

## Circuit #10 Soft Potentiometers

1.

**The soft potentiometer is very touchy; sometimes you will notice incorrect readings due to how you touch the sensor. Be careful not to touch below the sensor pad, you will short out the sensor. Also the sensor reads a value even when you are not touching it. Explain how this alters the ways in which you can use this sensor. Explain at least one possible fix or work around.**

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## 2.

**Add the following code to your Arduino code.**

In setup: `Serial.begin(9600);`

**In loop (at end):**

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Serial.println(sensorValue);
```

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delay(100);
```

### 3.

**Now open the Serial Communication window.**

This will let you see the values (slowed down a little with the delay line, to see real time output remove delay(100); as the soft trimpot outputs them. What happens to the values after you stop touching the sensor? Explain why you think this happens.

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**Give values for sensorValue, Voltage, Current and Resistance for each question. To measure resistance; disconnect trimpot, press area that corresponds to color and attach the multimeter to the com line and ground. Find Current by calculating with Ohm's Law.**

4.

**RGB in red range: V = \_\_\_\_\_ v I = \_\_\_\_\_ mA R = \_\_\_\_\_  $\Omega$**

**sensorValue =** \_\_\_\_\_

**5.**

in blue range:  $V = \underline{\hspace{1cm}}$   $v I = \underline{\hspace{1cm}}$  mA  $R = \underline{\hspace{1cm}}$   $\Omega$

**sensorValue =** \_\_\_\_\_

**6.**

in green range:  $V = \underline{\hspace{1cm}}$   $v I = \underline{\hspace{1cm}}$   $\text{mA}$   $R = \underline{\hspace{1cm}}$   $\Omega$

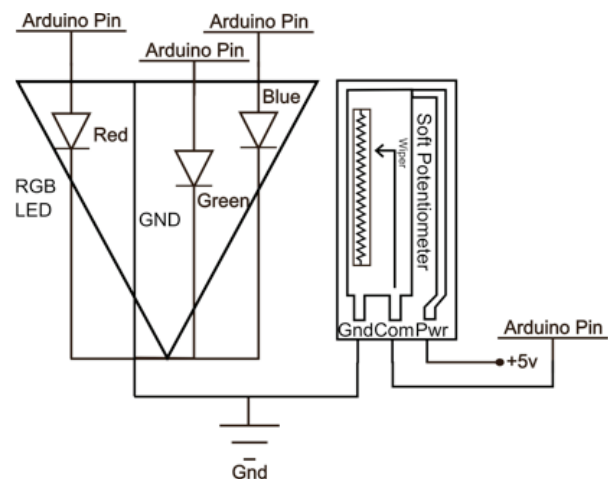
**sensorValue =** \_\_\_\_\_

**7.**

in yellow range:  $V =$            $v I =$            $\text{mA}$   $R =$            $\Omega$

**sensorValue =**

### Circuit:



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8.

What RGB values do you need to display purple?

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9.

Touch the sensor lightly (don't push or hold it) and run your finger from one end to the other. What happens? Why do you think this is? Explain.

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10.

You can make the RGB LED display red when you touch the bottom and blue when you touch the top by changing two lines of code. Write one these lines of code below as well as what you need to change it to.

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11.

Write an if statement you could add to your `loop()` method that causes the RGB LED to display purple when you touch the absolute top of the trimpot.

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12.

Imagine your soft potentiometer is thirty feet long. Explain at least three things you could use it for.

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### Circuit:

