

Hardware Libre
USP



Arduino
Oficina Básica

Ser ou não ser ?



Daniel Jorge
aKa: DJ('DiJei')



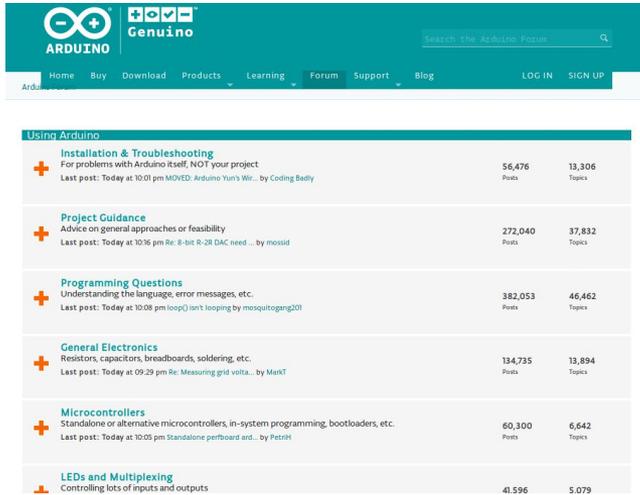
Bruno Rafael
aKa: Bruno ;-)

No episódio de hoje..

- O que é Arduino ?
- Origem
- Resistores
- Protoboard
- Blink
- Botão
- Fazendo Barulho
- Projeto

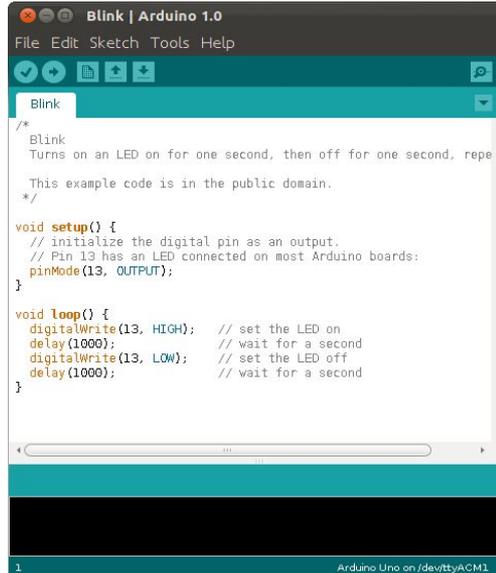


O que é Arduino



The screenshot shows the Arduino website's forum section. At the top, there are navigation links: Home, Buy, Download, Products, Learning, Forum, Support, Blog, LOG IN, and SIGN UP. Below this is a search bar for the Arduino Forum. The main content area is titled "Using Arduino" and lists several forum categories with their respective post and topic counts.

Category	Posts	Topics
Installation & Troubleshooting For problems with Arduino itself, NOT your project Last post: Today at 10:01 pm MOVED: Arduino Yún's Wi... by Coding Badly	56,476	13,306
Project Guidance Advice on general approaches of feasibility Last post: Today at 10:16 pm Re: 8-bit 0-20 DAC need... by mossid	272,040	37,832
Programming Questions Understanding the language, error messages, etc. Last post: Today at 10:09 pm loop() isn't looping by mosquitoang201	382,053	46,462
General Electronics Resistors, capacitors, breadboards, soldering, etc. Last post: Today at 09:29 pm Re: Measuring grid volta... by MarkT	134,735	13,894
Microcontrollers Standalone or alternative microcontrollers, in-system programming, bootloaders, etc. Last post: Today at 10:05 pm Scandalone perboard and... by PetriH	60,300	6,642
LEDs and Multiplexing Controlling lots of inputs and outputs	41,596	5,079



The screenshot shows the Arduino IDE interface with the "Blink" sketch loaded. The code is as follows:

```
/*
 * Blink
 * Turns on an LED on for one second, then off for one second, repeatedly.
 * This example code is in the public domain.
 */

void setup() {
  // initialize the digital pin as an output.
  // Pin 13 has an LED connected on most Arduino boards:
  pinMode(13, OUTPUT);
}

void loop() {
  digitalWrite(13, HIGH); // set the LED on
  delay(1000);           // wait for a second
  digitalWrite(13, LOW); // set the LED off
  delay(1000);          // wait for a second
}
```



Origem

- Era uma vez na Itália...

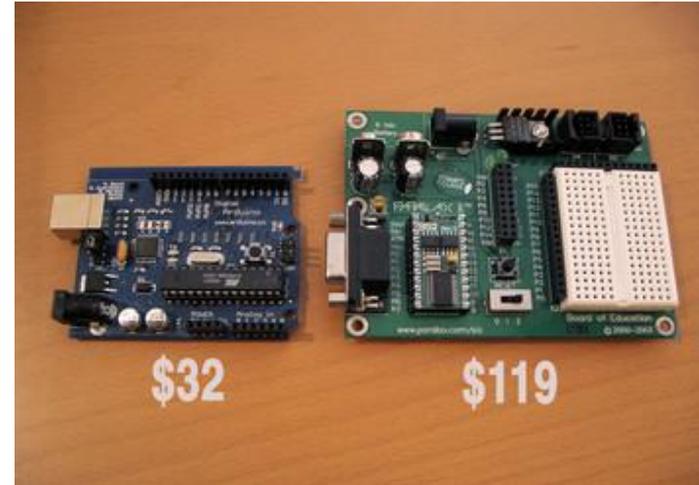


Origem

- Interaction Design Institute Ivrea



Na época do lançamento...



Origem

- Nome..



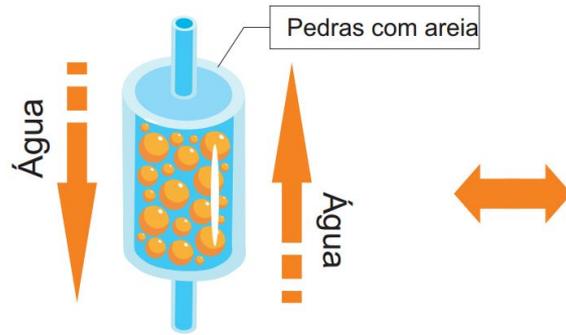
Origem

- Bar Arduino



Resistores

Resistência Hidráulica

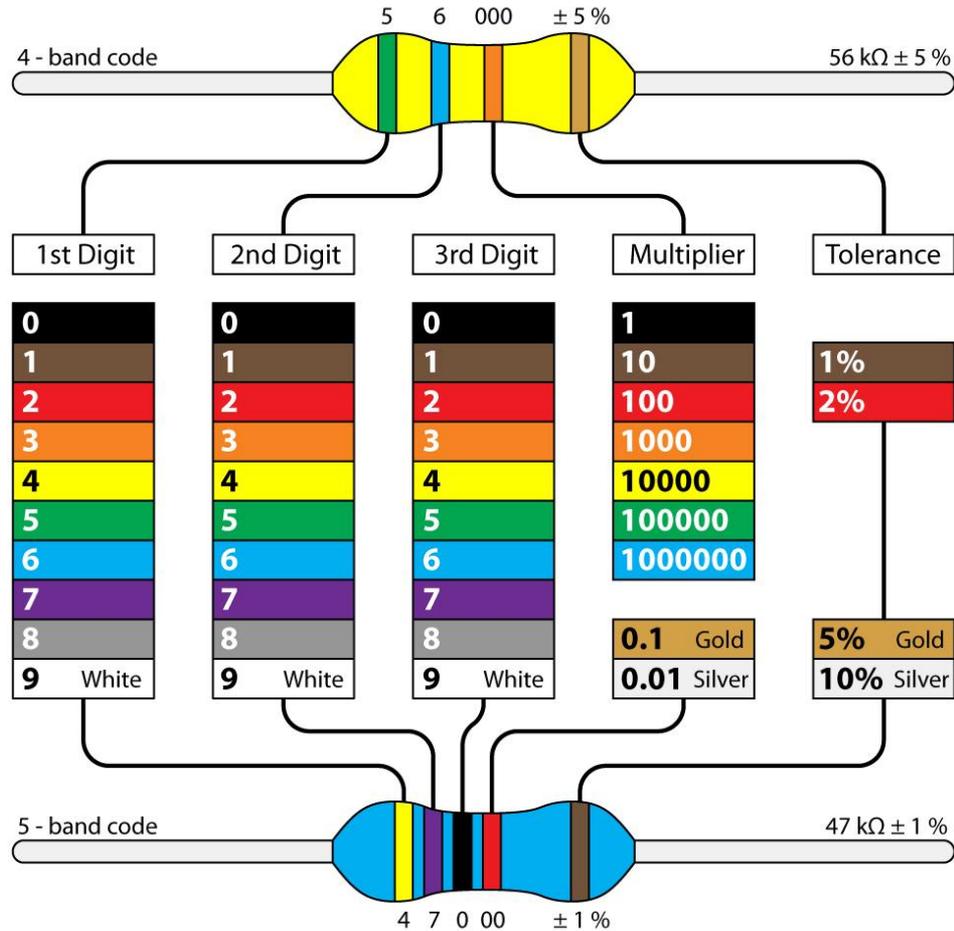


A água pode fluir nas duas direções

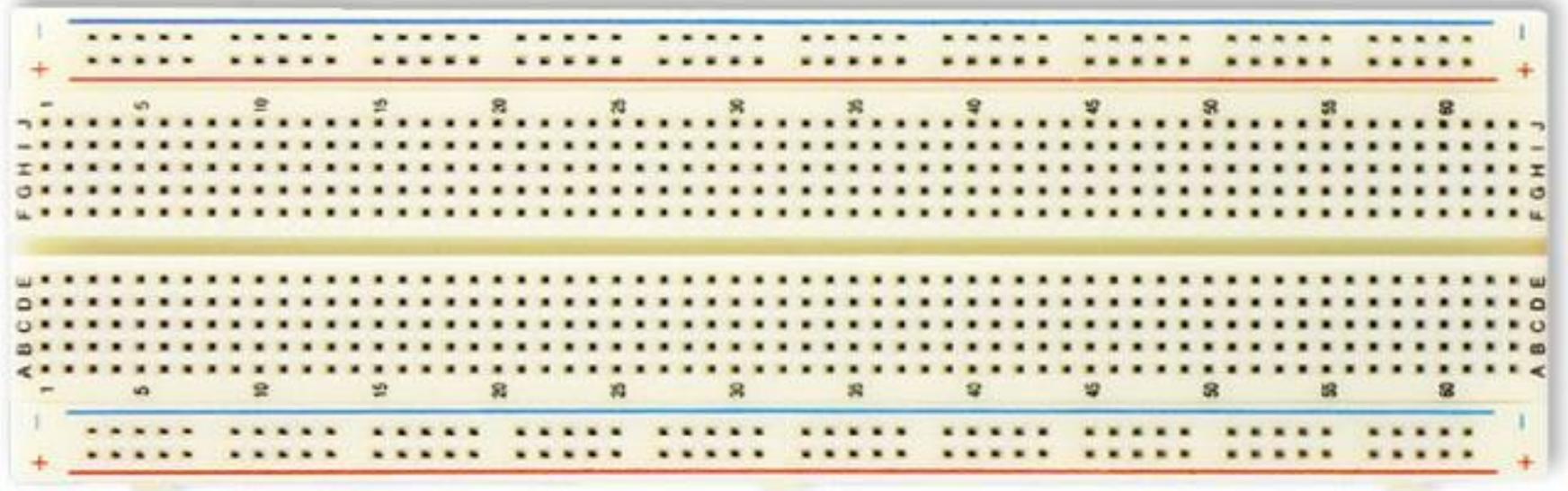
Resistência Elétrica



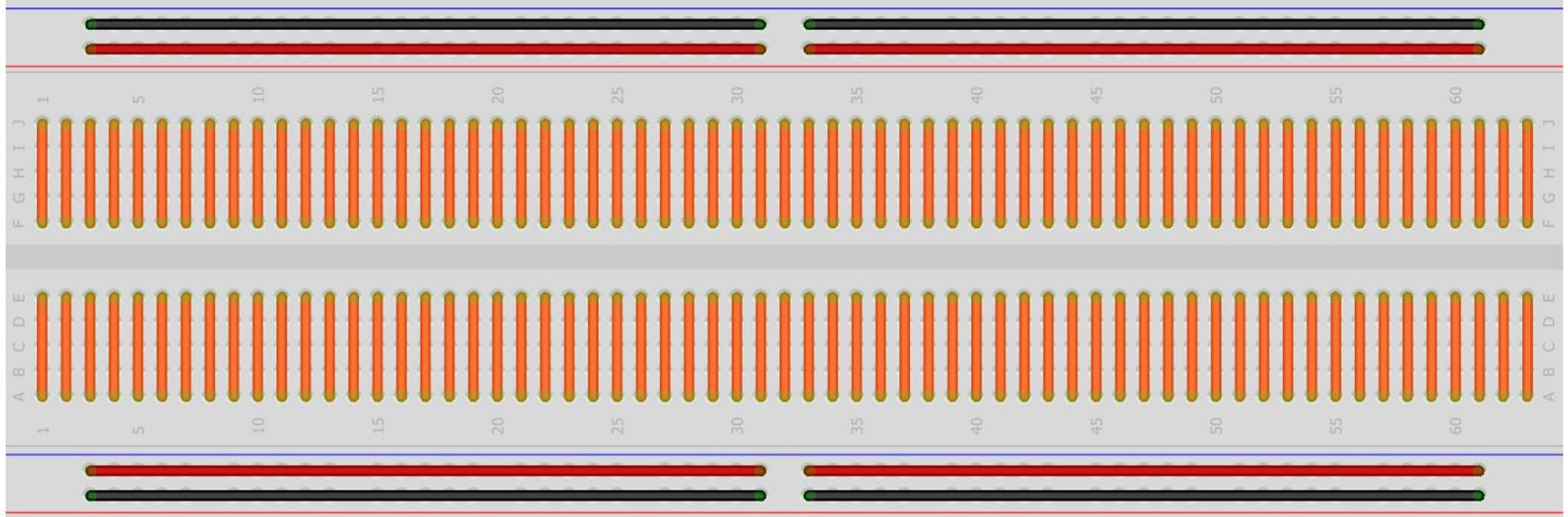
Resistência em Ohms (Ω)



Protoboard



Protoboard



Blink

Primeiro Programa

Primeira montagem



Blink

Antes.. sobre o LED

Perna maior positivo (+)

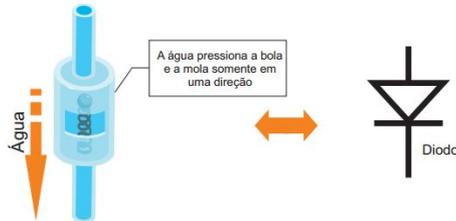
Perna menor negativo (-)

O Diodo



Barreira Direcional

Como eu posso determinar em qual direção flui a água?

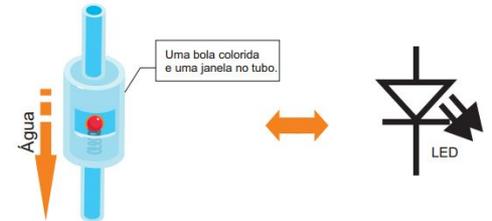


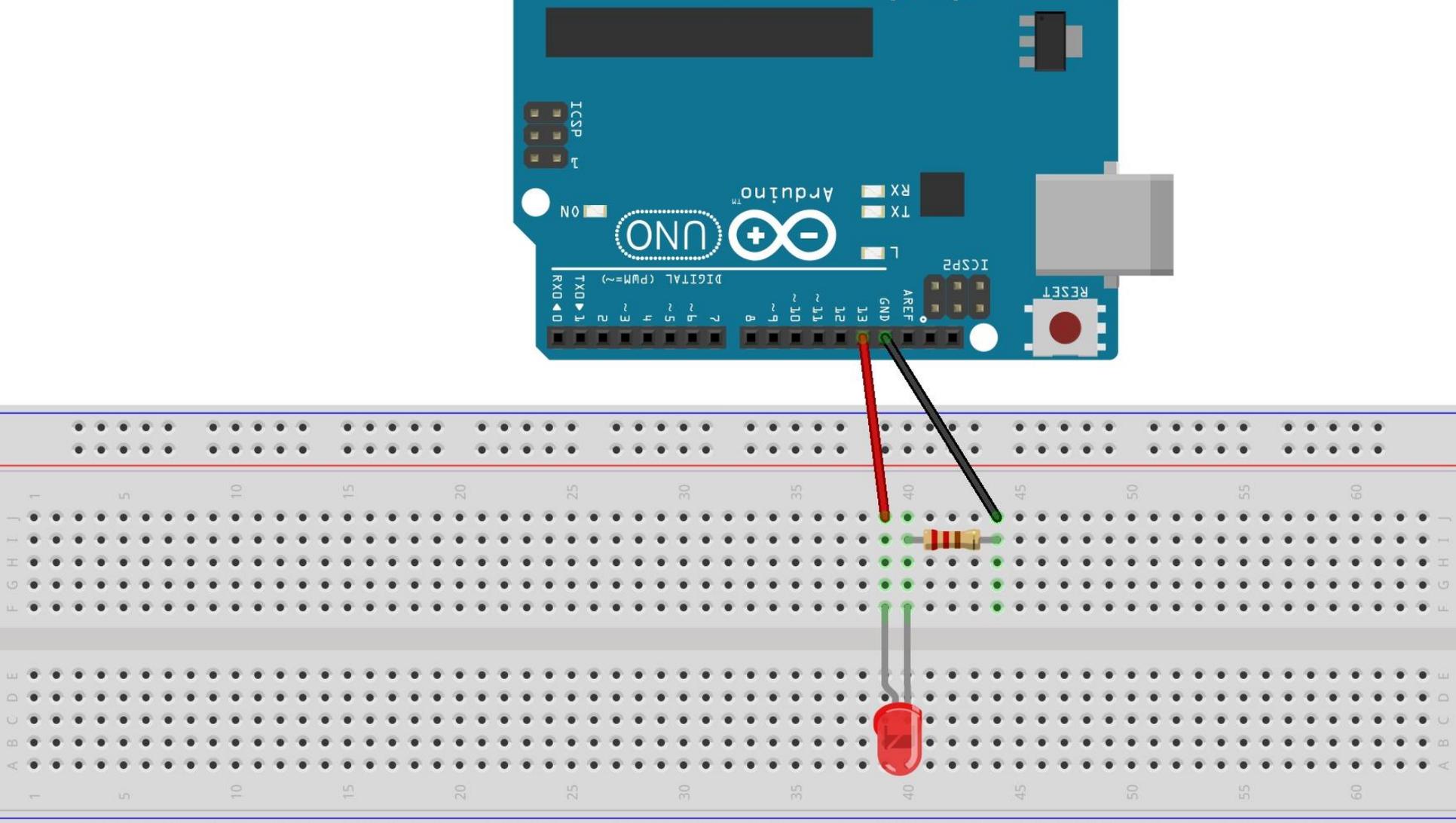
Barreira Direcional Elétrica

LED

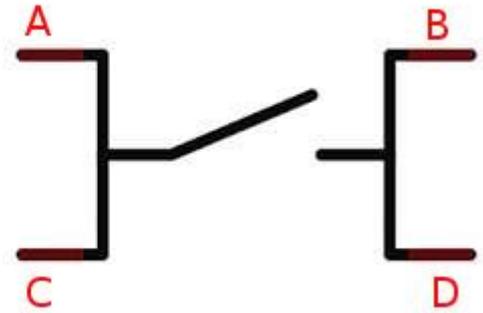
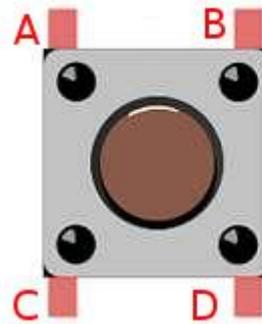


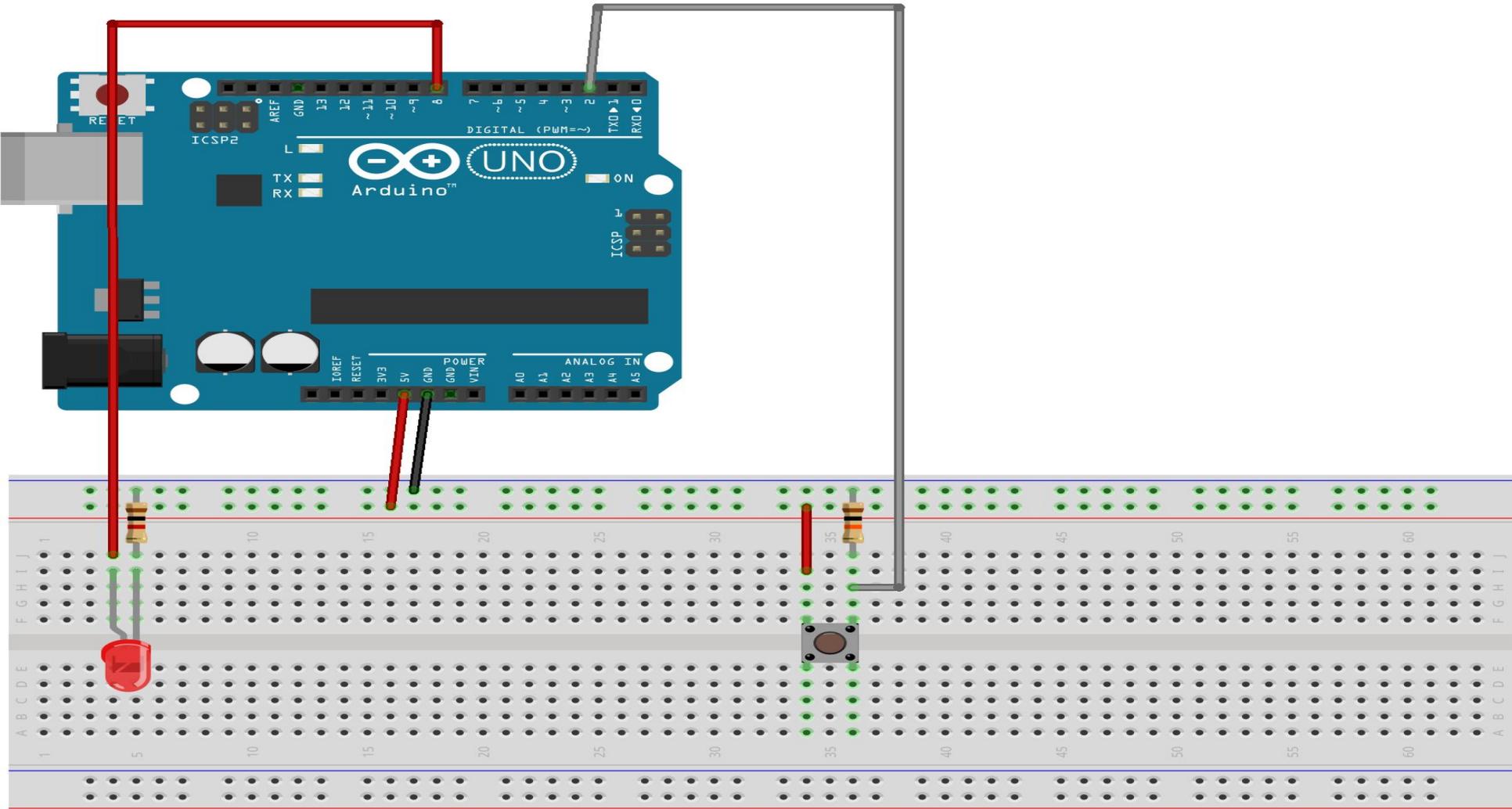
Barreira Direcional
E o LED???





Botão



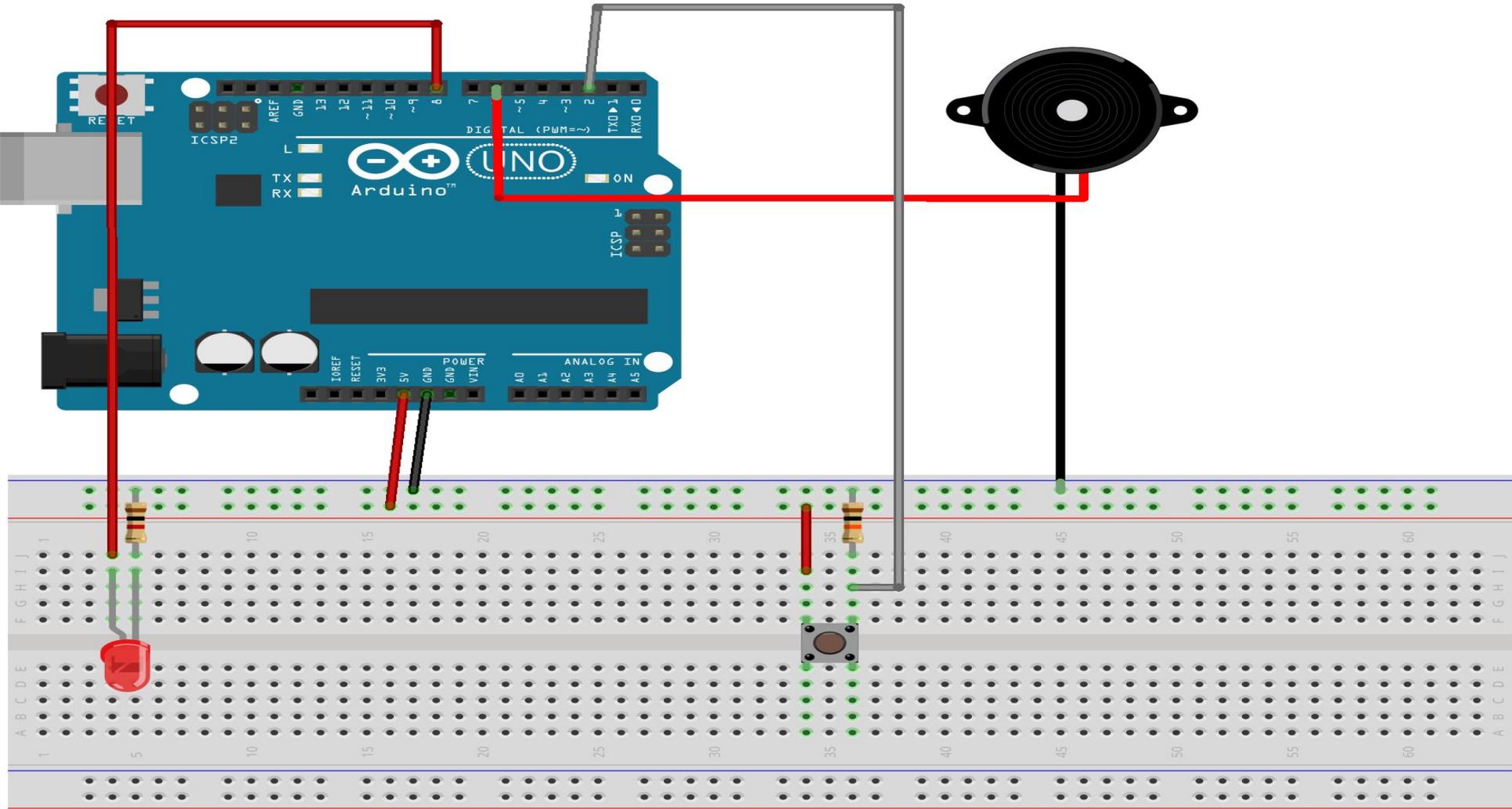


Fazendo Barulho

Alto falante

Vamos usar o comando **tone()** e **noTone()**





Projeto

Vamos construir jogo da memória

Quatro LEDs (4 resistores de 1K)

Quatro Botões (4 resistores de 10k)

Um alto falante

Montagem...



