DUCSTeach Workshop 01 - Traffic Light
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Time: 30 Minutes
People: 10 - 15 People
Materials:
- 5 Arduino Unos with 170 pin breadboard
- 5 9G servos
- 15 Wires
- 10k Potentiometer
- USB Type B Cable
- Laptop with Arduino IDE installed
- Servo.ino file

Steps:

1. Wire from Arduino 5v to breadboard
2. Wire from Arduino gnd to breadboard
3. Wire from positive row to 10kpot
4. Wire from negative row to 10kpot
5. Wire from Arduino A0 to center of 10kpot
6. Red wire on the servo to positive row breadboard
7. Orange wire on the servo to Arduino Digital Pin 9
8. Brown wire on the servo to negative row breadboard
9. Upload code

Circuit
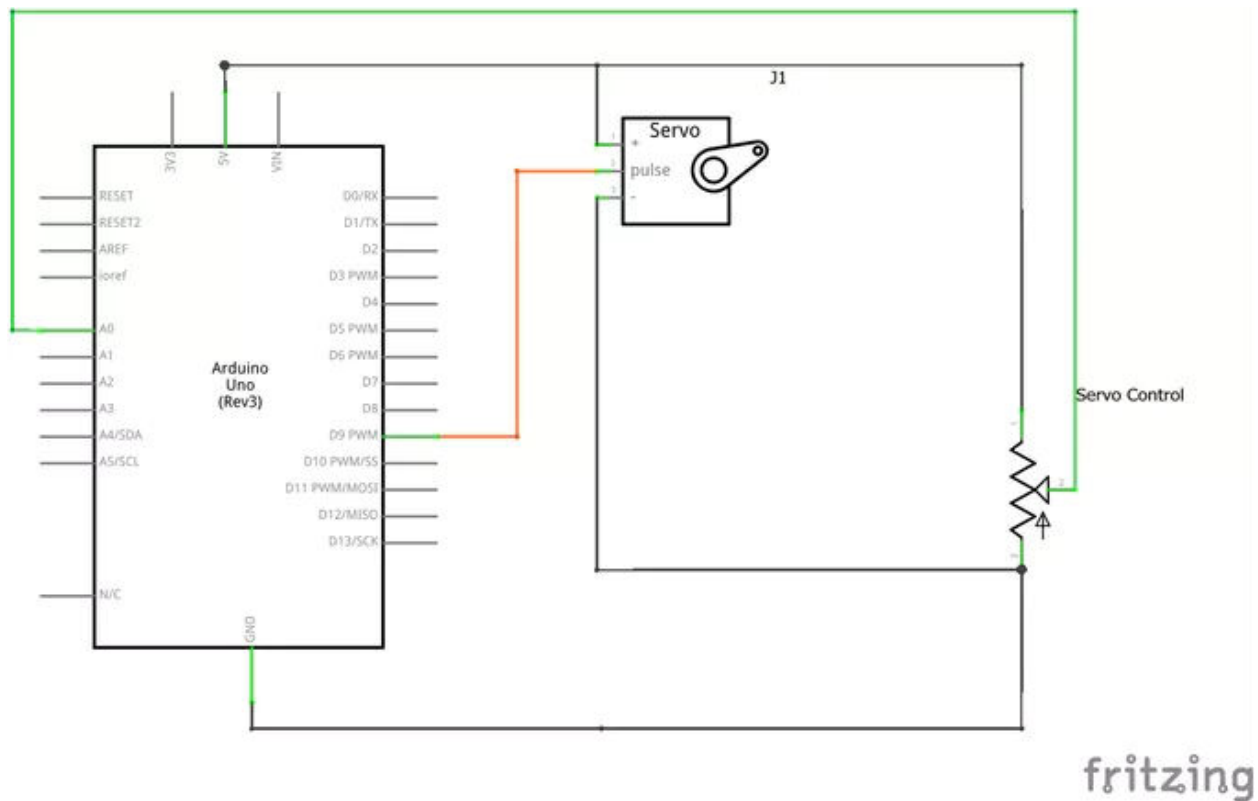
Code

```
#include <Servo.h>

// create a servo object
Servo servo;

//analog input from the potentiometer
int potPos = A0;

void setup() {
 // link the servo to pin 9, and set the pulse width limits (544ms and 2400ms in this case)
 servo.attach(9, 544,2400);

 //set the analog pin as an input
 pinMode(potPos, INPUT);
}

void loop() {
 //store the potentiometer position as a float
 float level = analogRead(potPos);
```

```
//calculate analog data as a voltage
float voltage = 5*level/1024;

//make sure the voltage isn't outside the acceptable range
if(voltage < 0){
  voltage = 0;
}
if(voltage > 5){
  voltage = 5;
}

//scale voltage to 180 degrees
servo.write(36 * voltage);

//give the servo time to move to new position
delay(15);
}
```