MÓDULO DA ELETRÔNICA

ELAS NA ENGENHARIA

SEGUNDA AULA

1. Revisão da aula passada
2. Associação de resistores e divisor de tensão
3. Ideia sobre transistor
4. Hands on

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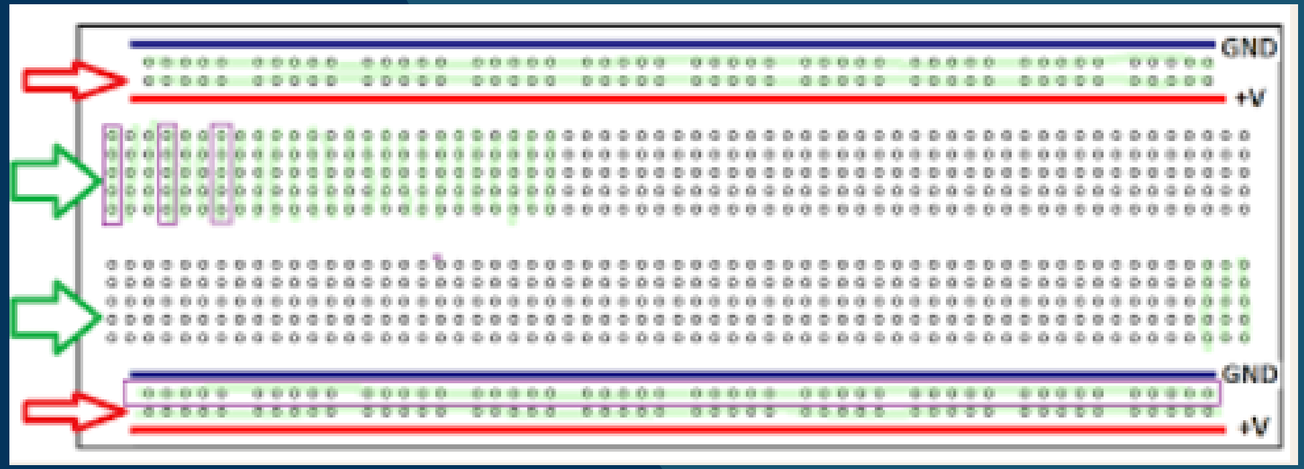
RECAPITULANDO

Protoboard - Matriz de contatos



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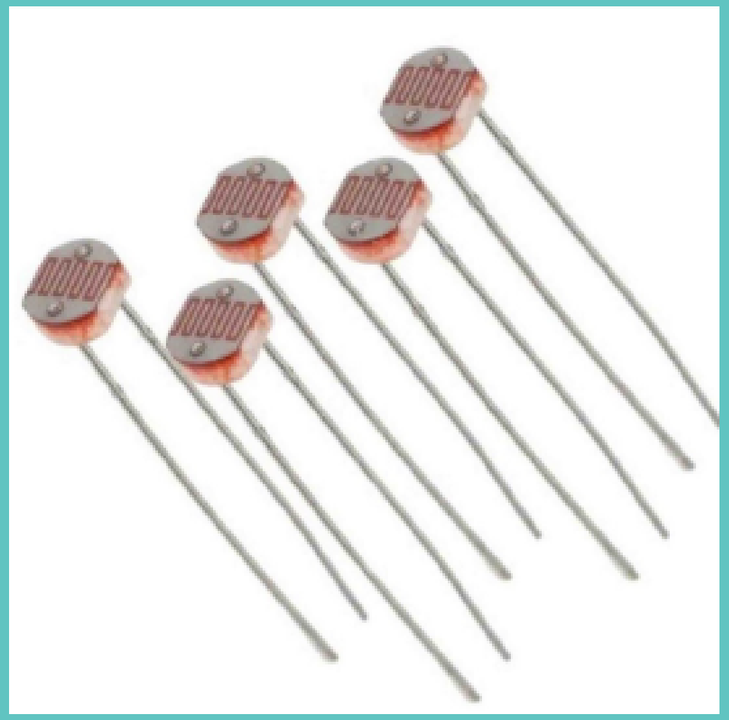
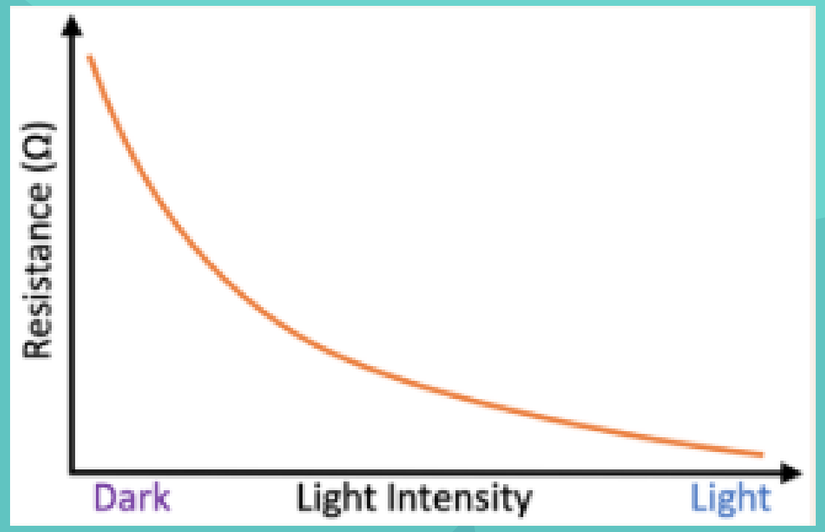
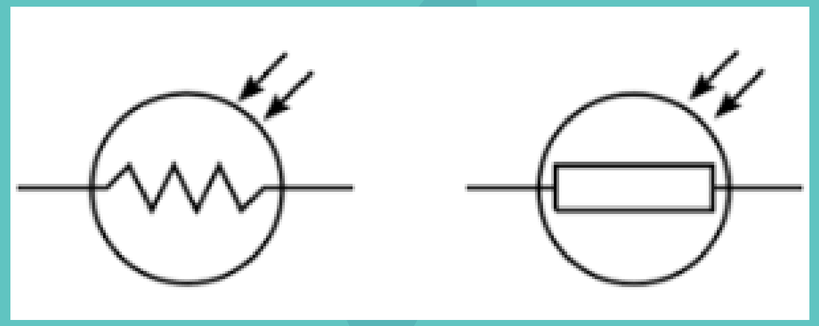
RECAPITULANDO

Componente - LDR

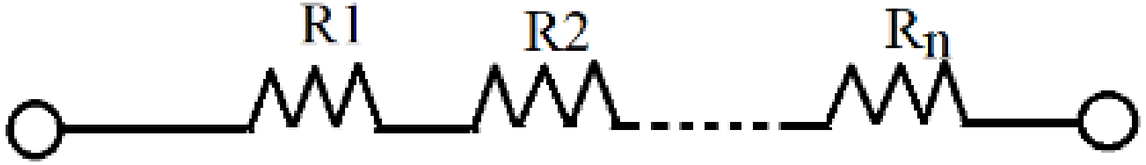






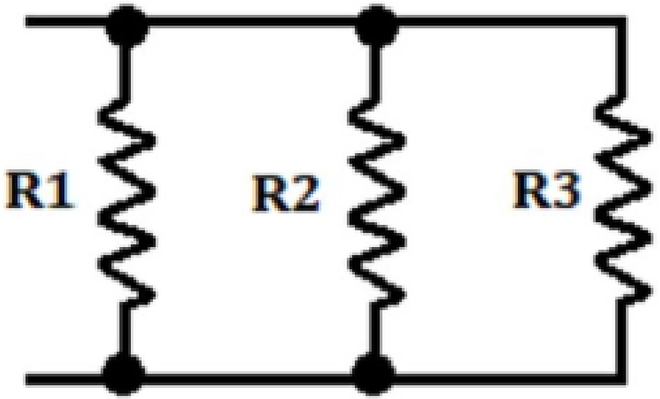
ASSOCIAÇÃO DE RESISTORES

Resistores em série



$$R_{total} = R1 + R2 + \ldots\ldots\ Rn$$

Resistores em paralelo



$$\frac{1}{R_{EQ}} = \frac{1}{R_1} + \frac{1}{R_2} + \ldots + \frac{1}{R_N}$$

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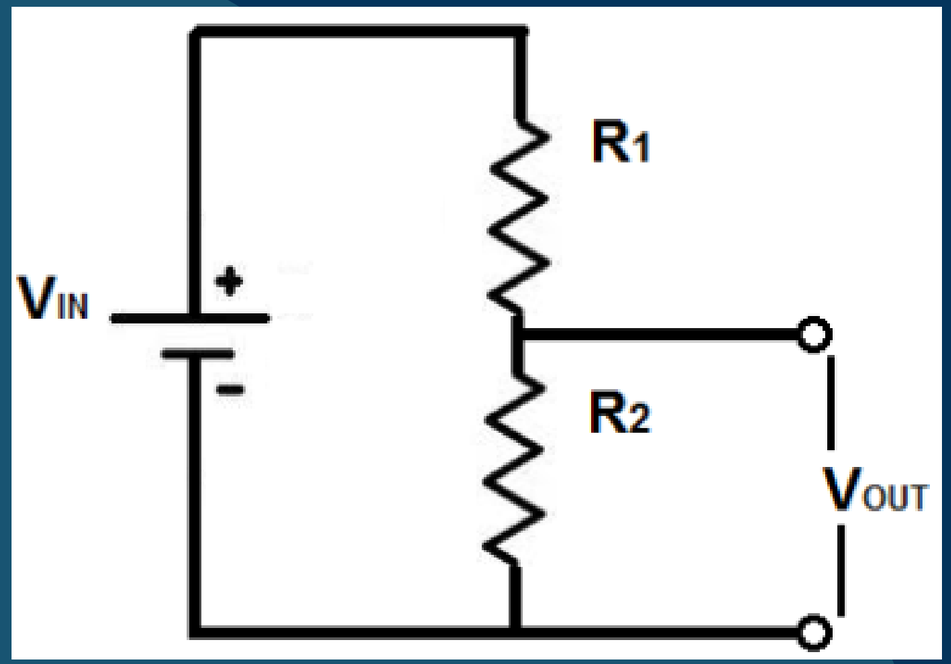
DIVISOR DE TENSÃO



1ª Lei de Ohm: Vin = I . Req

Req = R1 + R2 (Resistências em série)

$Vin = I.(R1 + R2) \rightarrow I = \frac{Vin}{(R1 + R2)}$

$Vout = I . R2 \rightarrow I = Vin . \frac{R2}{(R1 + R2)}$

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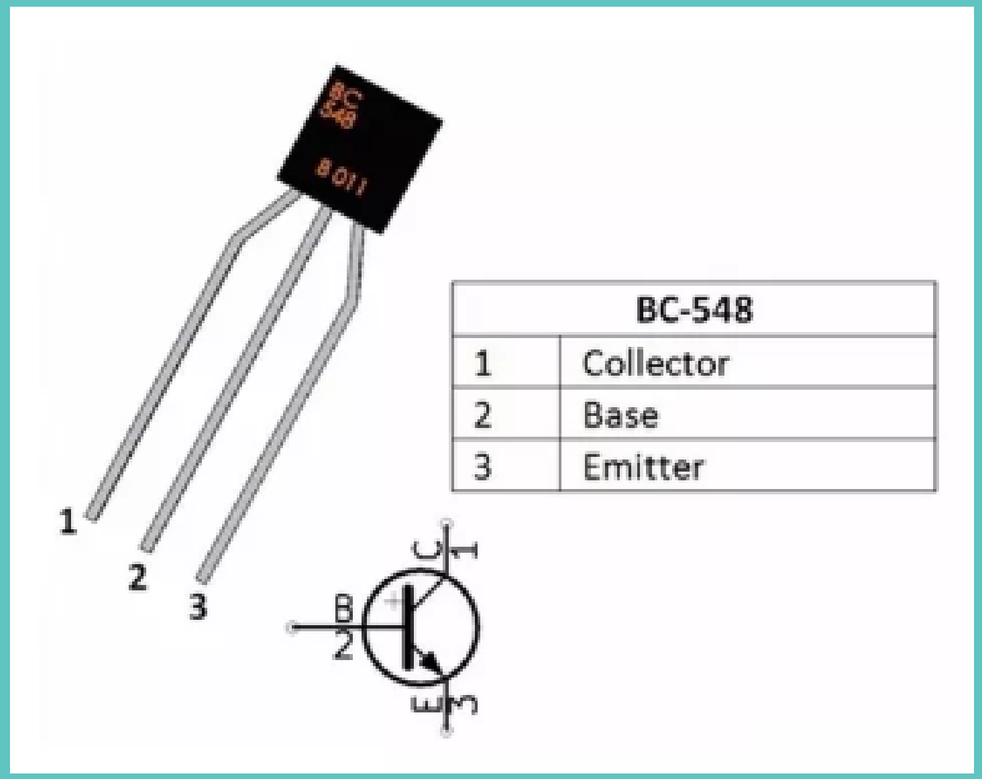
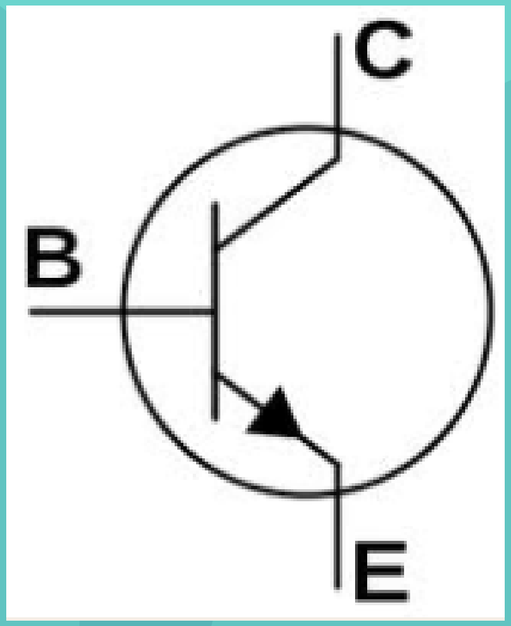
TRANSISTOR



BC-548	
1	Collector
2	Base
3	Emitter



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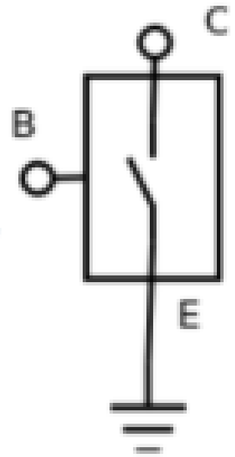
TRANSISTOR COMO CHAVE

Como chave aberta

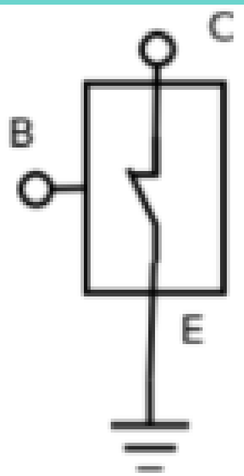
Comportamento de **chave aberta**.



Vb < 0,5V
Ib = 0 ; Ic = 0 ; Vc = Vce = Vcc

Como chave fechada

Comportamento de **chave fechada**.



Vb >> 0,7V
Vc = Vce = 0 ; Ic = Vcc/Rc

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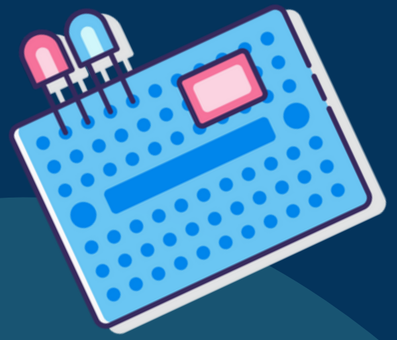

HANDS ON!

Primeira parte do circuito do nosso projeto

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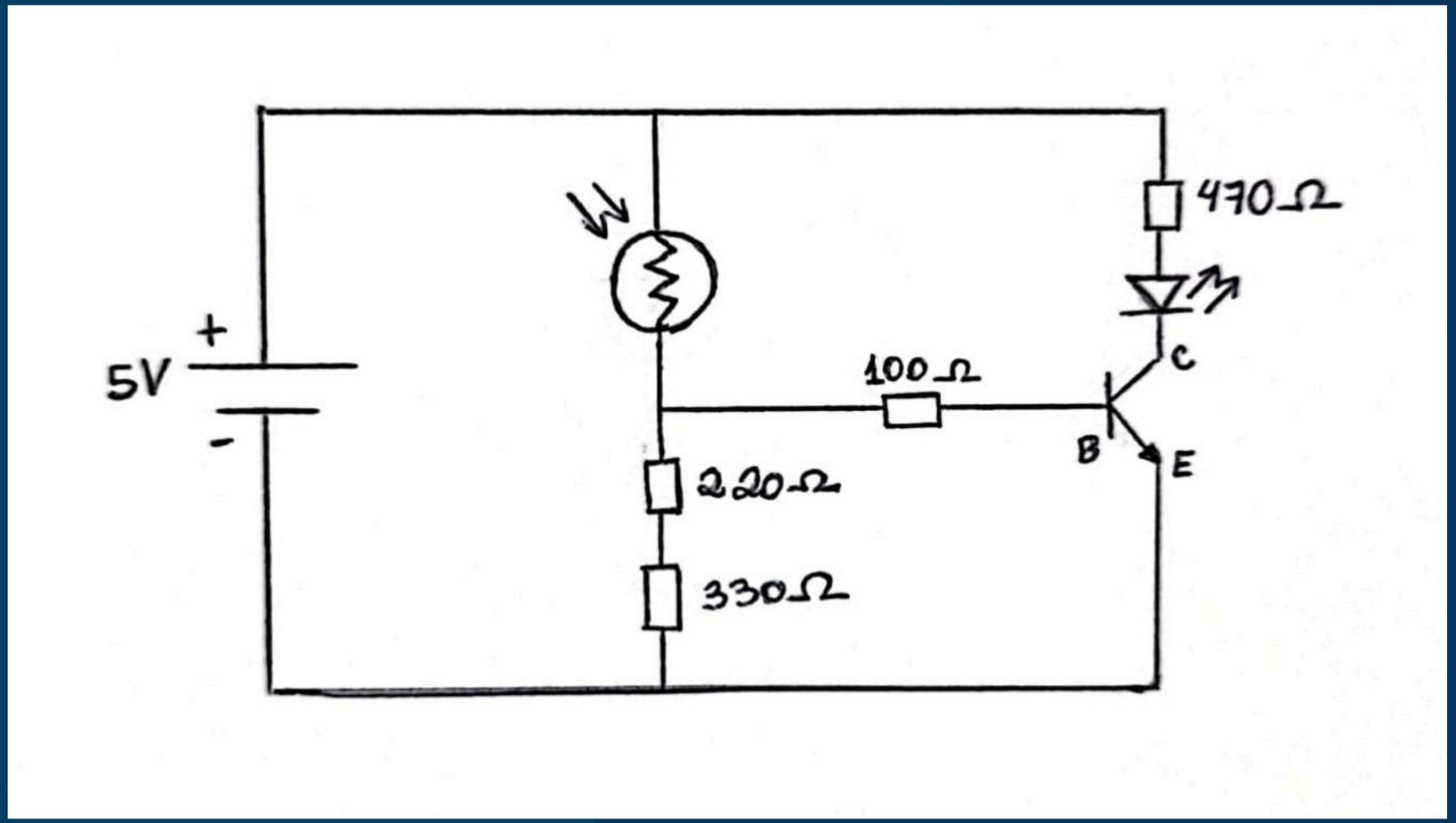
HANDS ON!



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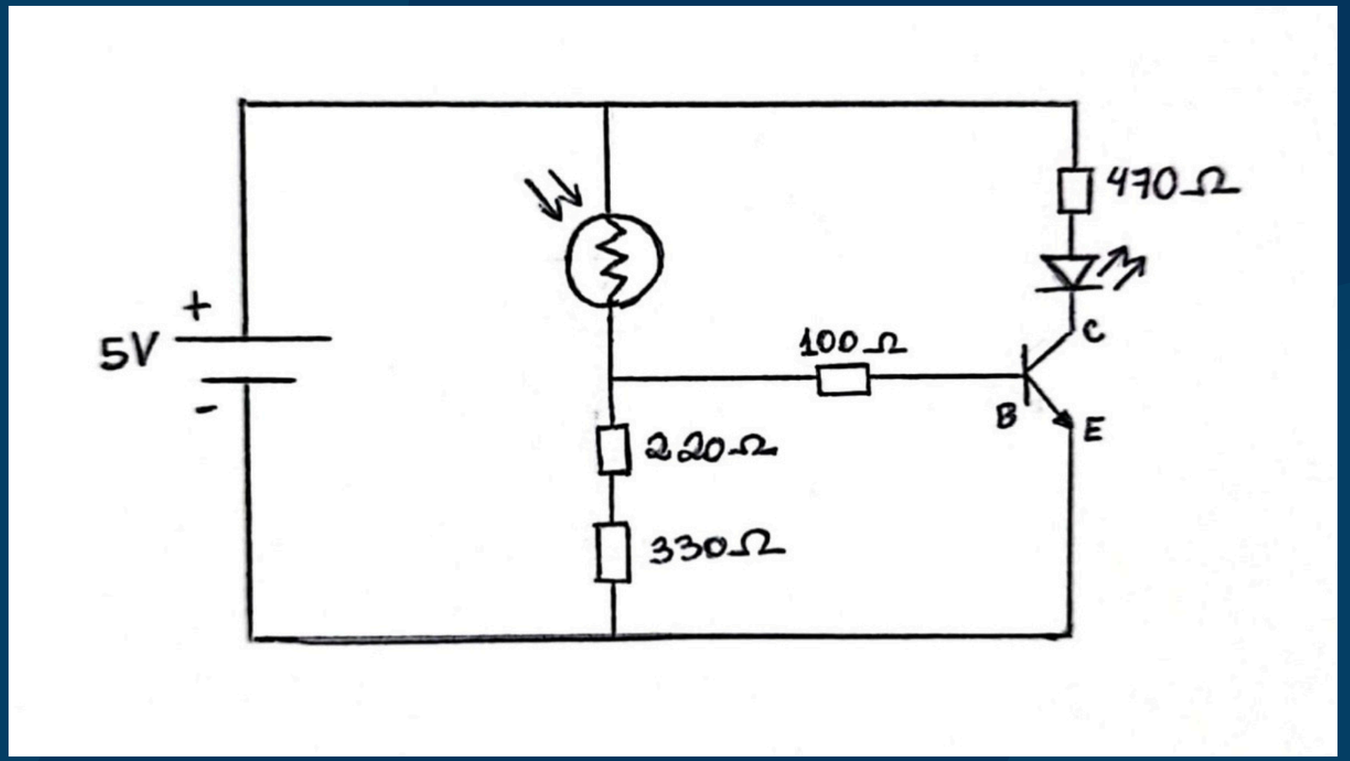
HANDS ON!

$$V_{out} = I \cdot R2 \rightarrow I = V_{in} \cdot \frac{R2}{(R1 + R2)}$$

Muita luz: R1↓ Vout --> Vin

Pouca luz: R1↑ Vout --> 0



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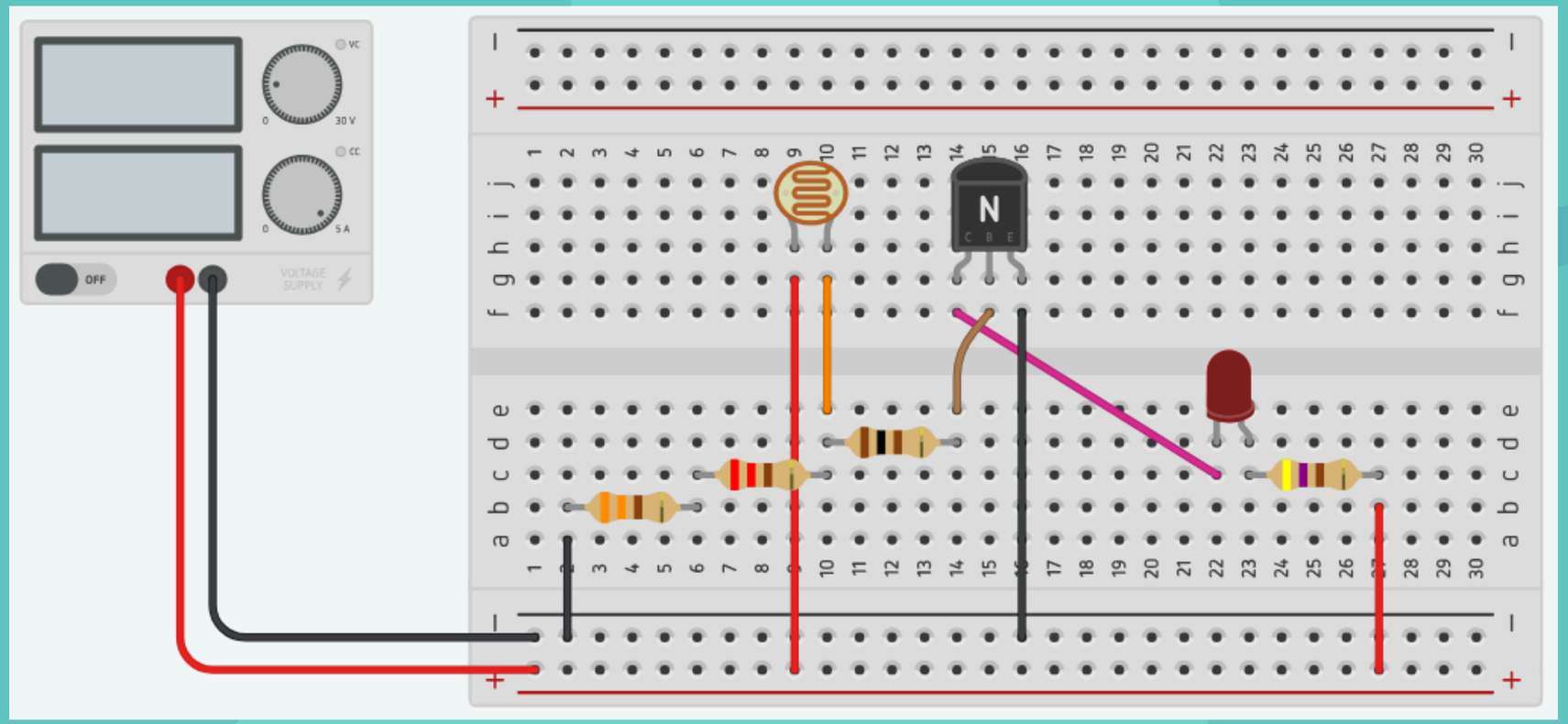
HANDS ON!

Materiais:

- 1 Transistor
- 4 resistores (de 100, de 220, de 330 e 470)
- 1 LED
- 1 LDR



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