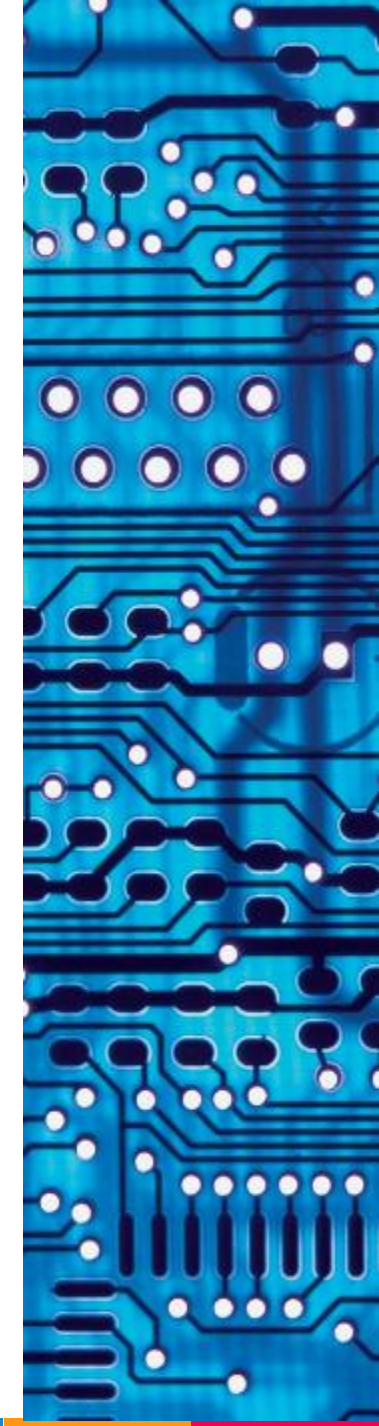
Curso de Programação com Arduino

Olá!

Apresentação da Equipe.



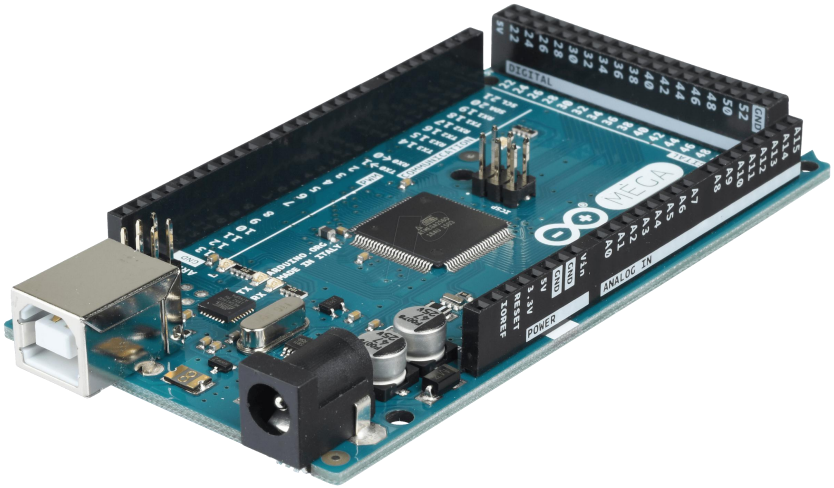
1.

Introdução

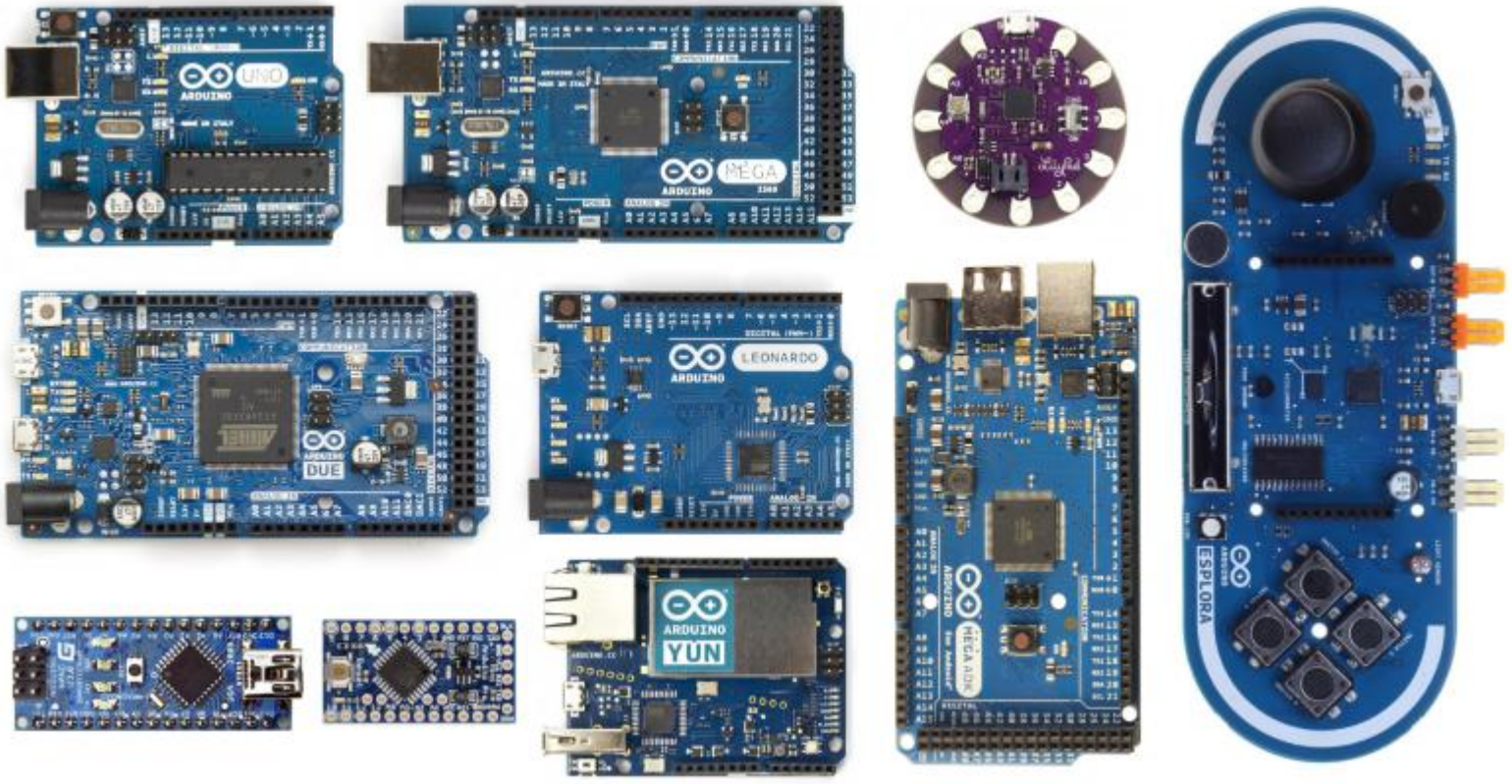
O que é um Arduino?

Tipos de Arduino

Arduino Uno

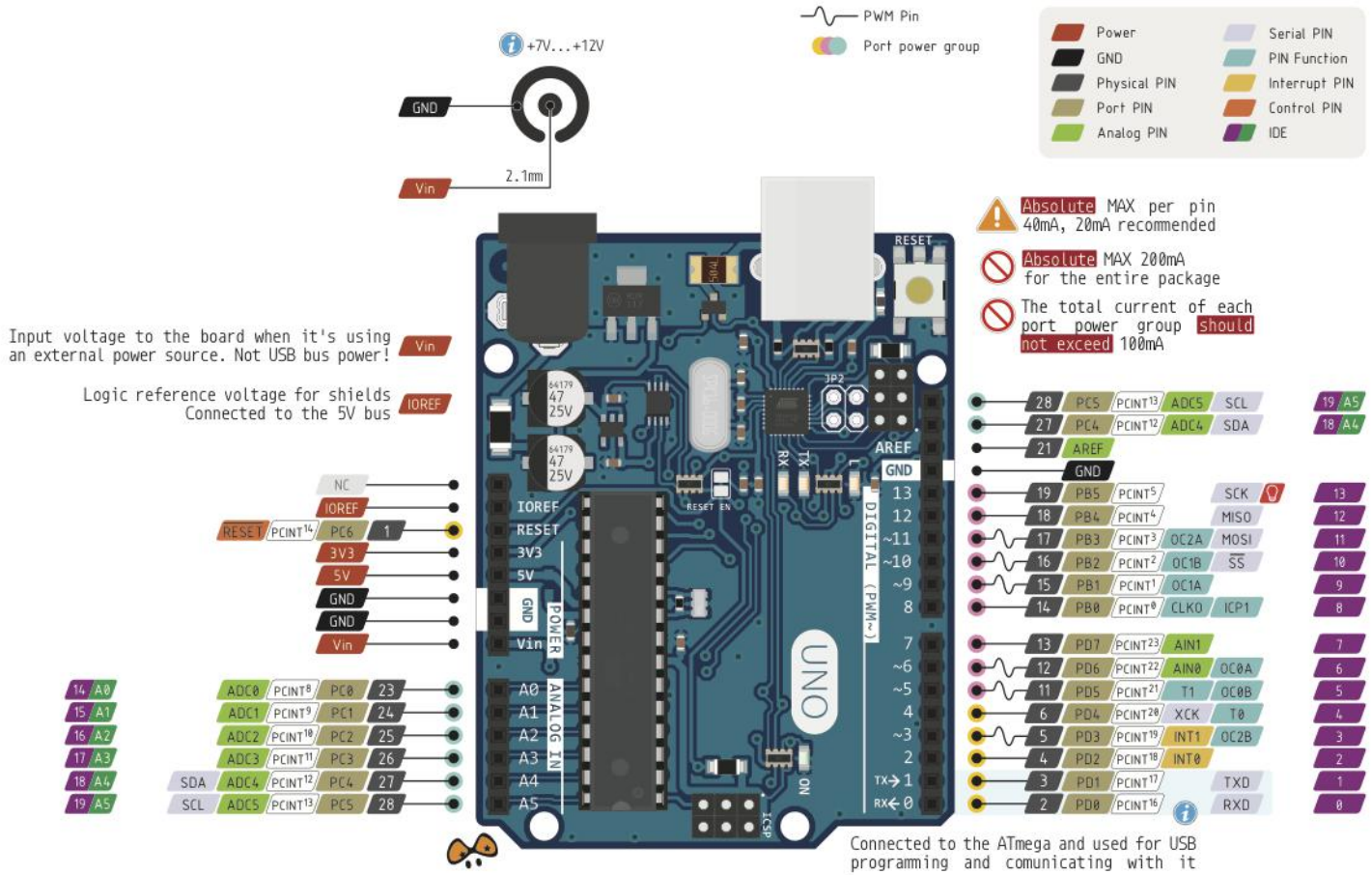


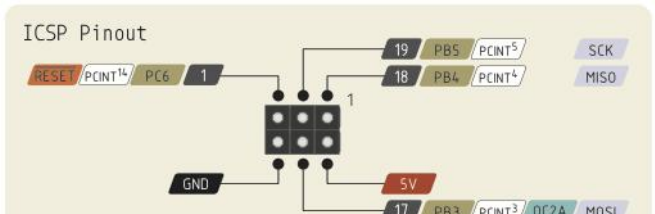
Arduino Mega

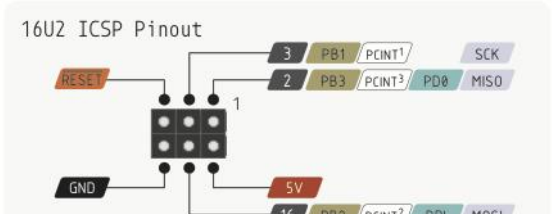


E mais outras 11 versões menos populares

PINAGEM


PWM Pin
Port power group
Power
GND
Physical PIN
Port PIN
Analog PIN
Serial PIN
PIN Function
Interrupt PIN
Control PIN
IDE
+7V...+12V
GND
Vin
2.1mm
Absolute MAX per pin 40mA, 20mA recommended
Absolute MAX 200mA for the entire package
The total current of each port power group should not exceed 100mA
Input voltage to the board when it's using an external power source. Not USB bus power!
Vin
Logic reference voltage for shields Connected to the 5V bus
IOREF
RESET
3V3
5V
GND
GND
Vin
POWER
ANALOG IN
DIGITAL (PWM~)
UNO
AREF
GND
Connected to the ATmega and used for USB programming and comunicating with it


ICSP Pinout
RESET
SCK
MISO
MOSI
GND
5V


16U2 ICSP Pinout
RESET
SCK
MISO
GND
5V

O que é um Arduino?

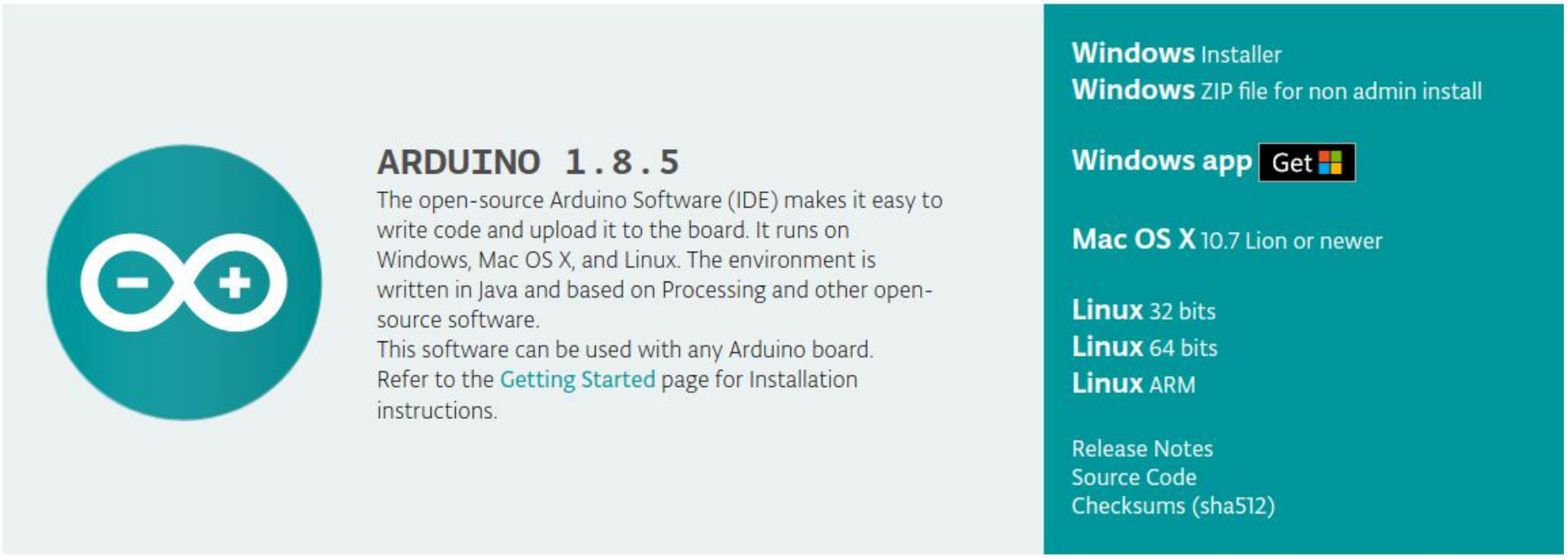
Arduino UNO

GND (Terra)

5V (Volts)

Mais informação: arduino.cc

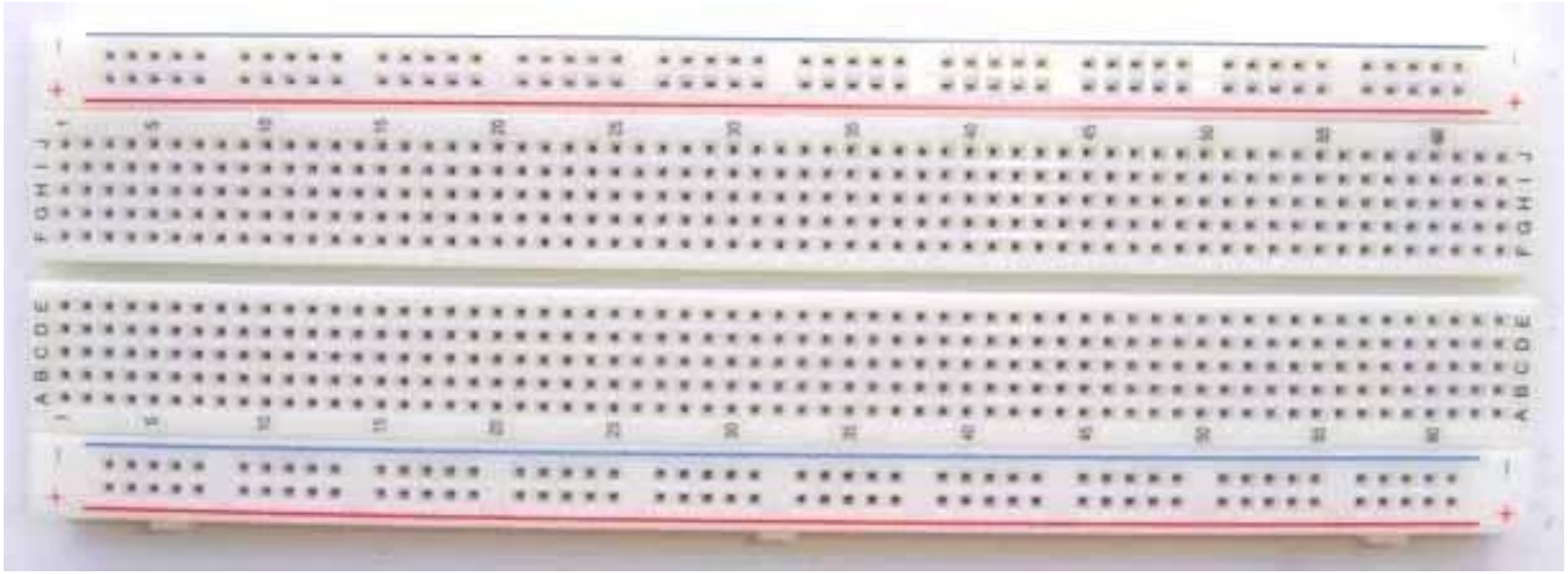
IDE Arduino



https://www.arduino.cc/en/Main/Software

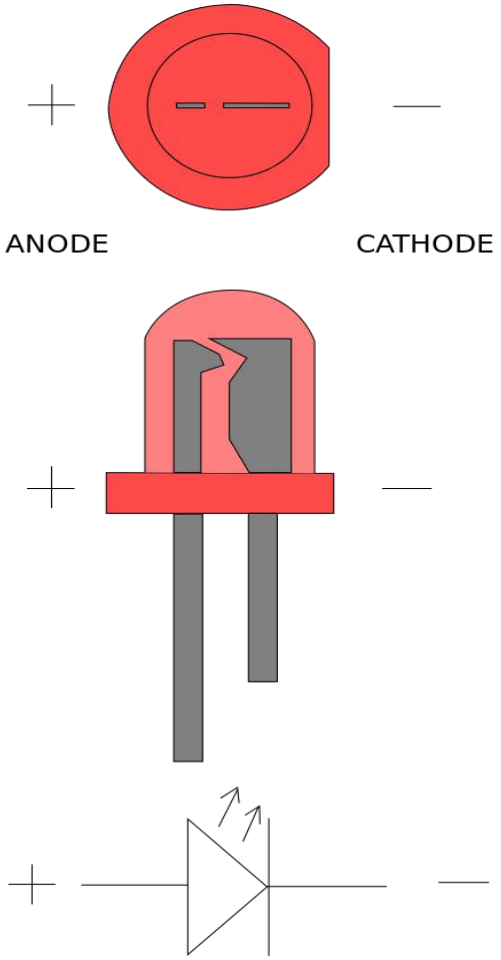
Rascunho & Protoboard

http://fritzing.org/home/
https://www.tinkercad.com/



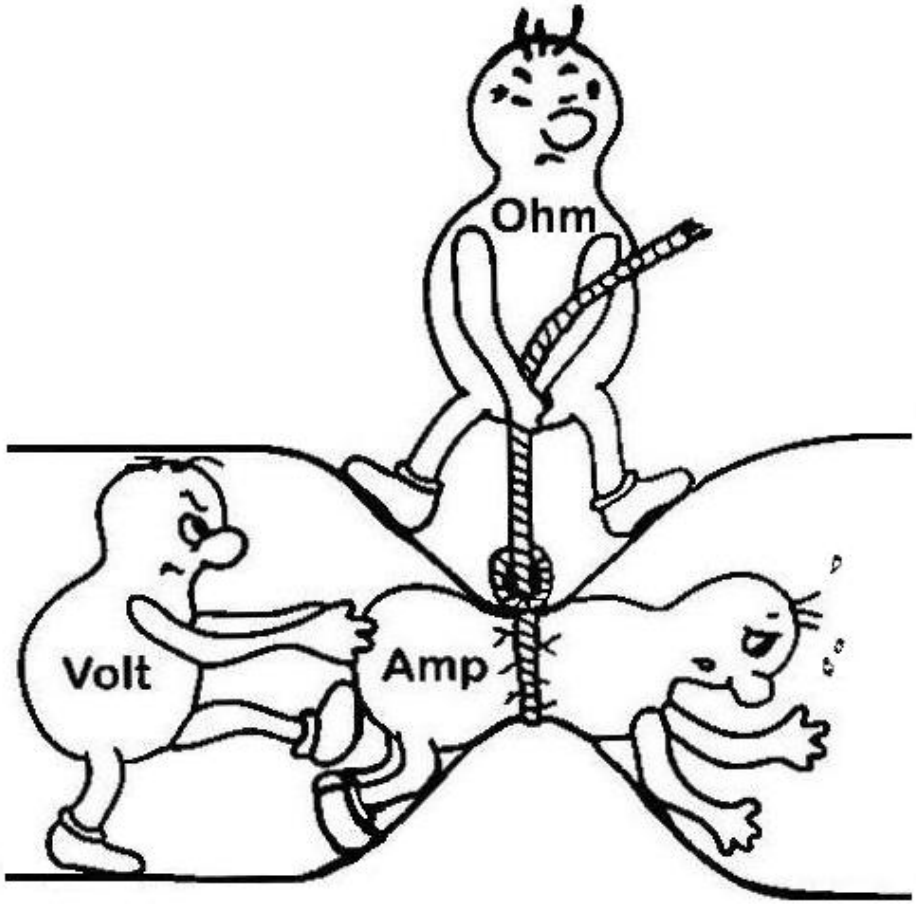
LED & Resistores & Lei de Ohm

Led



LED & Resistores & Lei de Ohm

Resistor



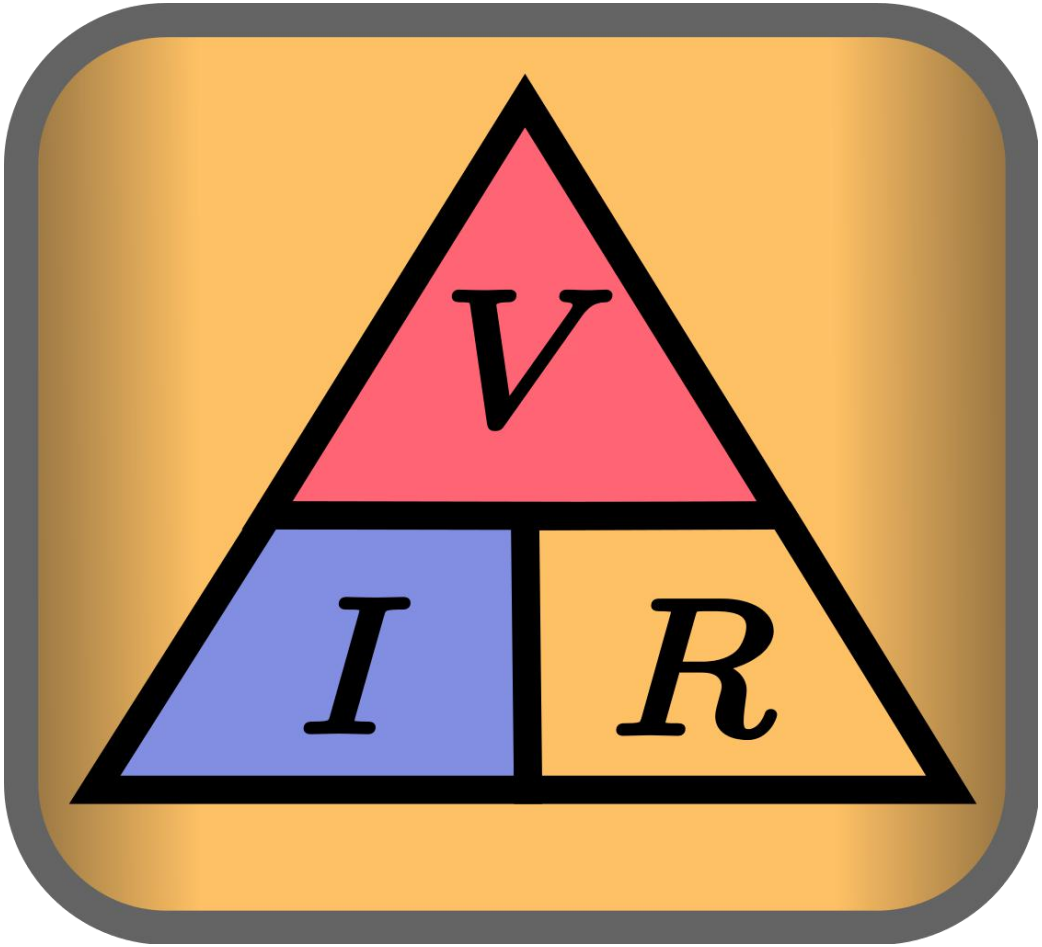
LED & Resistores & Lei de Ohm

$V = RI$

V - Tensão

R - Resistência

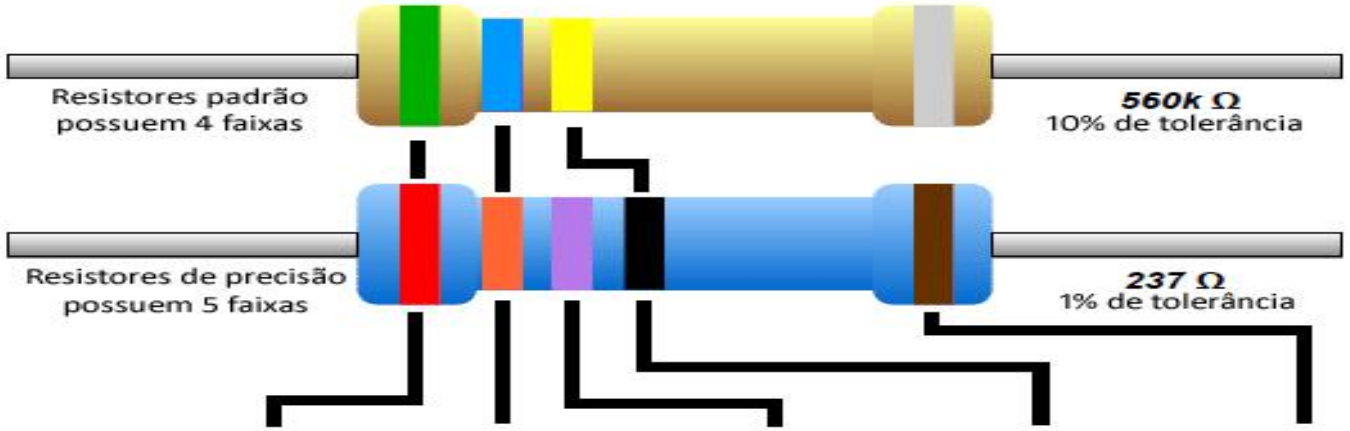
I - Corrente



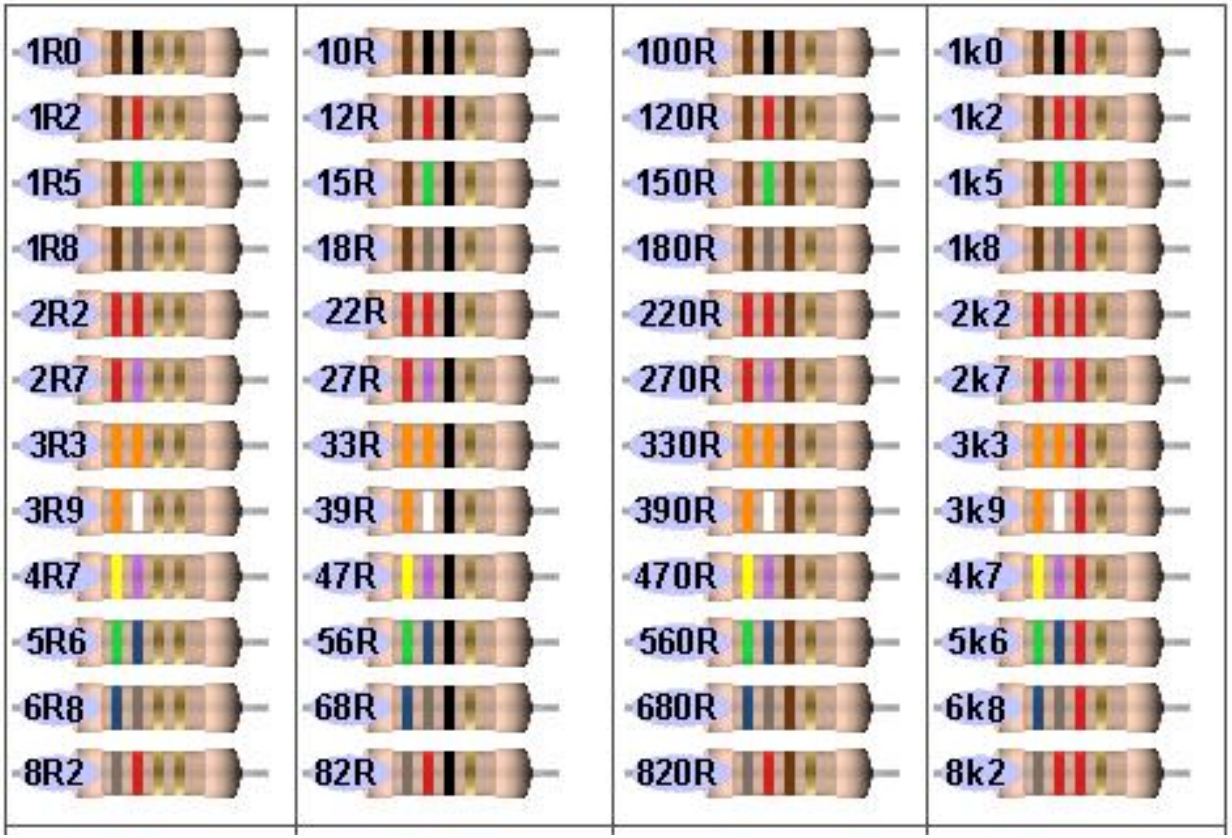
LED & Resistores & Lei de Ohm

Código de Cores

A extremidade com mais faixas deve apontar para a esquerda



Cor	1ª Faixa	2ª Faixa	3ª Faixa	Multiplicador	Tolerância
Preto	0	0	0	x 1 Ω	
Marrom	1	1	1	x 10 Ω	+/- 1%
Vermelho	2	2	2	x 100 Ω	+/- 2%
Laranja	3	3	3	x 1K Ω	
Amarelo	4	4	4	x 10K Ω	
Verde	5	5	5	x 100K Ω	+/- .5%
Azul	6	6	6	x 1M Ω	+/- .25%
Violeta	7	7	7	x 10M Ω	+/- .1%
Cinza	8	8	8		+/- .05%
Branco	9	9	9		
Dourado				x .1 Ω	+/- 5%
Prateado				x .01 Ω	+/- 10%

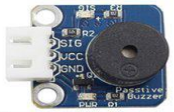

1R0
1R2
1R5
1R8
2R2
2R7
3R3
3R9
4R7
5R6
6R8
8R2
10R
12R
15R
18R
22R
27R
33R
39R
47R
56R
68R
82R
100R
120R
150R
180R
220R
270R
330R
390R
470R
560R
680R
820R
1k0
1k2
1k5
1k8
2k2
2k7
3k3
3k9
4k7
5k6
6k8
8k2

Sensores

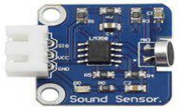
Sensores

Barometer

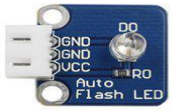
DS18B20 Temperature



Passive buzzer



Sound Sensor



Auto-flash LED

Dual-color LED

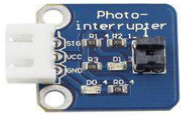
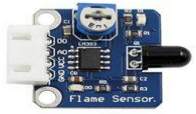


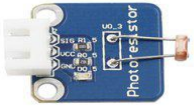
Photo-interrupter

Switch Hall

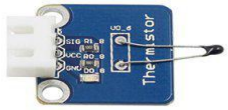

Analog temperature



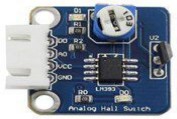
Flame Sensor

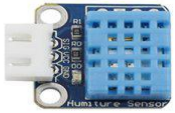


Photoresistor



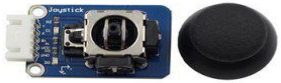
Thermistor module


Analog Hall



Humiture sensor

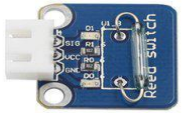
Potentiometer



Joystick PS2 module

Active buzzer

Infrared-Receiver



Reed Switch

MQ-2 Gas Sensor

Button module

Laser Transmitter

Relay Module


ADDA Converter

Mercury Switch

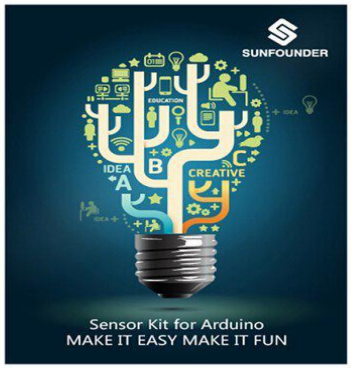

Tracking sensor

Color Sensor


Obstacle Avoidance

RTC-DS1302

Ultrasonic



specification


1602LCD

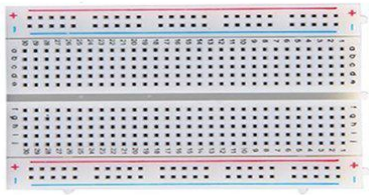

Remote Controller



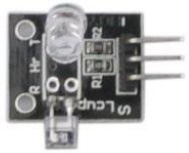
Raindrop Sensor


Tilt Switch

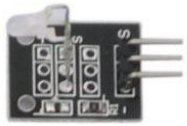
Touch Switch



Joystick

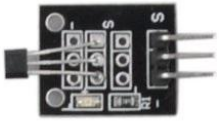


shock-switch sensor

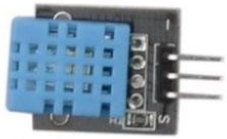


Common-Cathode Red&Green LED

High-Sensitive voice sensor



Hall sensor



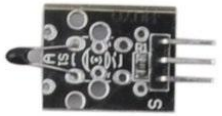
Humiture sensor

Laser-transmit

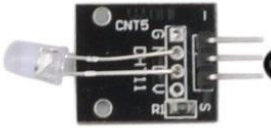
Linear-Hall sensor

Relay

Infrared-transmit



Analog-temperature sensor



Colorful Auto-flash

Linear-Hall sensor

Obstacle avoidance sensor

Passive buzzer

Active buzzer

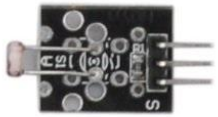
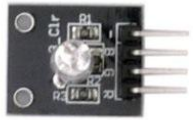


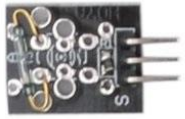
Photo resistor

Digital-Temperature sensor

Tracking sensor



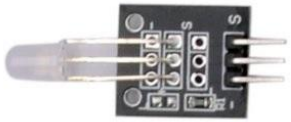
RGB LED



Magnet-ring sensor

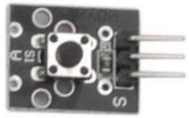
Hydrargyrum-switch sensor

Metal touch sensor

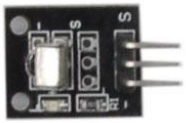


Two-color commoncathode LED

Analogy-hall sensor



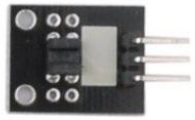
Push button



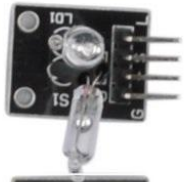
Infrared-receiver

Microphone senser

Rotate-encode



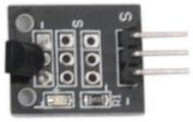
Light blocking



SMD RGB

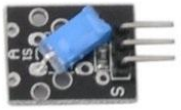
Magnetic spring

Knock sensor



18B20 Temperature

Light Cup



Ball Swith

WWW.ARDE.CC

Módulo microfone

Sensor Hall

Módulo laser

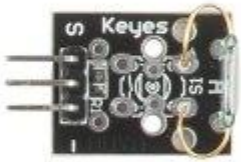
Buzzer

Módulo Infravermelho

Módulo Led

RGB LED

Módulo relé



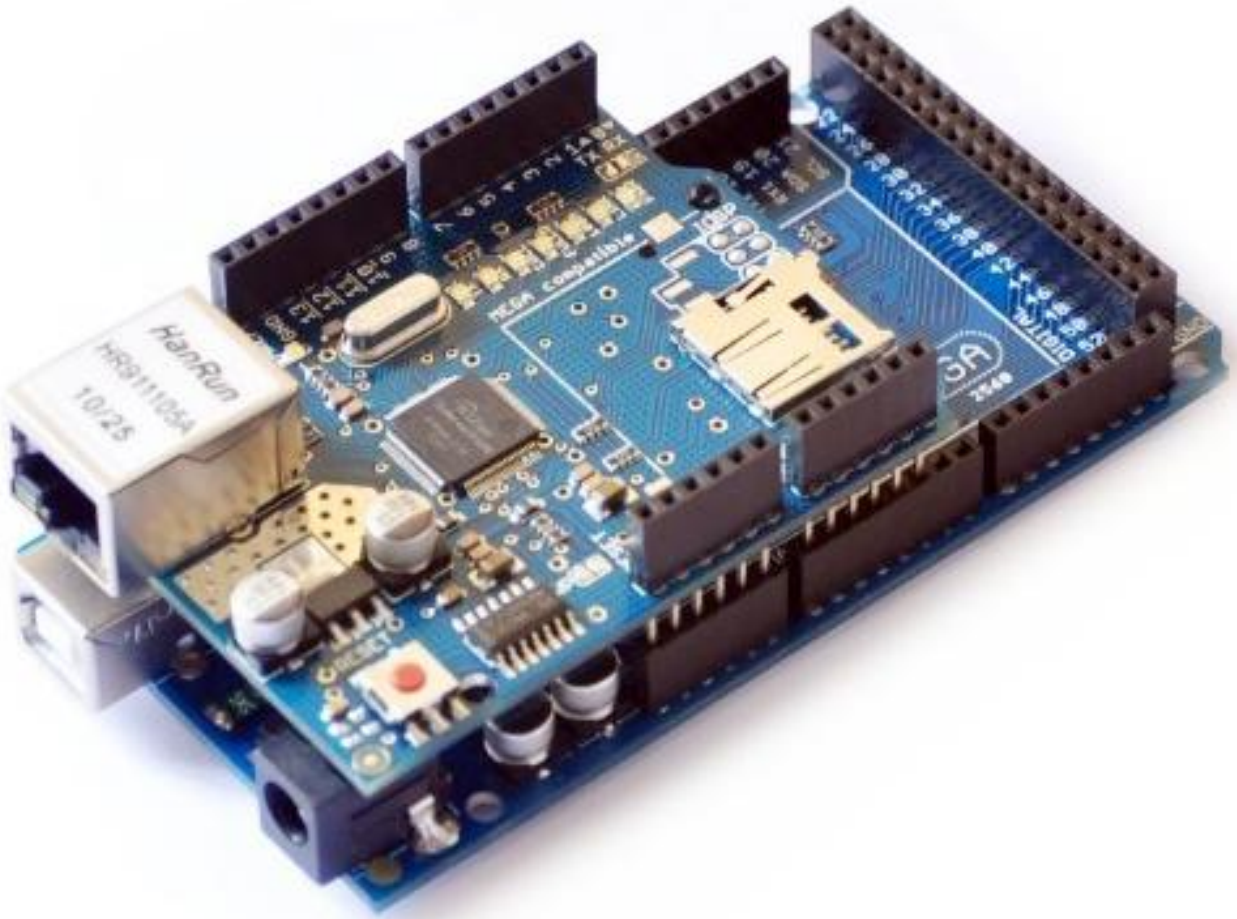
Sensor magnético

Sensor de desvio de obstáculos

Magic ring

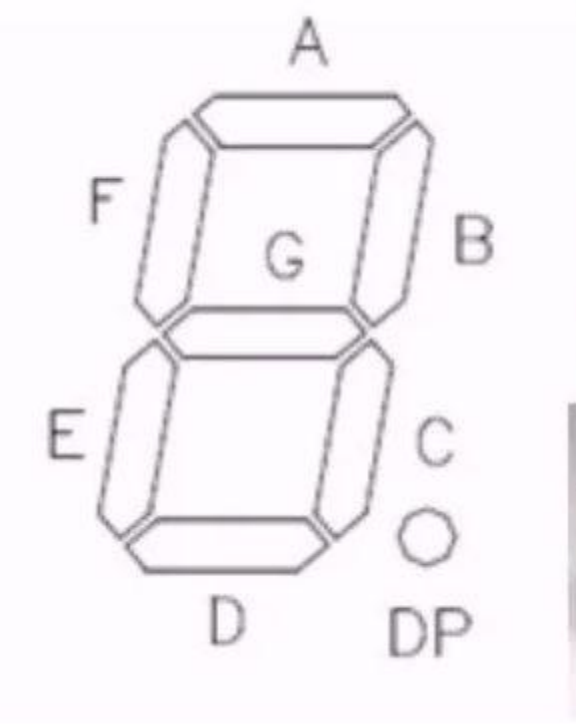
Sensor de temperatura

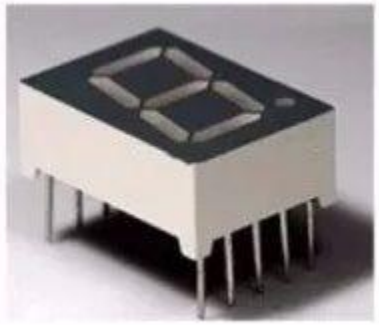
Shields


HanRun
MEGA compatible

Display

Display





Programação

Programação em Arduino

Tipo de dados:

int , float, char, double...

Condições:

If, else, elsif ...

Laços:

While, for ....

PROGRAMAÇÃO ARDUINO

```
// Isto é um comentário

void setup() {
        // Declaração de pinos
}

void loop()
{
        // Ação que ficará repetindo
}
```

More: https://www.arduino.cc/en/Reference/HomePage

LED

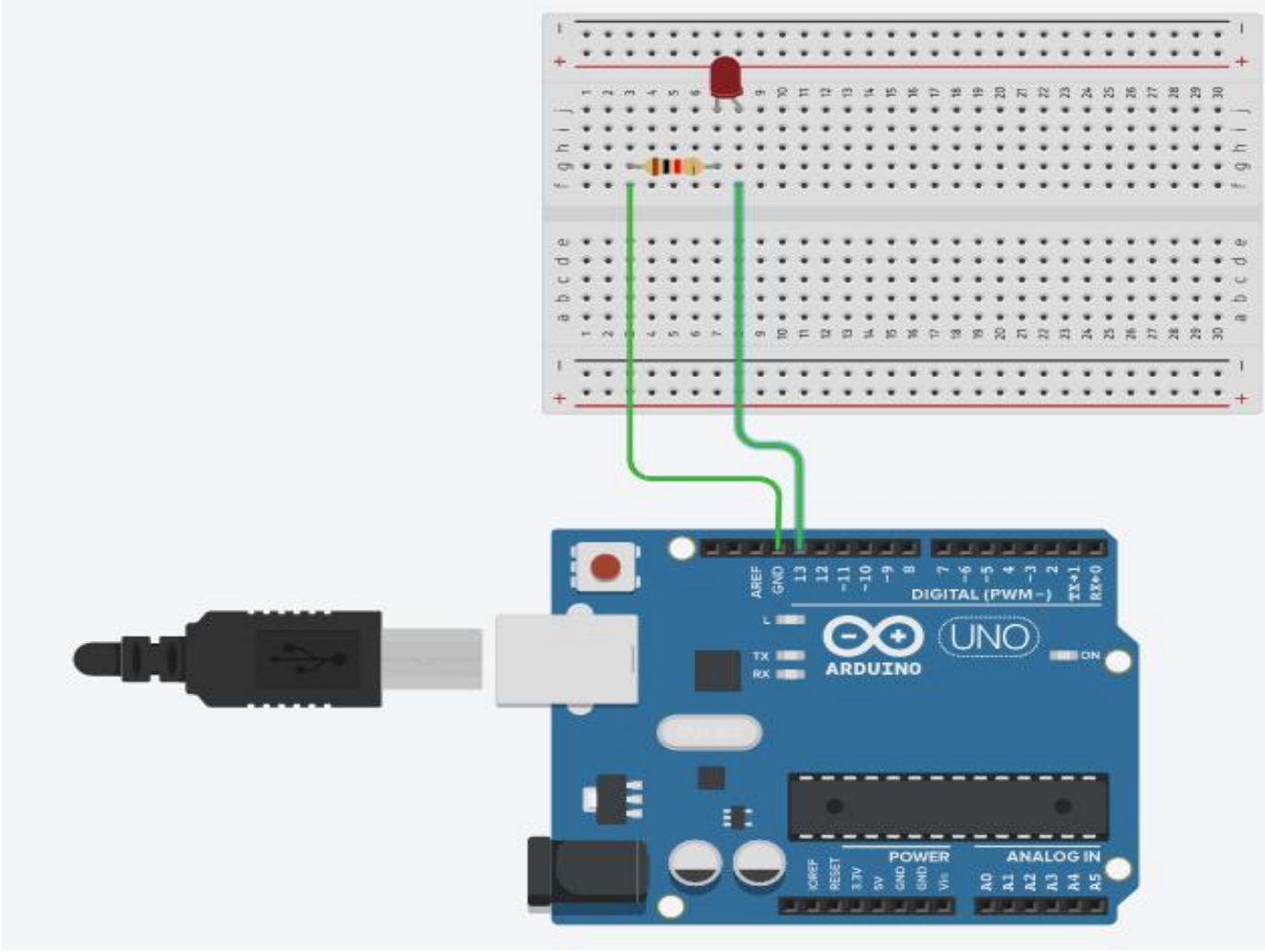
Primeiro projeto

Hello World do Arduino

Objetivo

Ligar e desligar um LED com um intervalo de tempo definido.

PISCA LED SIMPLES



ARDUINO

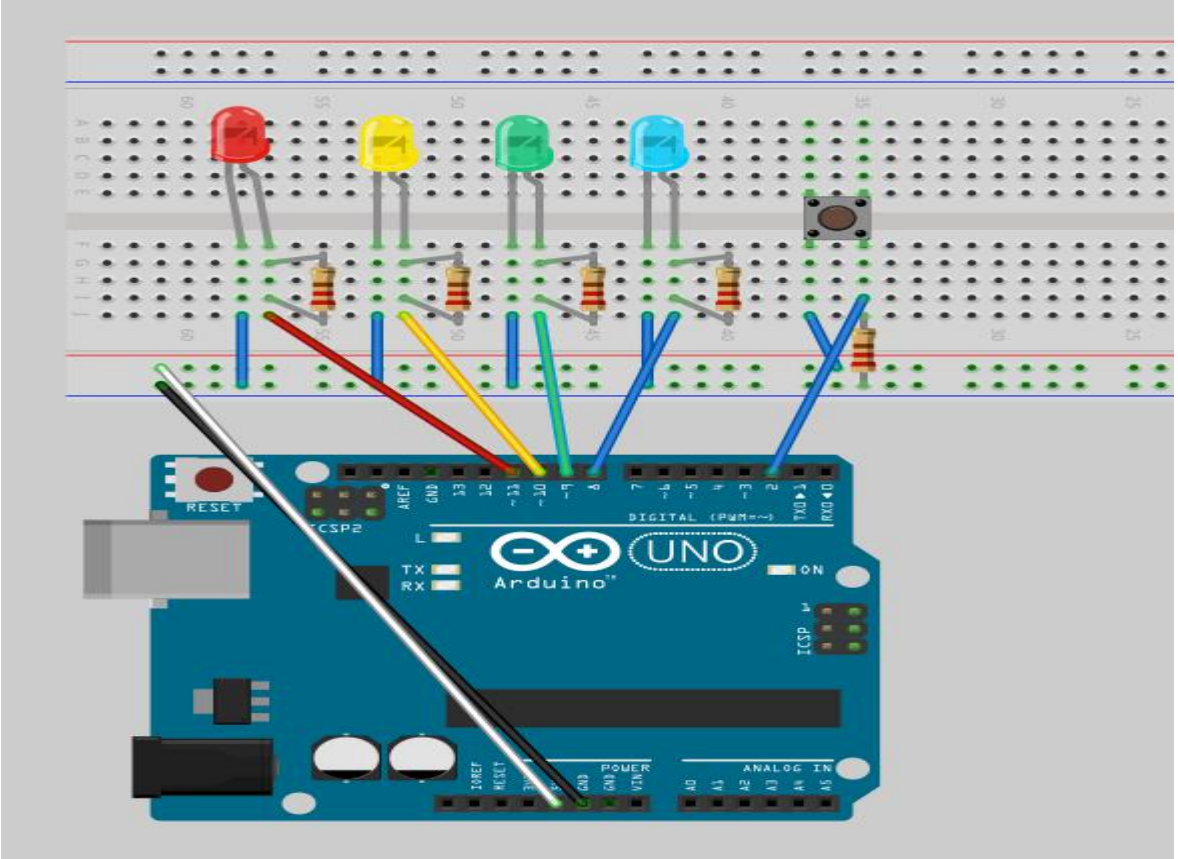
```
Void setup() {
        pinMode(13,OUTPUT);
}

Void loop()
{
        digitalWrite(13, HIGH);
    delay(1000);
    digitalWrite(13, LOW);
    delay(1000);
}
```

More: https://www.arduino.cc/en/Reference/HomePage

PISCAR VÁRIOS LED

Montar um sistema que pisque o led a cada 1 segundo.

Led & Push Button



Projetos

Projetos

http://www.instructables.com/id/Power-Laces-the-Auto-lacing-shoe/

http://www.instructables.com/id/2pi-Line-Follower/

Obrigado