

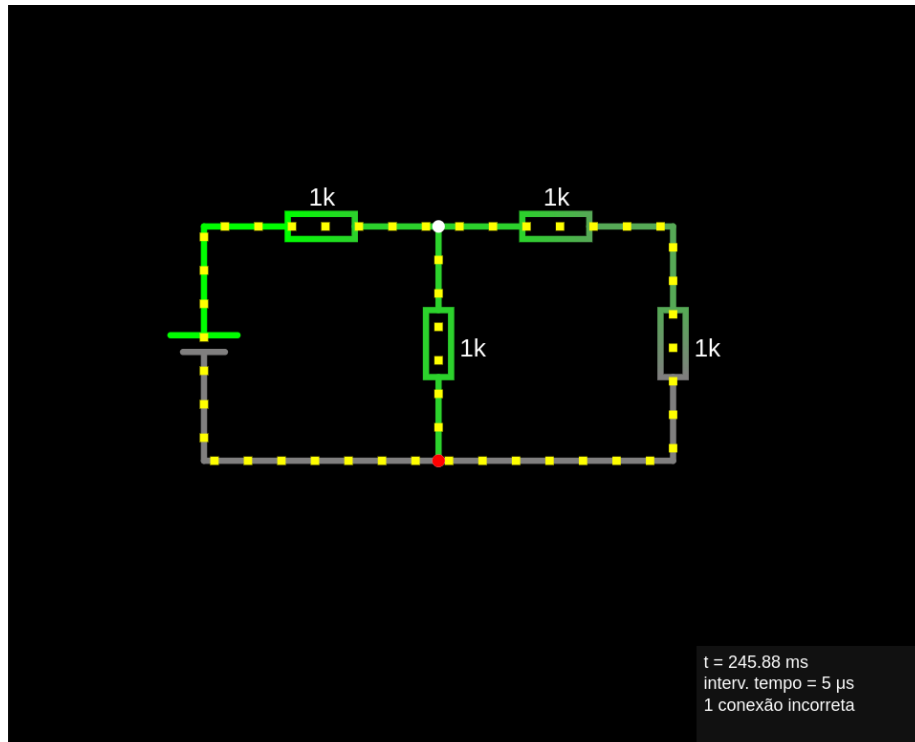
Laboratório 16-04-2024

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Circuito com 4 resistores

Calcular, simular e implementar o seguinte circuito:



Calculos:

$$i_1 = \frac{5}{(5/3) \cdot 10^3} = 3mA$$

$$V_1 = 1 \cdot 10^{-3} \cdot 3 \cdot 10^{-3} = 3V$$

$$V_2 = 2V$$

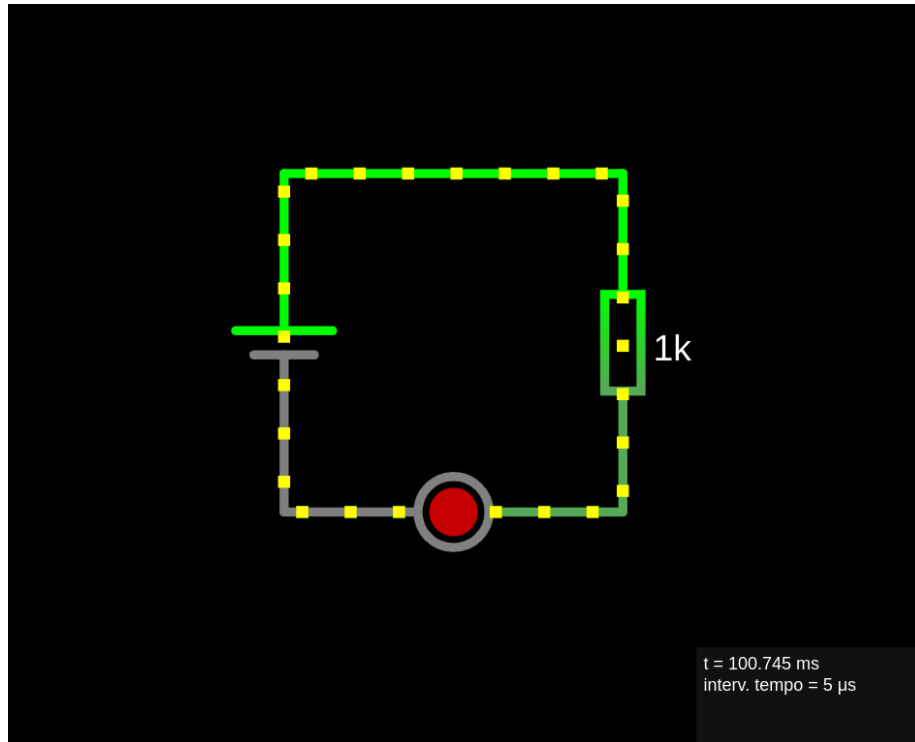
$$V_3 = V_4 = 1V$$

$$i_2 = \frac{2}{1 \cdot 10^3} = 2mA$$

$$i_3 = \frac{2}{2 \cdot 10^3} = 1mA$$

Circuito 1 LED e 1 Resistor

Calcular, simular e implementar os seguintes circuitos:



Onde os resistores devem possuir, respectivamente, 330* e 1000 Ohms.

* usei 220 pois não encontrei 330

Calculos primeiro circuito:

$$V_{fonte} = 12$$

$$V_{led} = 1.8V$$

$$R_1 = 1k\Omega$$

$$i = \frac{10.2}{1000} = 10.2mA$$

Calculos segundo circuito:

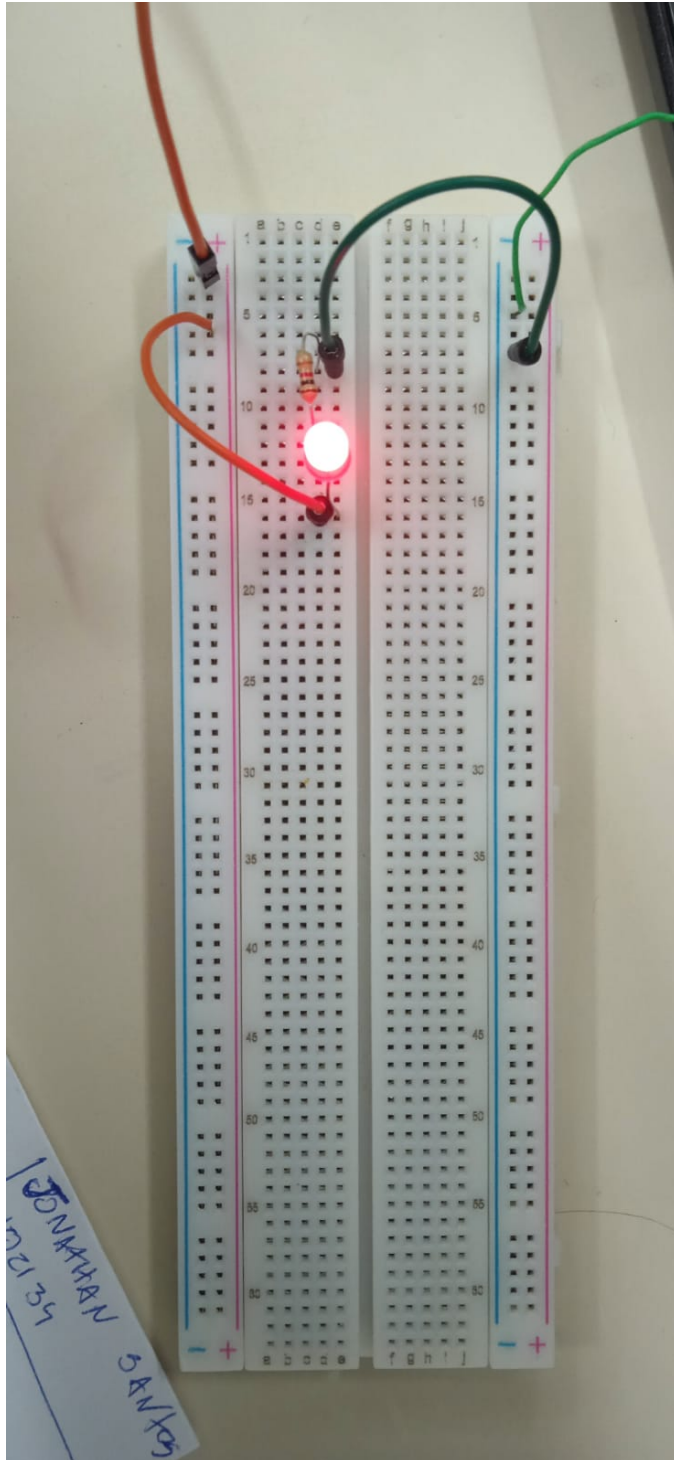
$$V_{fonte} = 5$$

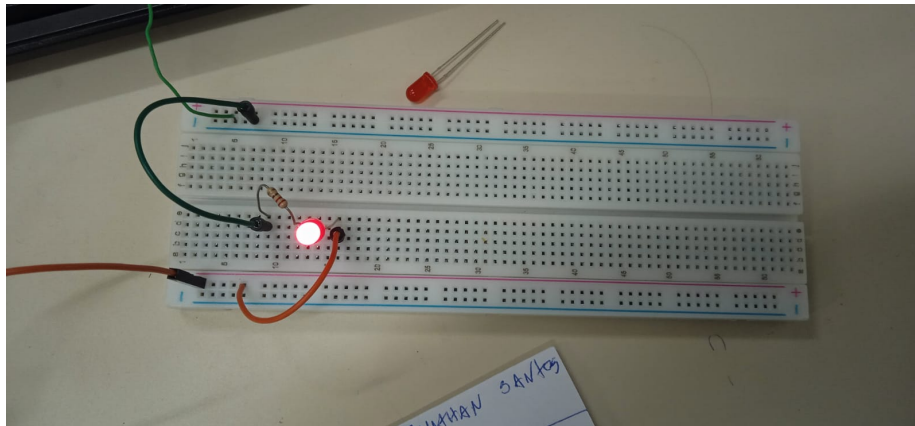
$$V_{led} = 1.8V$$

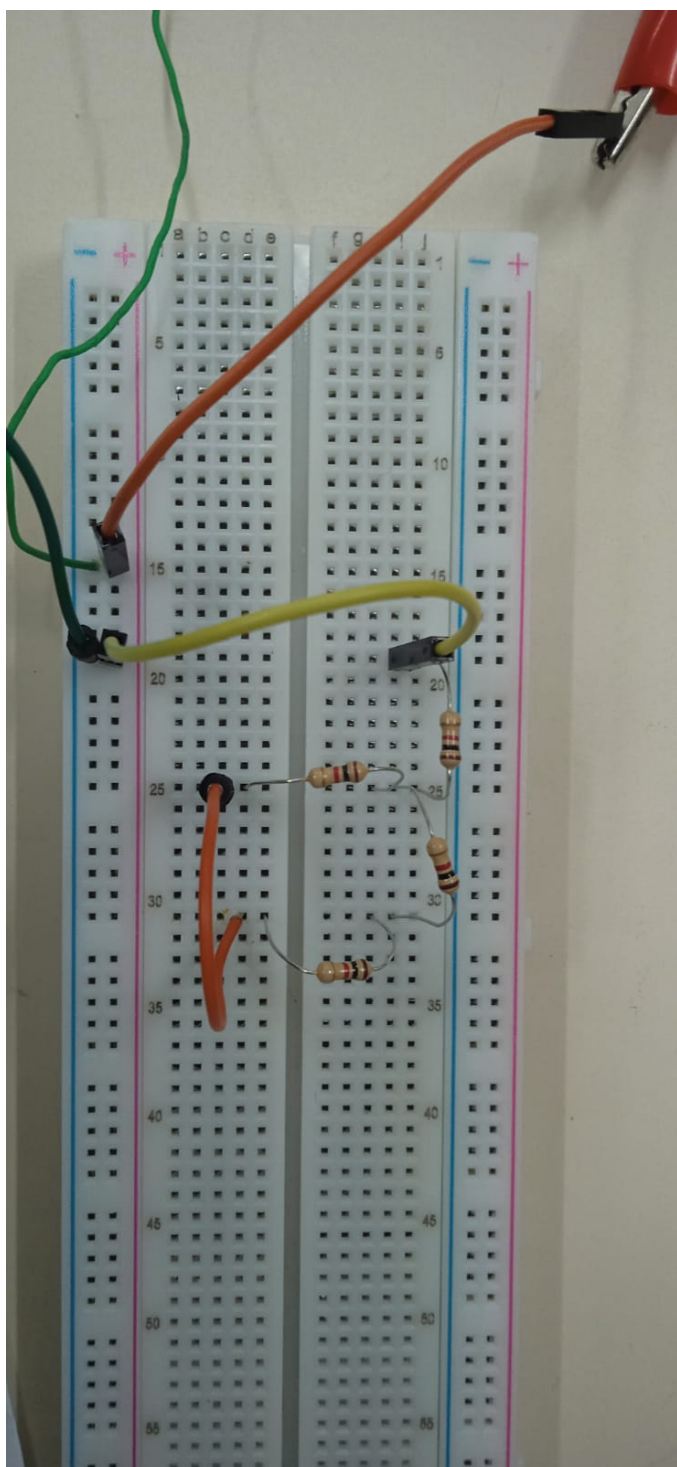
$$R_1 = 330\Omega$$

$$i = \frac{5}{330} = 15mA$$

Implementação:







Calculos feitos em aula

Handwritten calculations and circuit diagrams on a piece of paper placed on a laptop keyboard.

Top Left Circuit Diagram: A circuit with a 5V source, a 1k resistor, and a 2k resistor in parallel. A 5k resistor is in series with the parallel combination. A voltmeter V_3 is connected across the 2k resistor. A current I_3 is indicated through the 2k resistor.

Top Right Calculations:

$$I_1 = \frac{S}{(0.5) \times 10^3} = 3 \times 10^{-3} A$$

$$V_1 = 1 \times 10^3 \times 3 \times 10^{-3} = 3 V$$

$$V_3 = V_4 = 1 V \quad V_2 = 2 V$$

Middle Left Circuit Diagram: A circuit with a 5V source, a 1k resistor, and a 2k resistor in parallel. A 5k resistor is in series with the parallel combination. A voltmeter V_3 is connected across the 2k resistor. A current I_3 is indicated through the 2k resistor.

Middle Right Calculations:

$$I_3 = \frac{2}{4 \times 10^3} = 1 \times 10^{-3} A$$

$$I_2 = \frac{2}{10^3} = 2 \times 10^{-3} A$$

Bottom Left Text:

RESISTOR MAL ENCAIXADO
MEDIR CORRENTE DEVE SER EM SÉRIE

Bottom Right Circuit Diagram: A circuit with a 5V source, a 330Ω resistor, and a voltmeter $V=1.8V$ in parallel. A current I_3 is indicated through the 330Ω resistor.

Other Notes:

LEDs $I = \frac{10}{1000} = 10 mA$

$V_{LED} = 1.8 V$

$I = \frac{3}{330} = 0.009 A$