Lab #4: Servo Motors

First before getting started, it is important to understand how a potentiometer works and how to hook it up to an Anolog Input pin.

STEP 1: Follow this fully in Tinkercad:
https://learn.sparkfun.com/tutorials/sparkfun-inventors-kit-experiment-guide---v41/circuit-1b-potentiometer

NOTE: There is nothing to hand in or record. This is just to help you understand analog inputs. You just need to understand it well enough to answer the questions in the attachment. This would be questions 1 to 4.

STEP 2: Now, on to SERVO MOTORS. Follow this tutorial:
https://learn.sparkfun.com/tutorials/sparkfun-inventors-kit-experiment-guide---v41/circuit-3a-servo-motors

Follow it and make sure you understand it. Answer the next questions on the Portfolio sheet. Nothing to hand in yet.

STEP 3: Modify the code from the tutorial in step 2 to make it so that the potentiometer moves the Servo motor from 0 degrees all the way to 180 degrees. You will need to use the map() function.

TO DO: Call your program servo1_yourFirstName.ino and screen record your program working with your voice recorded explaining the code.

EXTENSION:

Follow the tutorial on LDR's here:
https://learn.sparkfun.com/tutorials/sparkfun-inventors-kit-experiment-guide---v41/circuit-1c-photoresistor -> You will learn about how to read an anolog value from a voltage divider circuit involving an LDR. Create a new circuit and wire the circuit exactly as it is and play around with the values until you understand it.

NEXT: Wire a servo motor with the same voltage divider circuit as in the LDR lab. You should not have anything else wired besides the LDR, resistor, and the servo motor.

Requirements:

1) Make it so that when LDR is at the darkest setting (you can click on the LDR and change the light levels) , the servo is at position 0 degrees.
2) When the LDR is at its lightest setting, the servo is at 180 degrees.
3) When the light fluctuates, the servo can be at any value between 0 and 180 degrees. To do this you must use the map function but this time you will have to change some values to get it to work.

TO DO: Call your program servoExtension_yourFirstName.ino and screen record your program working with your voice recorded explaining the code.

Now you are done with all of the labs! You can organize your portfolio now.