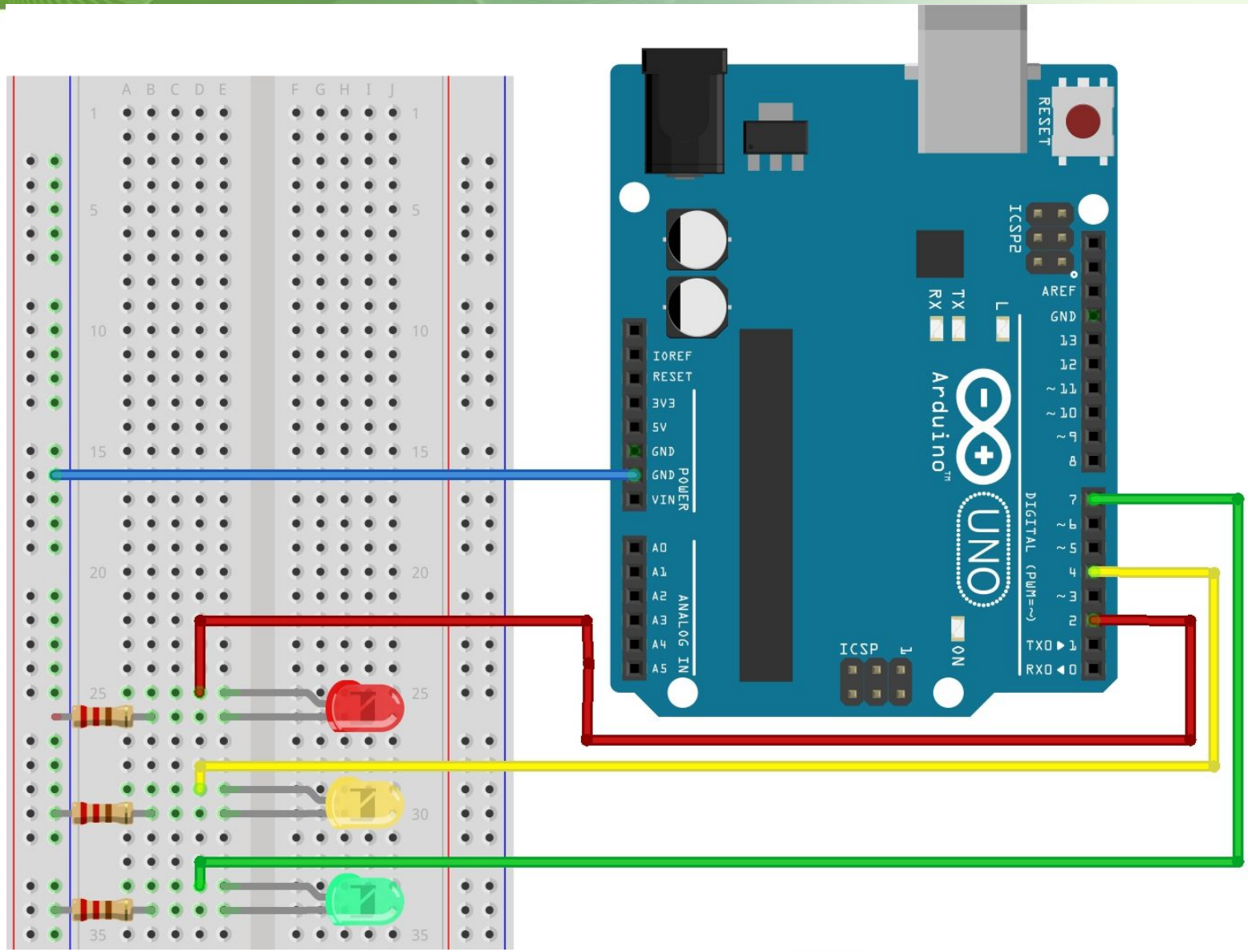
Pinagem:

Verde = 7

Amarelo = 4

Vermelho = 2




RESET
ICSP2
AREF
GND
13
12
~11
~10
~9
8
7
~6
~5
4
~3
2
TXO 1
RXO 0
DIGITAL (PWM=~)
L
TX
RX
ON
ICSP
1
Arduino
UNO
IOREF
RESET
3V3
5V
GND
GND
VIN
POWER
A0
A1
A2
A3
A4
A5
ANALOG IN

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Programação:

semaforo §

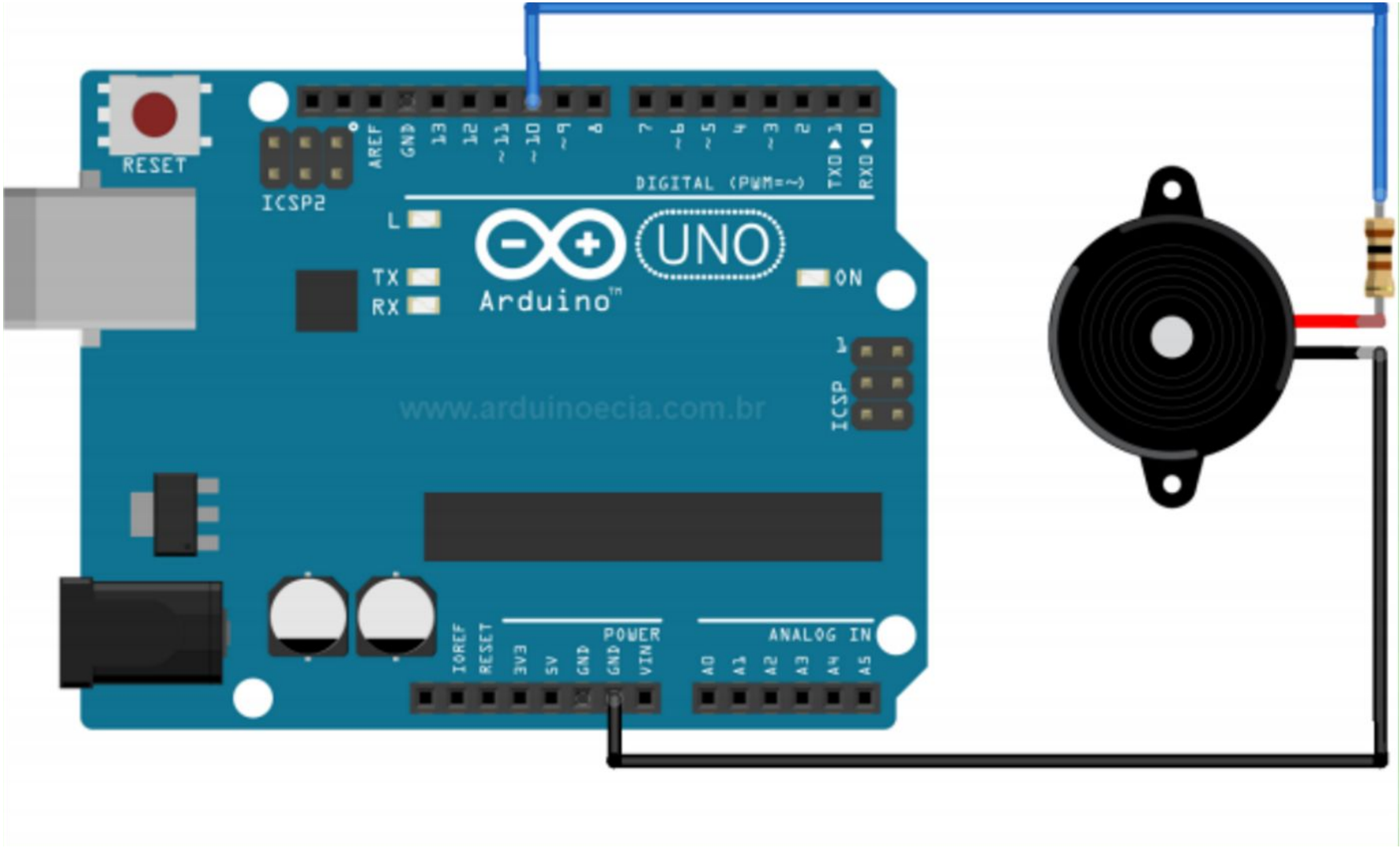
```
//semaforo
int pausa = 3000;
int red = 2;
int green = 7;
int yellow = 4;

void setup() {
  pinMode(red,OUTPUT);
  pinMode(green,OUTPUT);
  pinMode(yellow,OUTPUT);
}
void loop() {
  //aberto
  digitalWrite(green,HIGH);
  digitalWrite(red,LOW);
  digitalWrite(yellow,LOW);
  delay(pausa);

  //transicao
  digitalWrite(green,LOW);
  digitalWrite(red,LOW);
  digitalWrite(yellow,HIGH);
  delay(1500);

  //transicao
  digitalWrite(green,LOW);
  digitalWrite(red,HIGH);
  digitalWrite(yellow,LOW);
  delay(pausa);
}
```

Montagem 3


RESET
ICSP2
AREF
GND
13
12
~11
~10
~9
8
7
~6
~5
4
~3
2
TX→1
RX←0
DIGITAL (PWM=~)
L
TX
RX
UNO
Arduino
ON
ICSP
www.arduinoecia.com.br
IOREF
RESET
3V3
5V
GND
GND
VIN
POWER
ANALOG IN
A0
A1
A2
A3
A4
A5

Programação

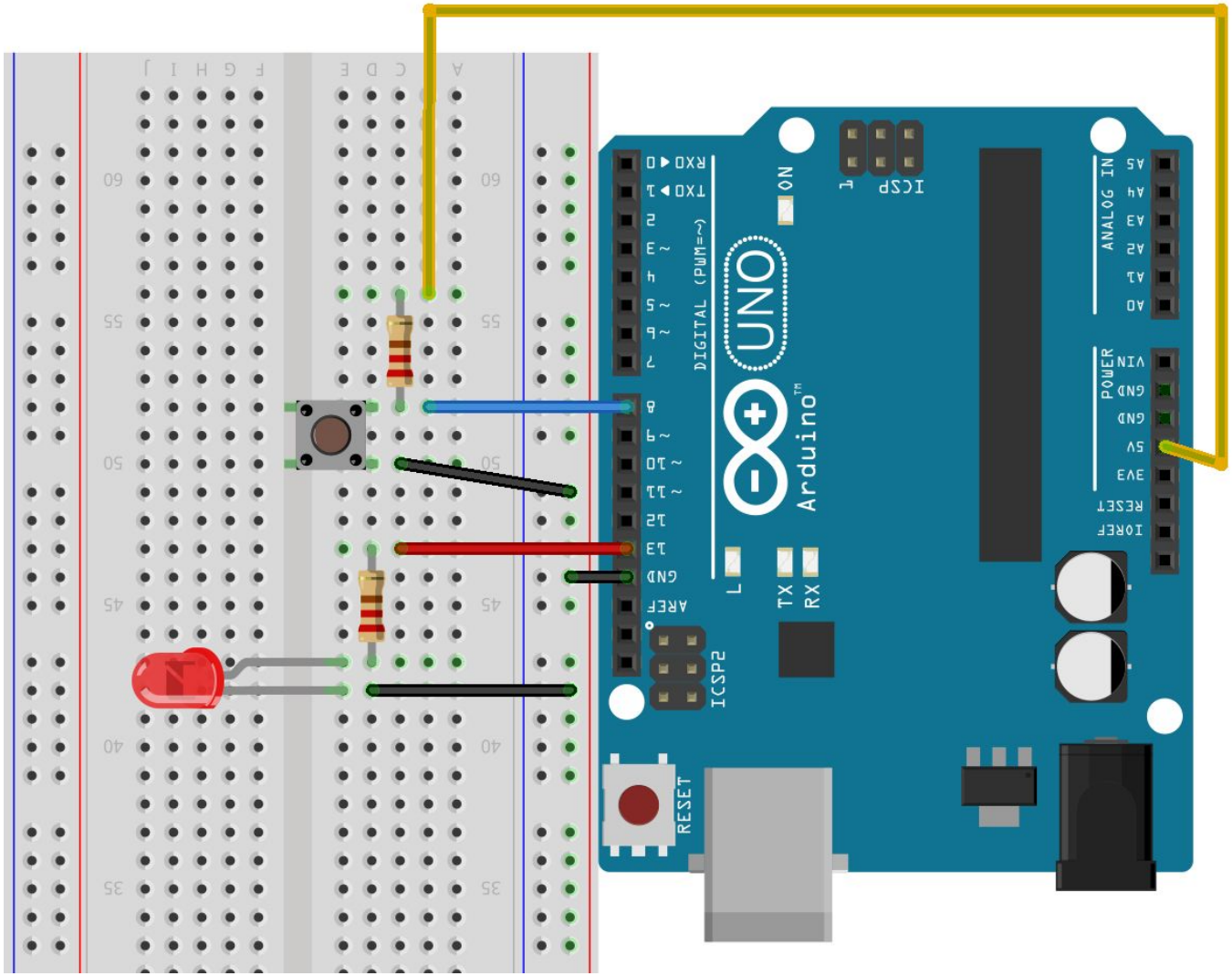
BUZZER

```
int buzina = 10;

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

void loop() {
  analogWrite(buzina,255);
  delay(1000);
  analogWrite(buzina,0);
  delay(1000);
}
```

Montagem 4


ANALOG IN
A5
A4
A3
A2
A1
A0
POWER
VIN
GND
GND
5V
3V3
RESET
IOREF
ON
L
ICSP
DIGITAL (PWM=~)
TX0 ◀ 1
RX0 ◀ 0
2
~ 3
4
~ 5
~ 6
7
8
~ 9
~ 10
~ 11
12
13
GND
AREF
L
TX
RX
ICSP2
UNO
Arduino
RESET

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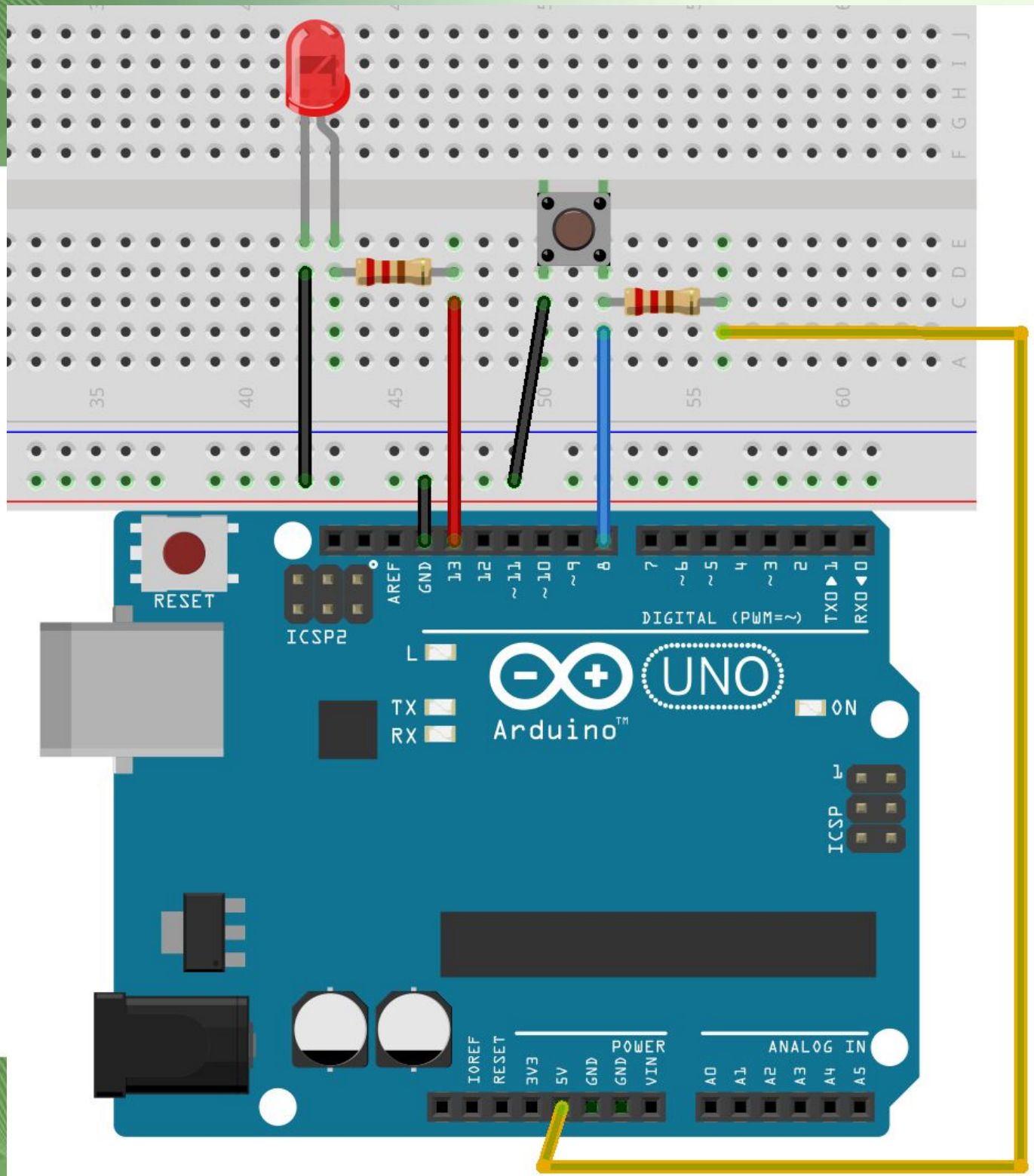
Pinos:

- GND;
- 13;
- 8;
- 5v;



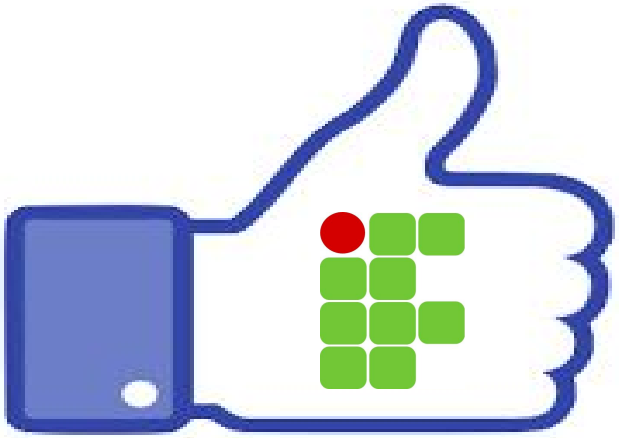
Programação

```
int botao = 8;
int led = 13;

void setup() {
  Serial.begin(9600);
  pinMode(botao, INPUT);
  pinMode(led, OUTPUT);
}

void loop() {
  Serial.println(digitalRead(botao));
  if(digitalRead(botao)== LOW){
  digitalWrite(led, HIGH);
  }else {
  digitalWrite(led, LOW);
  delay(200);
}
  delay(100);
}
```

Mais informações

- https://www.circuitar.com.br/tutoriais/programacao-para-arduino-primeiros-passos/

- https://www.arduino.cc/en/Guide/HomePage

Dúvidas

Obrigada!