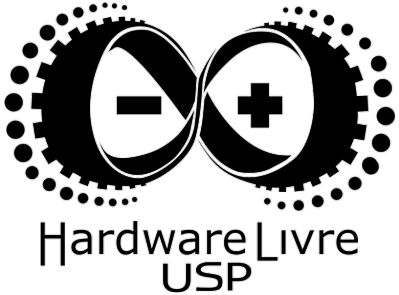
Hardware Livre USP

Introdução ao Grupo/Eletrônica



Apresentação

- DJ(“DiJei”)
  - Daniel Jorge Renjiffo
  - arduino lover...
  - e-mail: djrenjiffo@gmail.com

Agenda

- Arduino
- Grupo
- Corrente x Tensão
- Protoboard
- Resistores
- Multímetro
- Diodo
- Push Button

Arduino - O que é ?

Hardware Livre USP

Open Source ?

- Uso livre
- Projeto aberto
- Liberdade para alterar
- Liberdade para Redistribuir

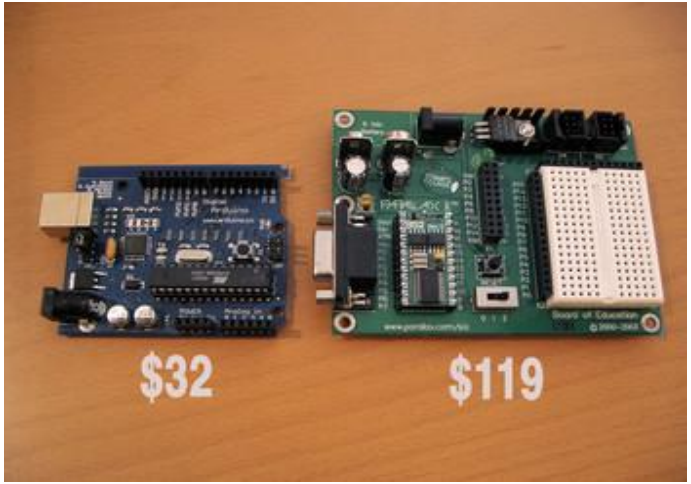
Arduino - História

Era uma vez na Itália em Ivrea...

Arduino - História

Interaction Design Institute Ivrea

Na época do lançamento...



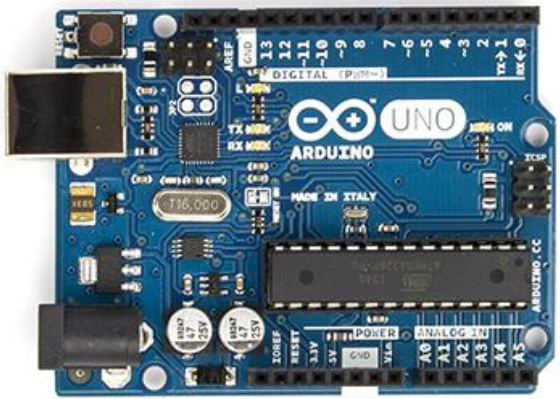
Arduino - História

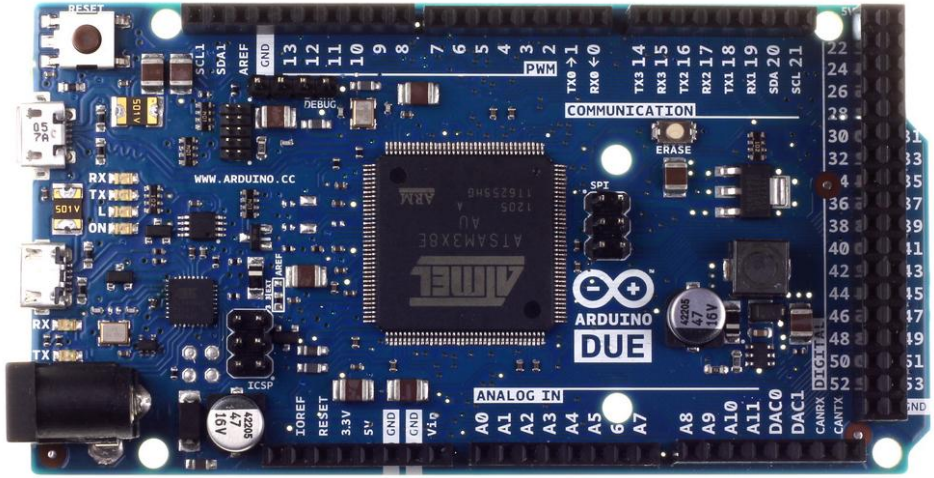
Origem do nome:

Arduino - História

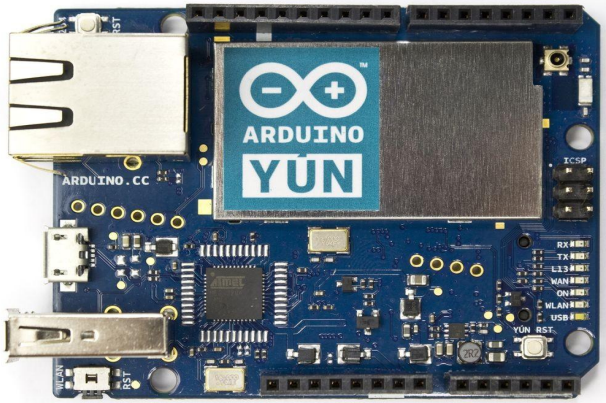
Origem do nome:

Arduino - Placas

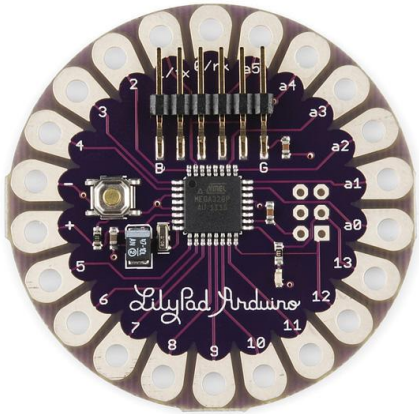


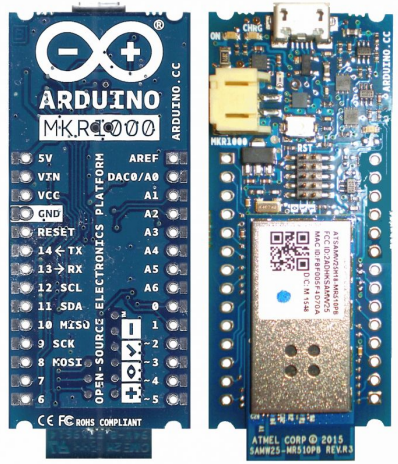


Arduino - Placas

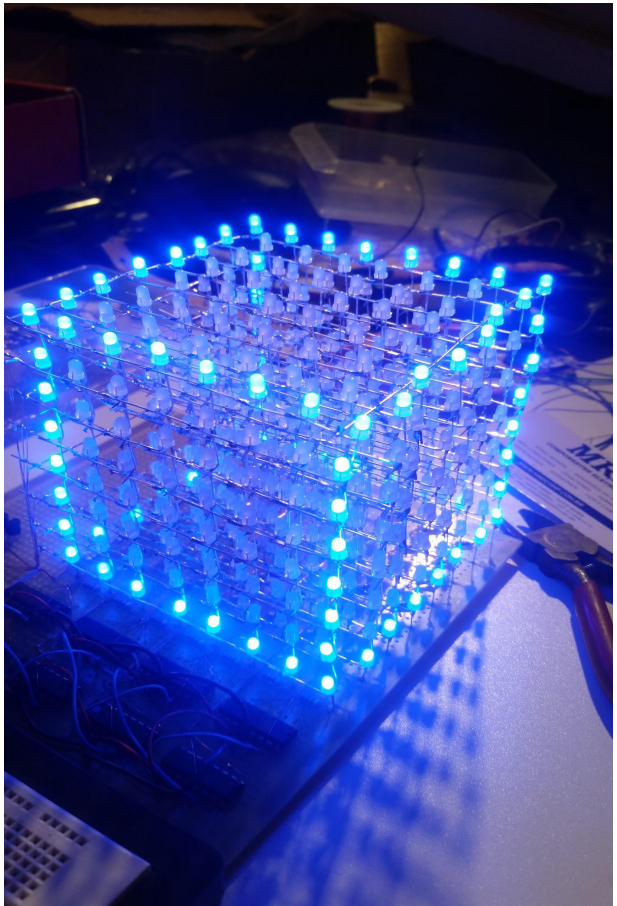


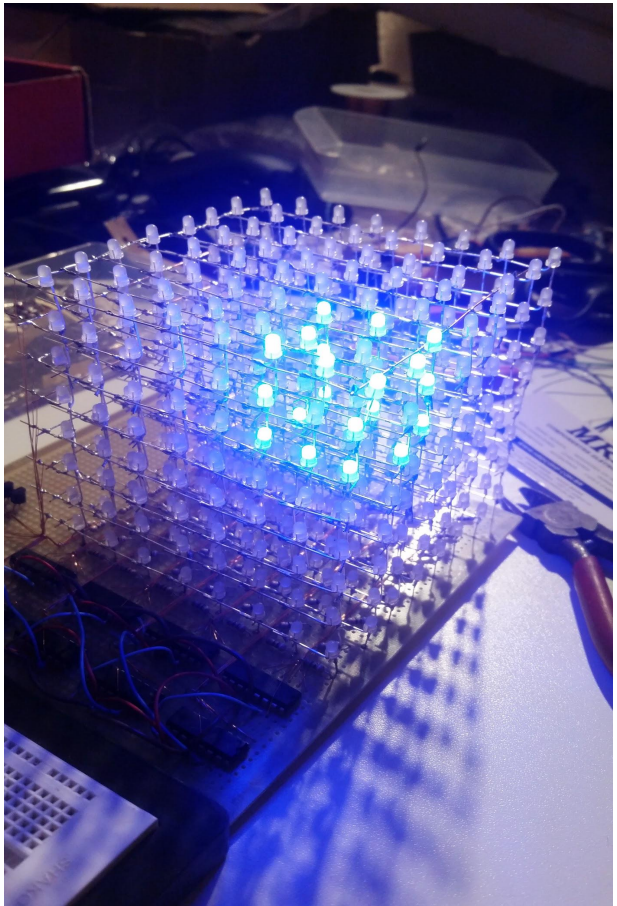
Arduino - Placas





Grupo - Projetos





Grupo - Projetos

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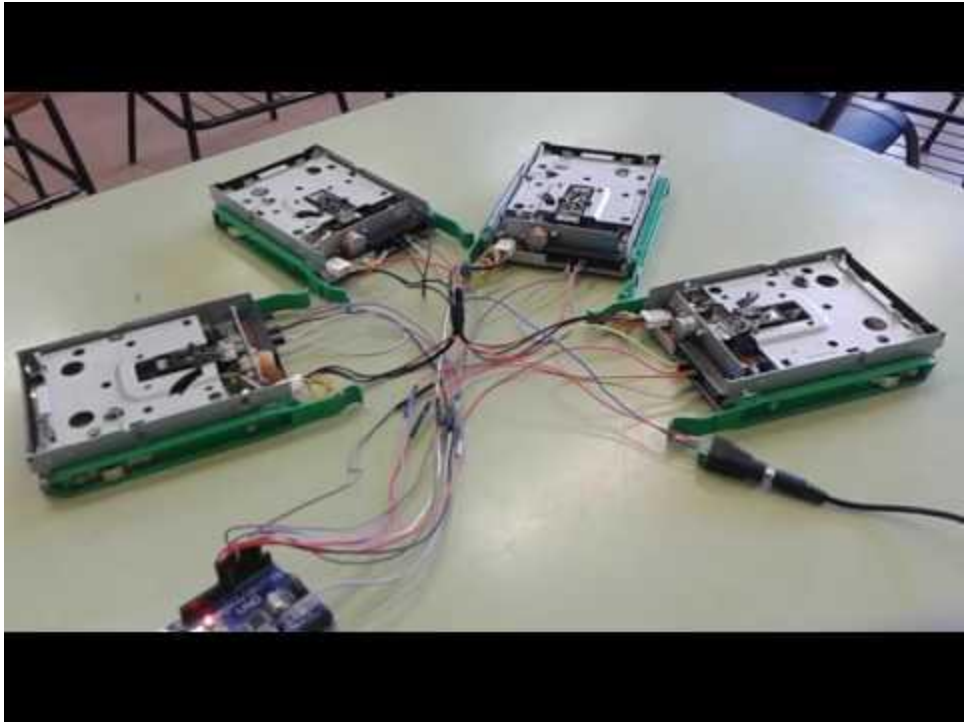
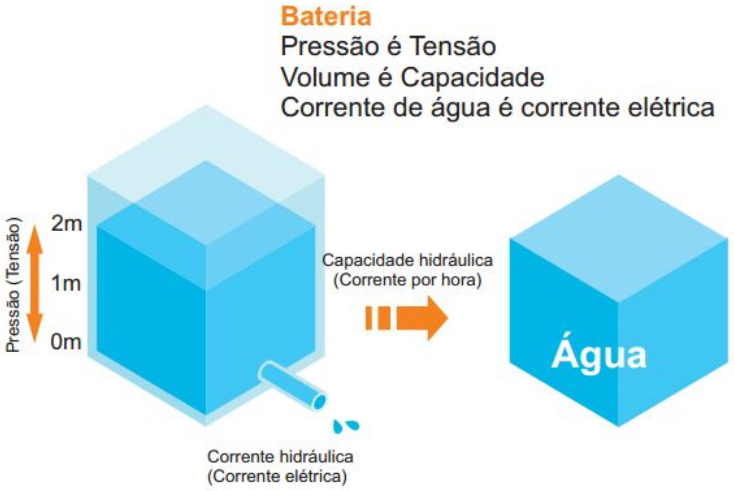
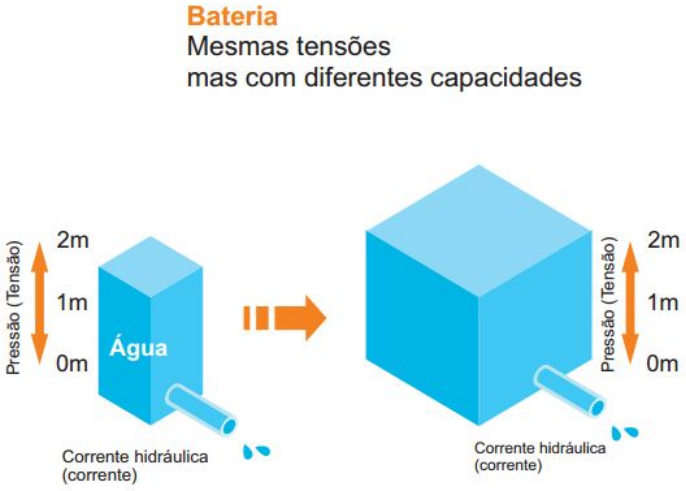


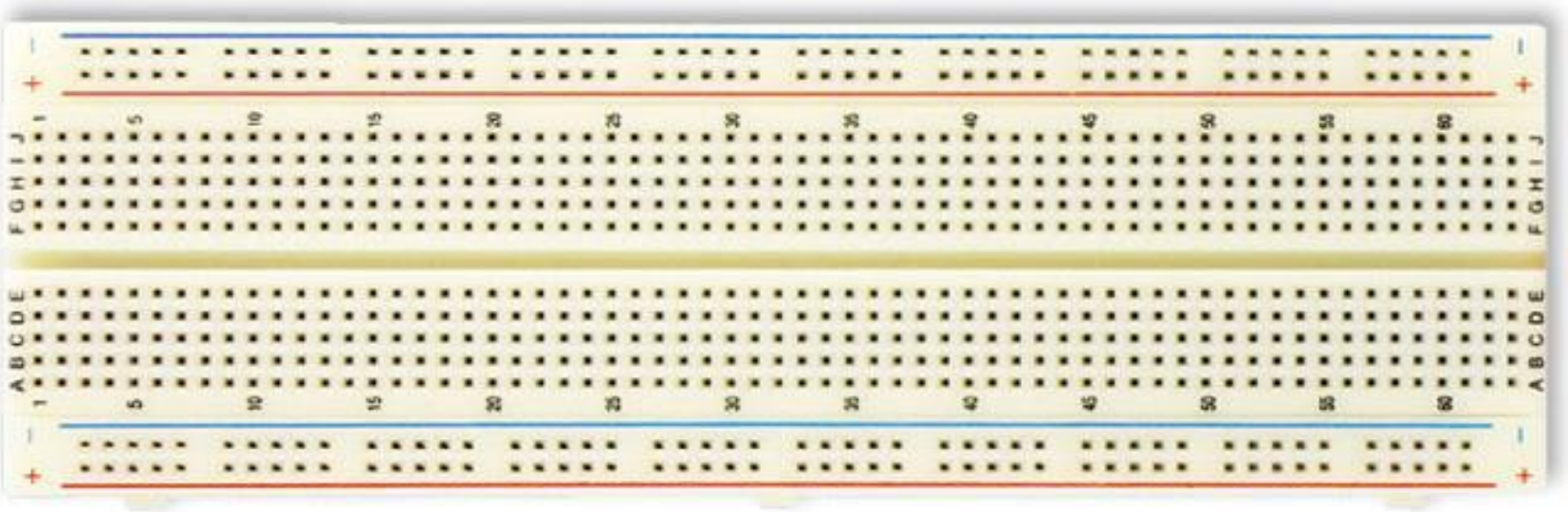
Corrente x Tensão



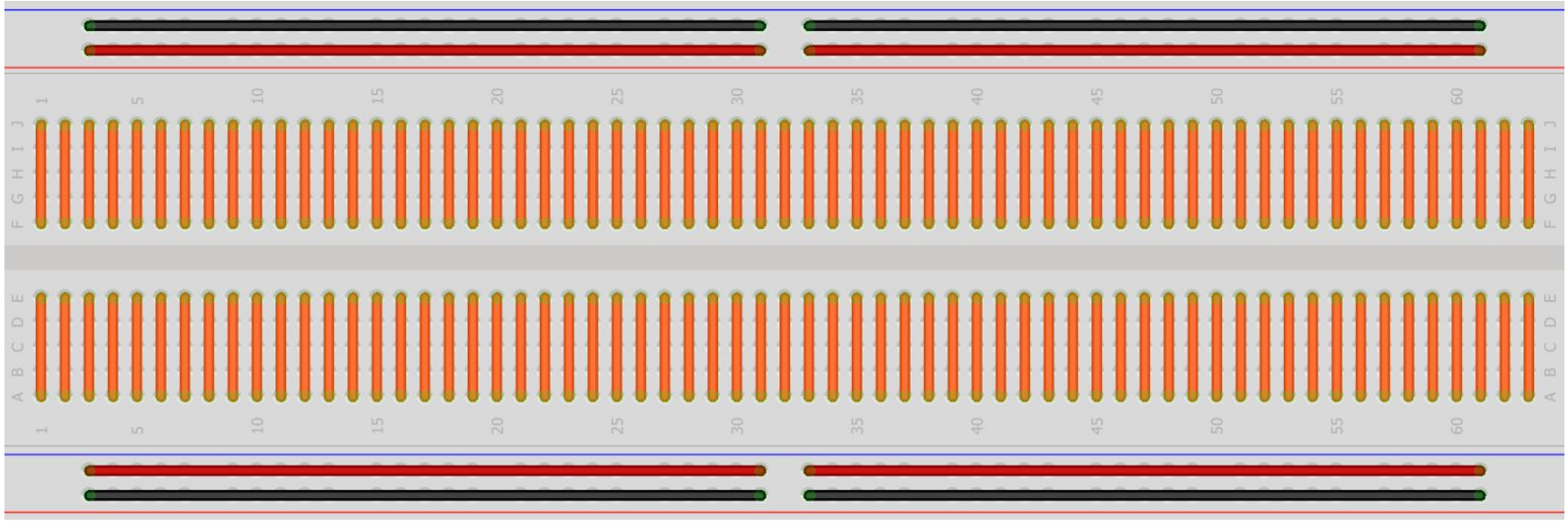


Corrente x Tensão

Protoboard

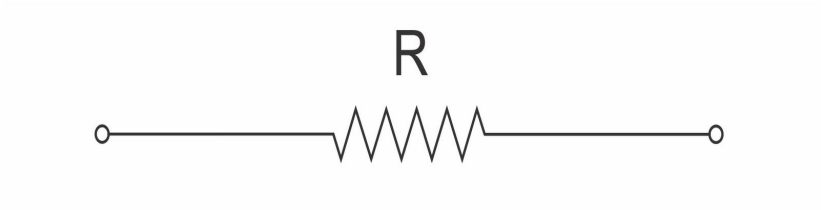


Protoboard



Resistores

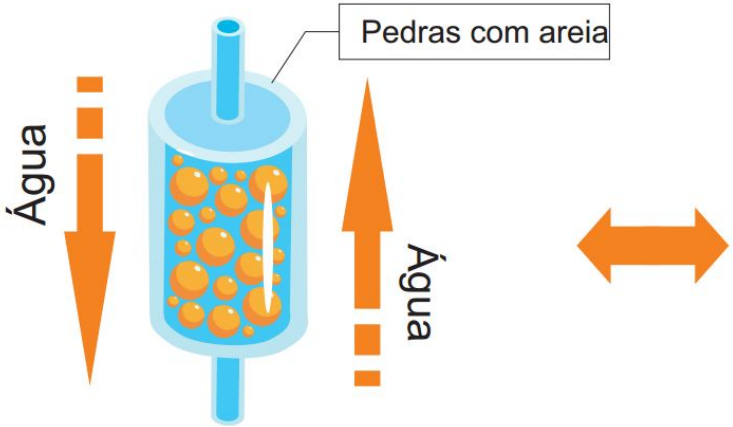
Componente fundamental da eletrônica, interfere na corrente elétrica do circuito elétrico.



Resistores

Resistência
Hidráulica

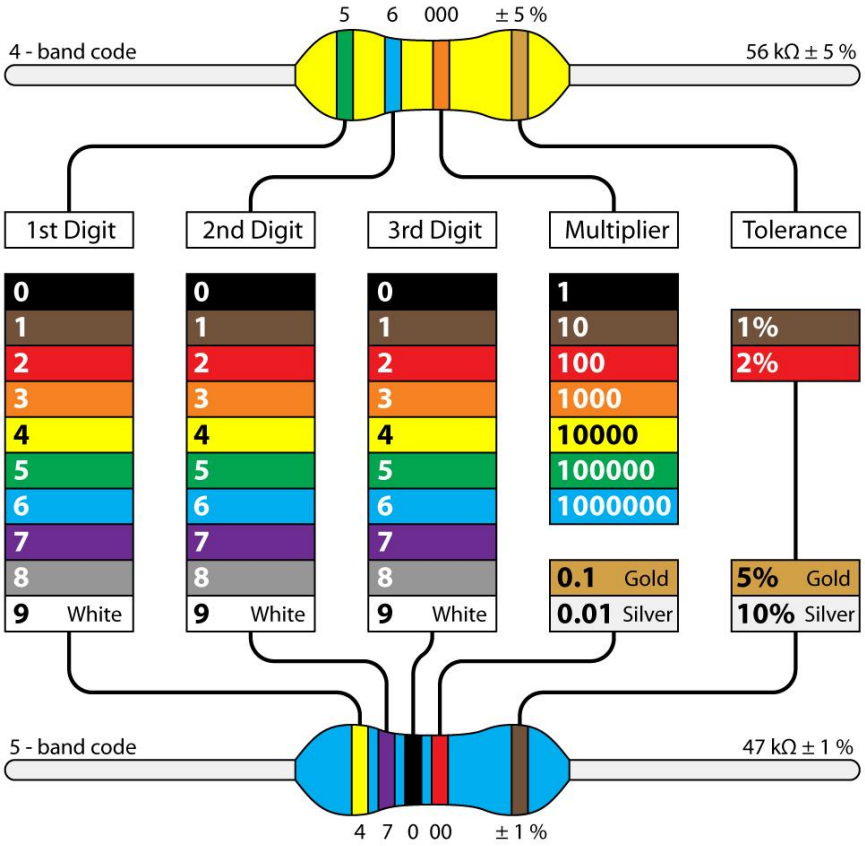
Resistência
Elétrica



A água pode fluir nas duas direções

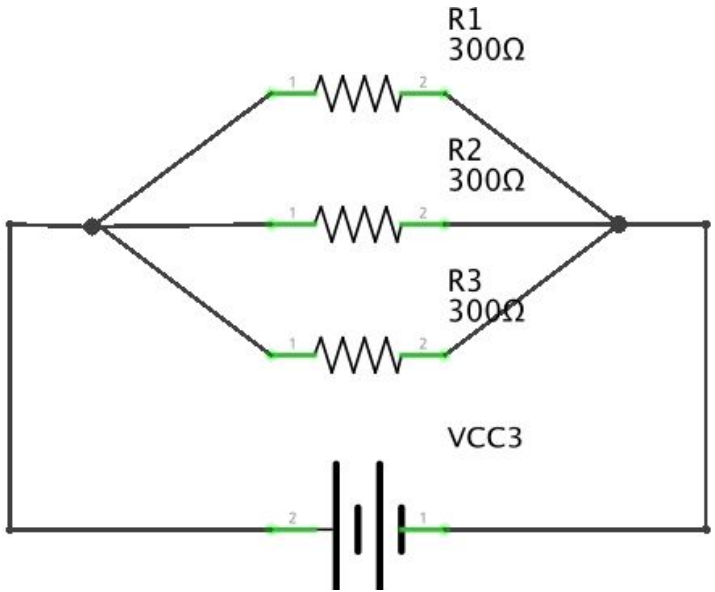
Resistência em Ohms (Ω)

Resistores

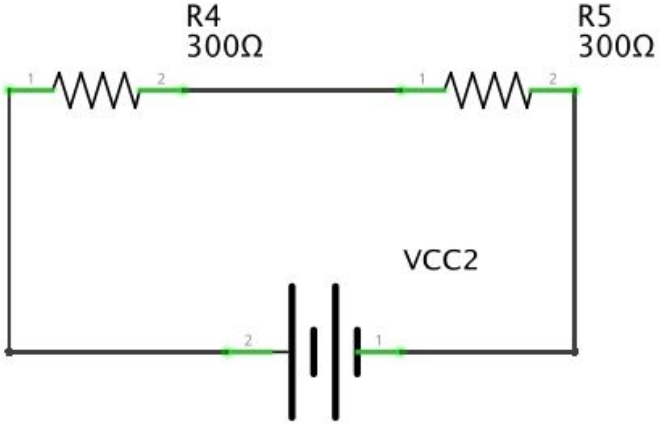

5 6 000 ± 5 %
4 - band code
56 kΩ ± 5 %
1st Digit
2nd Digit
3rd Digit
Multiplier
Tolerance
0
1
2
3
4
5
6
7
8
9 White
0
1
2
3
4
5
6
7
8
9 White
0
1
2
3
4
5
6
7
8
9 White
1
10
100
1000
10000
100000
1000000
0.1 Gold
0.01 Silver
1%
2%
5% Gold
10% Silver
5 - band code
47 kΩ ± 1 %
4 7 0 00 ± 1 %

Resistores

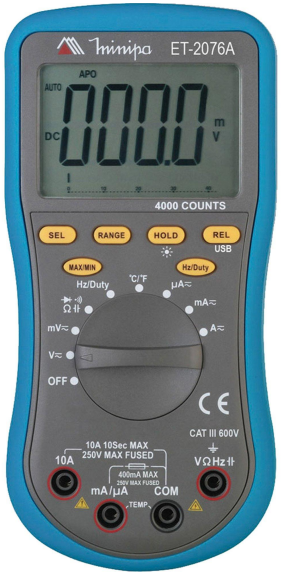
1/R = 1/R1+1/R2+1/R3



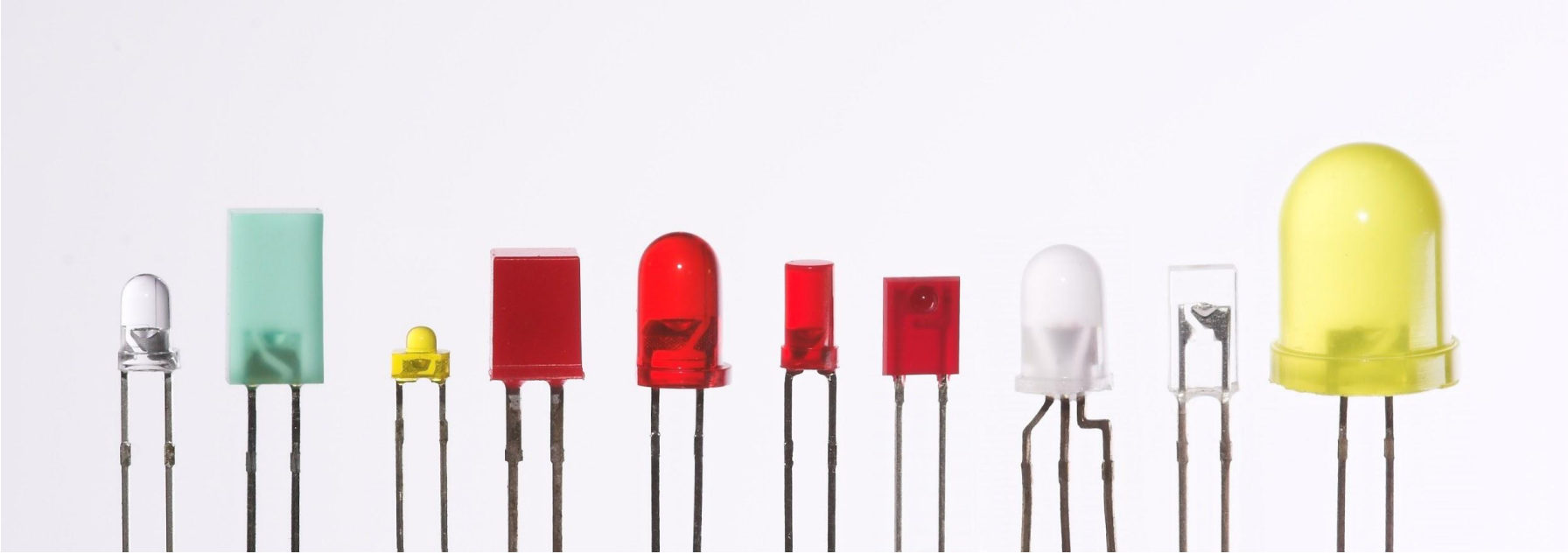
R = R4 + R5



Multímetros



Diodos

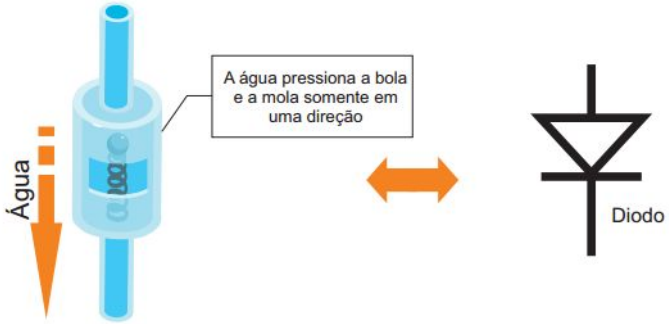


Diodos

O Diodo

Barreira Direcional
Como eu posso determinar em qual direção flui a água?

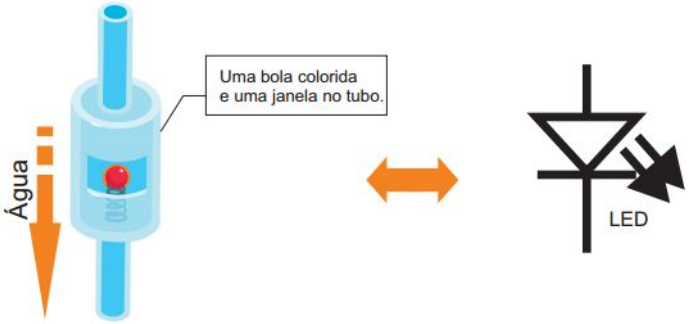
Barreria Direcional
Elétrico



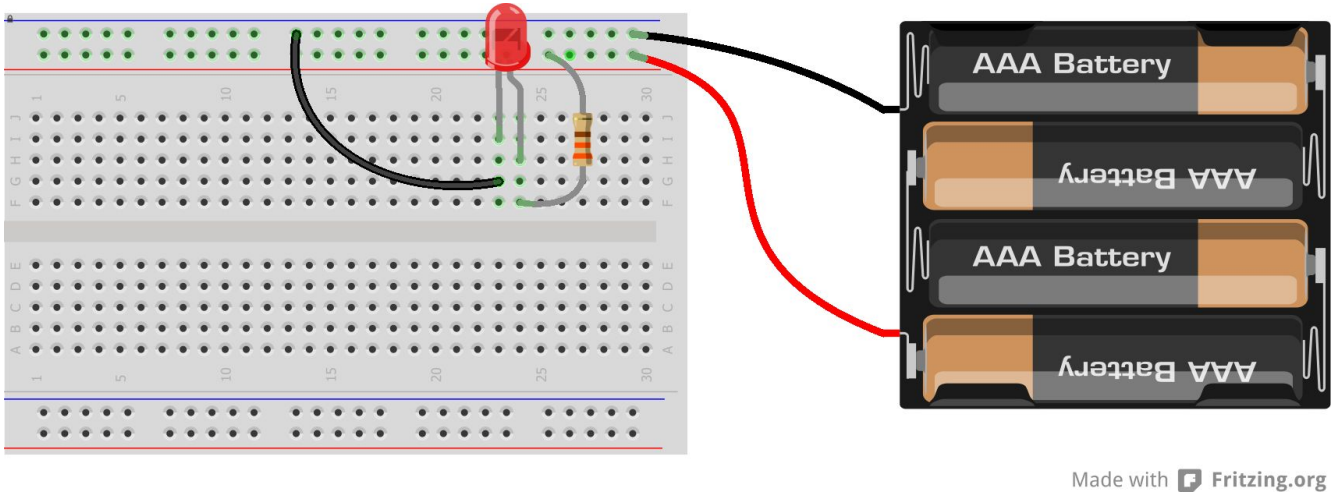
LED

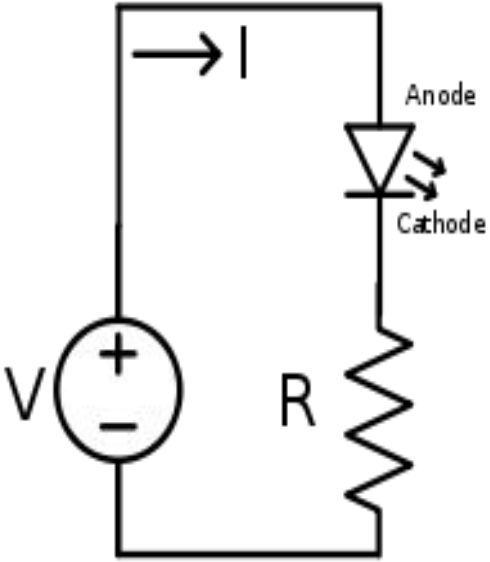
Barreira Direcional
E o LED???

Barreira Direcional
Elétrica

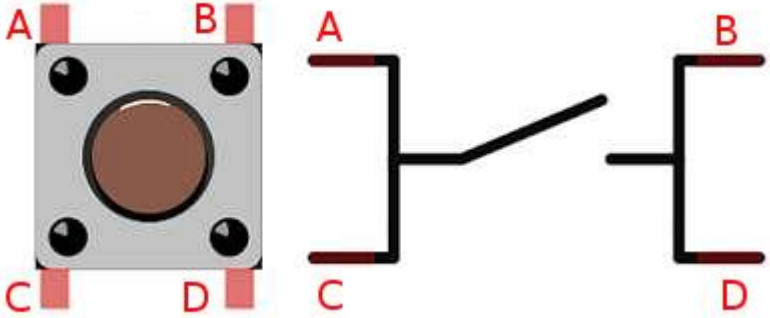


“Hello World”


AAA Battery
AAA Battery
AAA Battery
AAA Battery
Made with Fritzing.org


I
Anode
Cathode
V
R

Push Button



Push Button

- Circuito lógico bastante usado

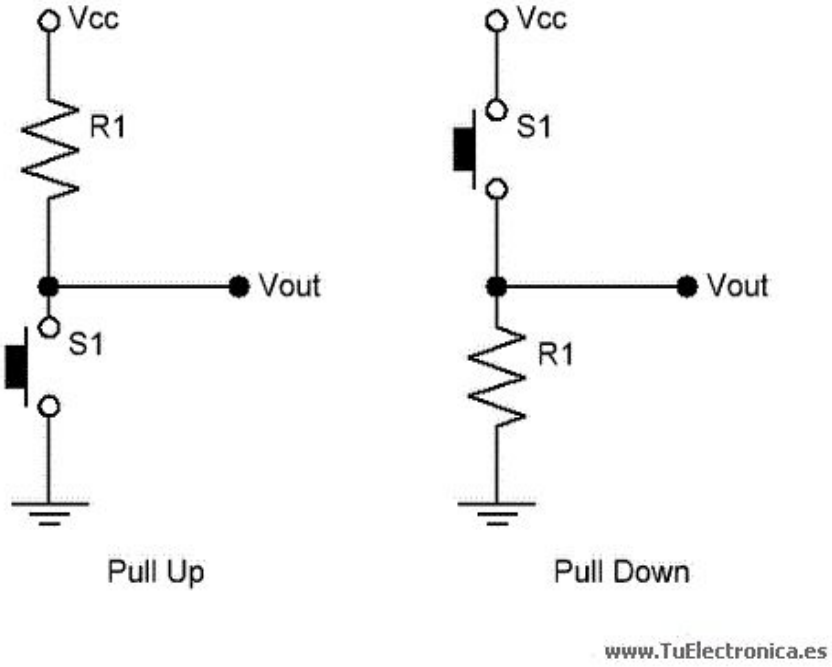
para garantir que a entrada de sistemas

lógicos tenham valores esperados

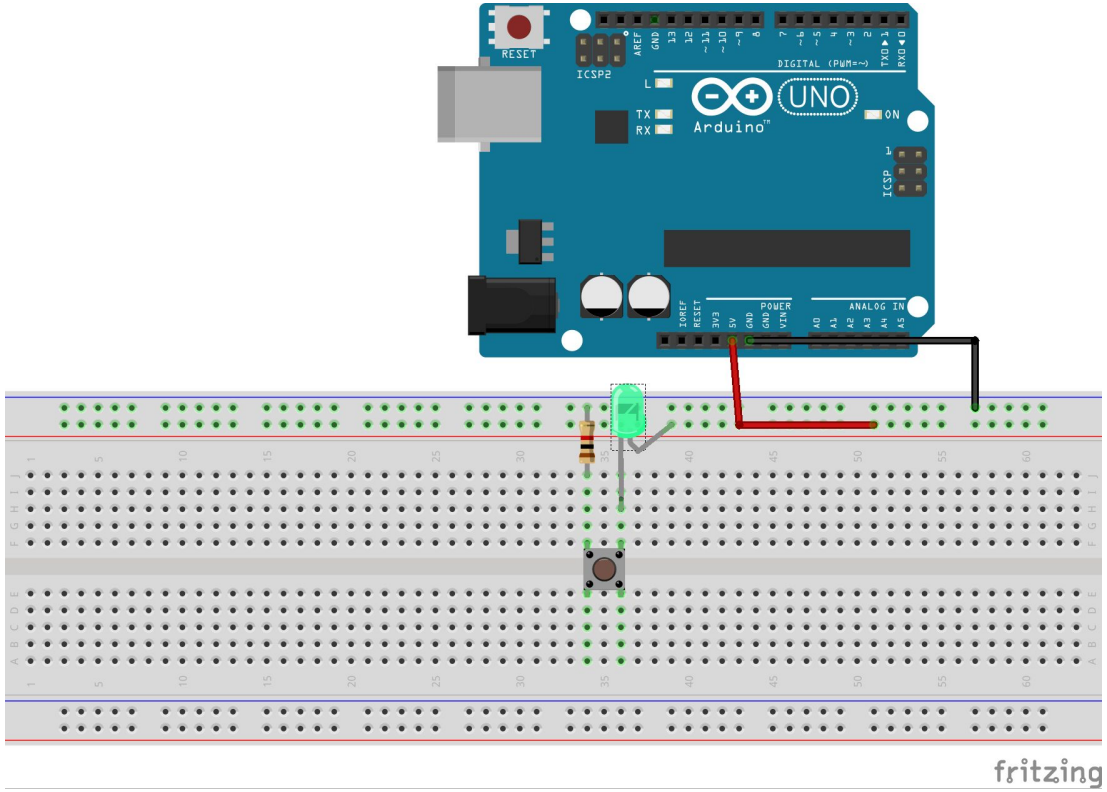
- Basicamente quando acionado

o circuito “puxe” a tensão para alto(5v)

ou baixo(0v) dependo do tipo.



Push Button


RESET
ICSP2
DIGITAL (PWM=~)
UNO
Arduino
ON
ICSP
POWER
ANALOG IN
fritzing