POTENTIOMETER CONTROLLED SERVO MOTOR

Introduction:

The project teaches us more about servo motors and potentiometer using Arduino UNO. The arduino is programmed in such a way that the rotation of servo motor will be controlled with the potentiometer.

A potentiometer, informally a pot, is a three-terminal resistor with a sliding or rotating contact that forms an adjustable voltage divider. When you rotate it you change its resistance. Its two terminals at ends are Positive and GND and the middle terminal is the one that requires the function when used with the Arduino.

In this project we will connect the motors of the Arc-o-matic (which you have just created) to two potentiometers. This allows you to control the Arc-o-matic with the two buttons, by hand, instead of with the pre-programmed movements in the code.

Obviously there can be more useful applications, such as rotating an antenna for example to receive optimal signal, but this will be a fun way to start.

Components:

For this project you need:

- Arduino UNO
- Servo Motors
- Potentiometers
- Breadboard
- Male to Male Jumper Wires
- Laptop
- Resistors, 330k & 100k

Code:

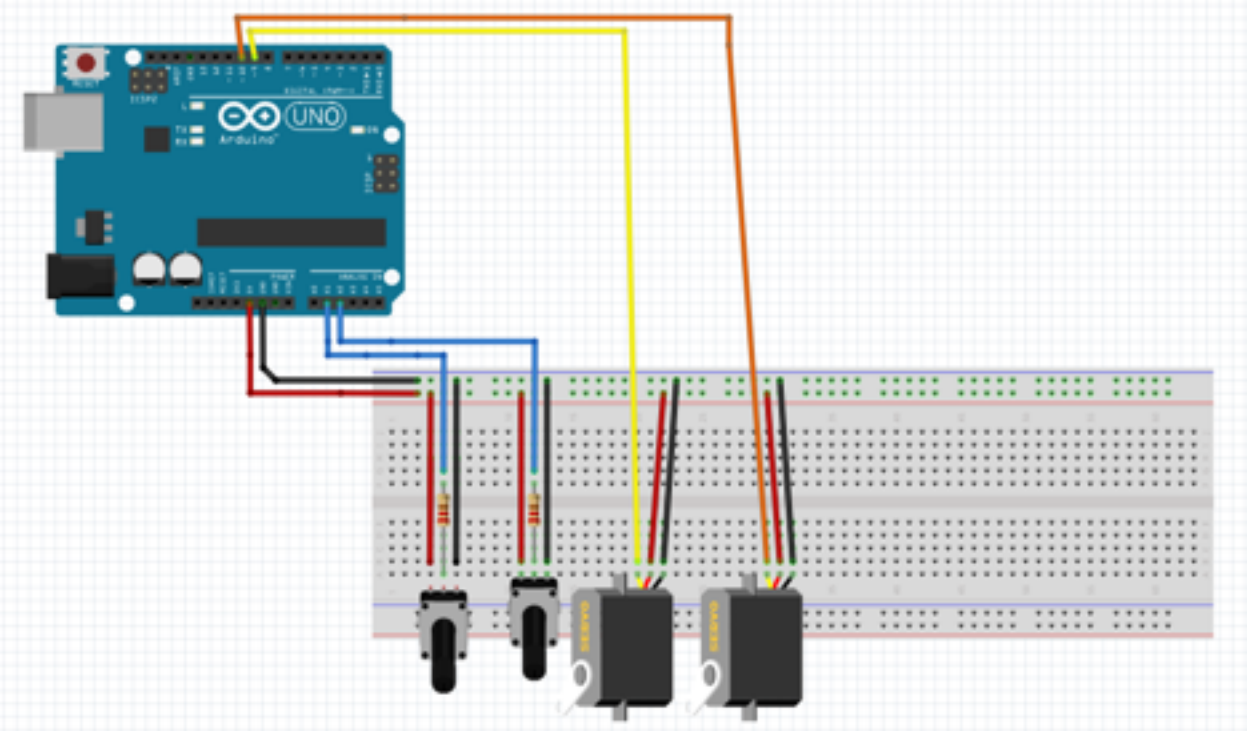
The code contains a bit of a taste of mapping in Arduino. Arduino stores the value in 10 bits and it converts the voltage value it receives from the Potentiometers in values between 0 to 1023. According to this change in potentiometer value, the rotation of servo motor changes from 0 to 180 degrees.

This function:

```
map(val, 0, 1023, 0, 180)
```

connects the pots and the servo, and maps the values of the input (the pot) to those of the output (the servo)

Here is the schematic diagram of the project:



Steps to follow:

- Firstly, take breadboard and place potentiometers on it.
- The end pins of the potentiometers should be connected to 5v and GND and the middle pin with the Analog pins of Arduino (one with A1 and other with A2 pin). The middle pin the

Potentiometer needs a resistor, to stabilise the voltage output. Without the resistors your motors will be a bit jittery

- Secondly, connect the servo motors just as you did for the Arc-o-matic (in fact, if you can, don't even disconnect them). The yellow wires (data) connect to pin 9 & 10, the red to 5V and the black to GND.
- After completing the circuit, plug the Arduino in and upload the code (you find the code in the dropbox, in the Arc-o-matic folder).
- Turn the buttons and watch a mad artist at work.

BEST OF LUCK ☺