

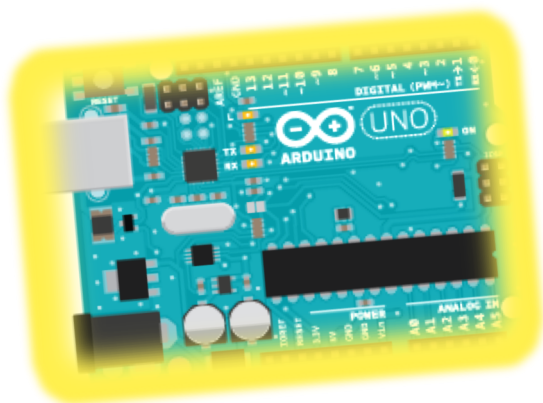


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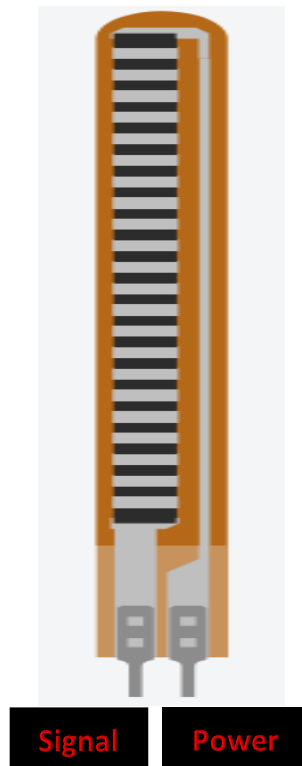
Internet of Things (IoT) Practical
2022 - 2023
Semester 7

Lecturer: *Hiwa Omer Hassan*

Week .10 : Flex Sensor and Robotic Hand 13.11.2022



Flex Sensor



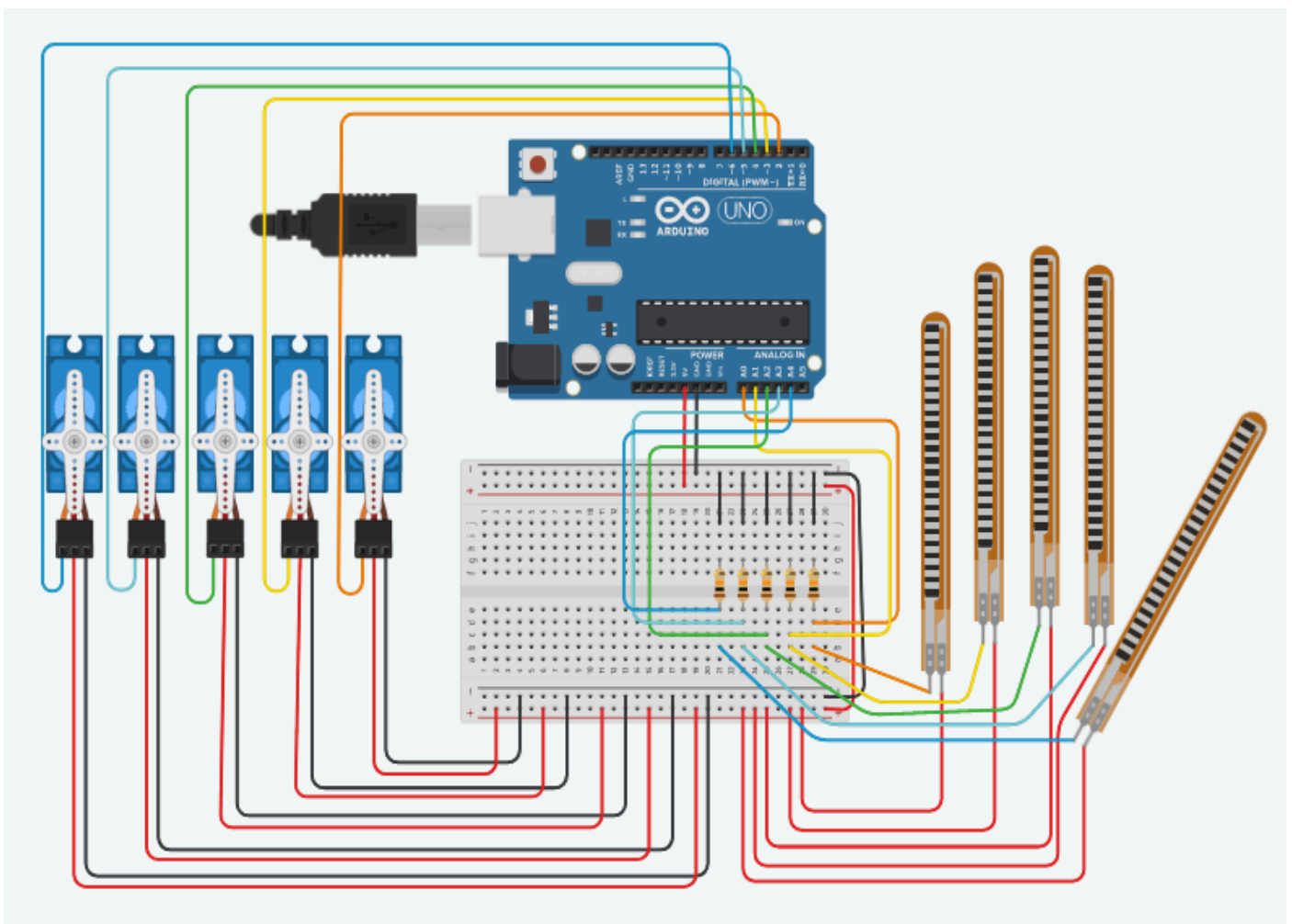
Robotic Hand



If we think that at least 5 flex sensors are used in a robotic hand project, the cost will be quite high.

$$\text{\$ } 20 * 5 \text{ flex} = \text{\$ } 100$$

Exercise .1



Exercise.1 Source Code

```
1  #include <Servo.h>
2  Servo finger1;
3  Servo finger2;
4  Servo finger3;
5  Servo finger4;
6  Servo finger5;
7
8  int fing1 = 2;
9  int fing2 = 3;
10 int fing3 = 4;
11 int fing4 = 5;
12 int fing5 = 6;
13
14 int flex1 = A0;
15 int flex2 = A1;
16 int flex3 = A2;
17 int flex4 = A3;
18 int flex5 = A4;
19
20 // C++ code
21 //
22
23 void setup()
24 {
25     pinMode(flex1, INPUT);
26     pinMode(flex2, INPUT);
27     pinMode(flex3, INPUT);
28     pinMode(flex4, INPUT);
29     pinMode(flex5, INPUT);
30
31     pinMode(fing1, OUTPUT);
32     pinMode(fing2, OUTPUT);
33     pinMode(fing3, OUTPUT);
34     pinMode(fing4, OUTPUT);
35     pinMode(fing5, OUTPUT);
36
37     finger1.attach(fing1);
38     finger2.attach(fing2);
39     finger3.attach(fing3);
40     finger4.attach(fing4);
41     finger5.attach(fing5);
42
43     Serial.begin(9600);
44 }
```

```
45 void loop()  
46 {  
47     int fing1Value = analogRead(flex1);  
48     int fing2Value = analogRead(flex2);  
49     int fing3Value = analogRead(flex3);  
50     int fing4Value = analogRead(flex4);  
51     int fing5Value = analogRead(flex5);  
52  
53  
54     fing1Value = map(fing1Value, 59,256, 0, 180);  
55     fing2Value = map(fing2Value, 59,256, 0, 180);  
56     fing3Value = map(fing3Value, 59,256, 0, 180);  
57     fing4Value = map(fing4Value, 59,256, 0, 180);  
58     fing5Value = map(fing5Value, 59,256, 0, 180);  
59  
60  
61     finger1.write(fing1Value);  
62     finger2.write(fing2Value);  
63     finger3.write(fing3Value);  
64     finger4.write(fing4Value);  
65     finger5.write(fing5Value);  
66  
67     delay(10);  
68 }  
69 }
```