

Virtual Workshop 1

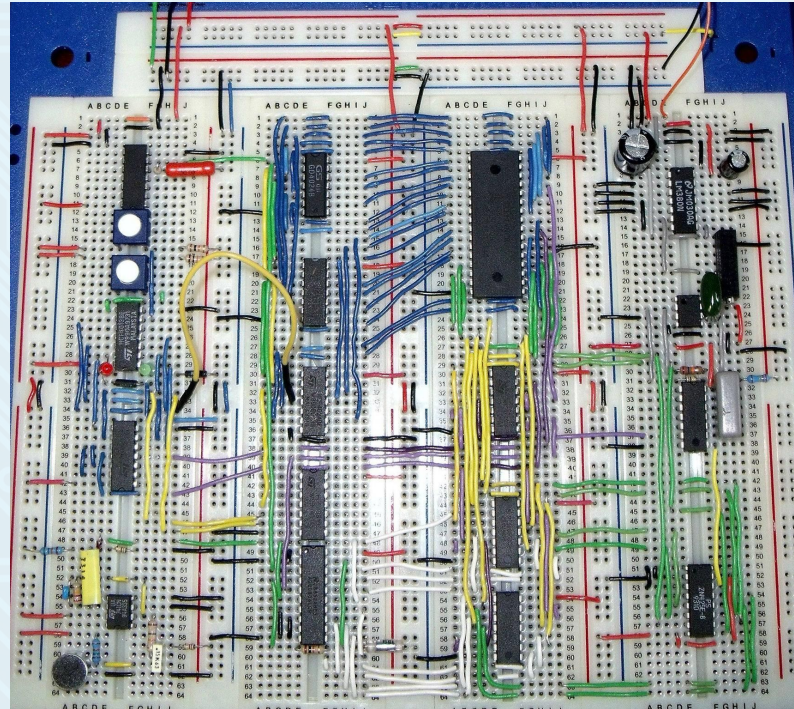
Voltage Dividers and Breadboards

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*Penn State IEEE
Workshop 1
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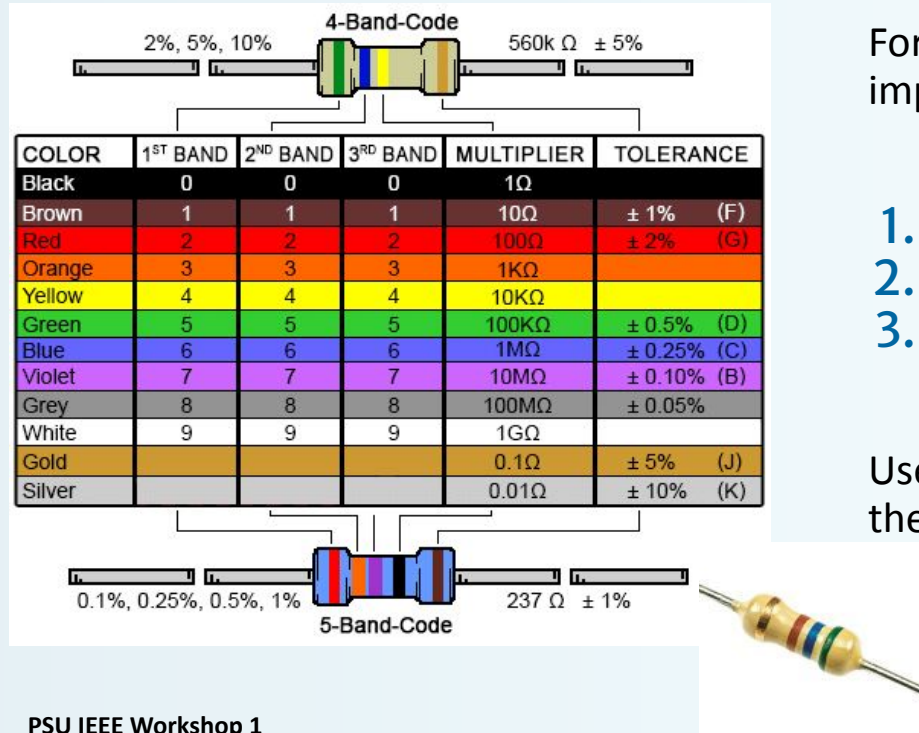


Why Use Breadboards?



- ▶ Solderless
- ▶ Ideal for prototyping
- ▶ Great for trying out new components
- ▶ Perfect for IEEE workshops!

Resistors



For DIYers, there are three important resistor specs:

1. Resistance Value
2. Power Rating
3. Tolerance

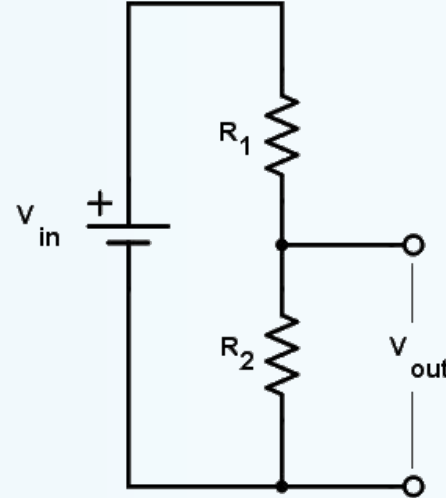
Use the colored bands to determine the resistance and tolerance!

Voltage Dividers

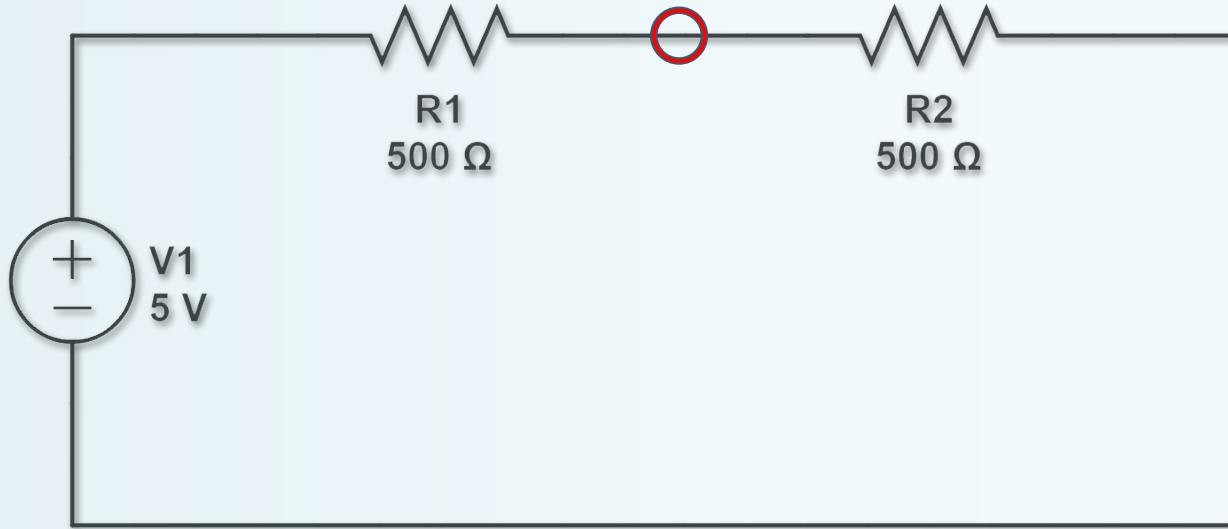
What are they?

- ▶ Takes in an input voltage
- ▶ Drops input voltage by a certain amount
- ▶ Drop based on the values of the resistors in the network
- ▶ When picking resistor values, consider the load on the output

$$V_{out} = \frac{R_2}{R_2 + R_1} \cdot V_{in}$$



An Example:



Circuit Diagram

