**Name:**
**Date:**

**Circuit #9 Flex Sensors**

## 1.

**Now we're starting to work with some more complicated sensors. The flex sensor has tons of real world applications. List three and explain why you can't use a regular potentiometer instead of a flex sensor. Example: use the sensor to measure the flex on a fishing pole and cut the line if the pole ever comes close to breaking. You could not use a potentiometer because it would be difficult to attach it.**

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**Got your flex sensor and servo working? Great.**

**Give two values for Voltage, Current and Resistance for each multimeter placement. The first value is without bending the flex sensor and the second is with the flex sensor bent so the sensor creates a half circle. Don't crimp the flex sensor, just bend it. Find Current by breaking the circuit and using the multimeter. Calculate resistance.**

## 2.

**Multimeter 1, no bend:**

**V = _____v I = _____mA R = _____Ω**

## 3.

**Multimeter 1, with bend:**

**V = _____v I = _____mA R = _____Ω**

## 4.

**Multimeter 2, no bend:**

**V = _____v I = _____mA R = _____Ω**

## 5.

**Multimeter 2, with bend:**

## 6.

**V = _____v I = _____mA R = _____Ω**

## 7.

**For each multimeter position mark two Xs in additional places where you could attach the multimeter (+ and -) to get these same readings.**

## 8.

**Using a protractor to measure the servo angle, and the Serial Monitor to output the analogRead value of the flex sensor. Create a graph that shows correlation. Remember to label your graph.**

**There are many kinds of flex sensors, list 3.**

## 9.

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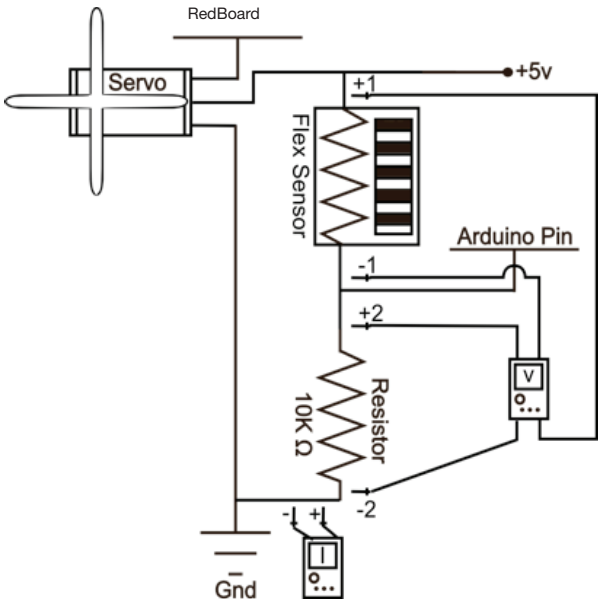
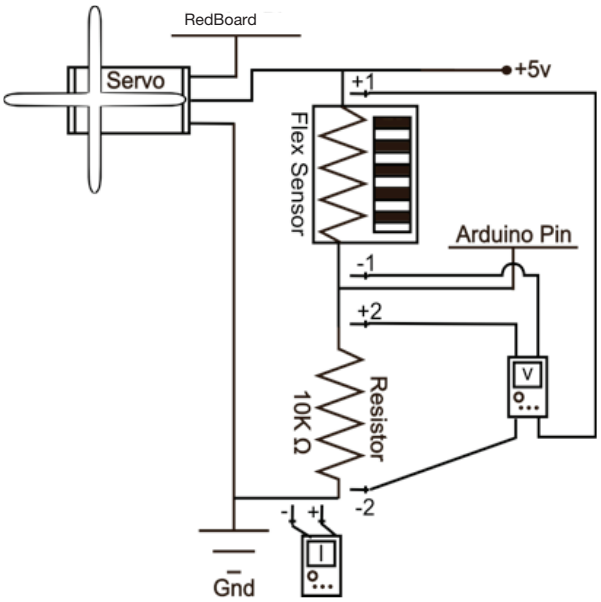
**What kind of flex sensor are you working with now?**

_____

**Circuit:**



## Circuit:




## 10.

**What other kinds of sensors is this similar to?**

## 11.

**How could you figure out the values for the second multimeter placement given the first set of values?**

## 12.

**If the flex sensor itself is a resistor, why is the 10K resistor necessary? Explain.**

## 13.

**Take your favorite hypothetical project that you have written about so far in these worksheets, explain how and why you might add at least one flex sensor to this project.**