

سېرۋو ماتورى Servo

دوكتور ياسن مەمەتجان

2024-05-4

مەشگۈتەك تەربىيەلەش مەركىزى

1

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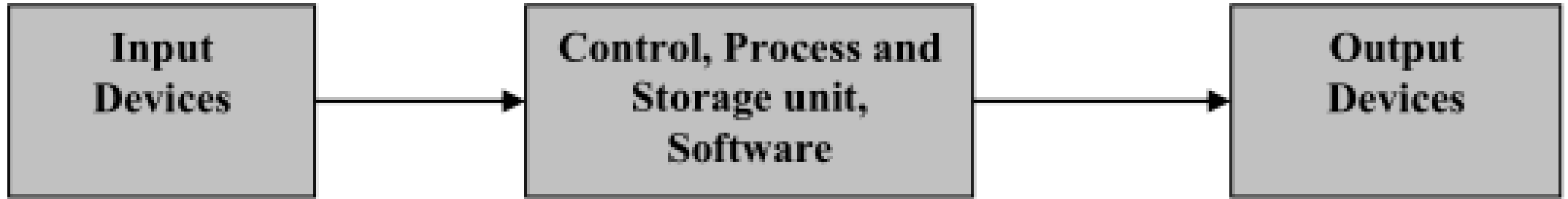
Tinkercad World

- Google Search “robotics and tinkercad”
- Google Search “AI and tinkercad”
- monitoring and tinkercad
- Robot, System, Automation, sensors, motors, Engineering

- **Arduino Project Hub**
- <https://projecthub.arduino.cc/trending>

- **Tinkercad Learning Center (ئۆگەنىش مەركىزى)**
- <https://www.tinkercad.com/learn>

System input / output (كېرىش ۋە چىقىش سىستېمىسى)



كېرىش ئۈسكۈنىللىرى

Figure 4.1: Basic system components

چىقىش ئۈسكۈنىللىرى

CPU

Memory

Arduino تاختىلىرى كېرگۈزگۈچلەرنى ئوقۇيالايدۇ. ئۇ ماتورنى قوزغىتىدۇ

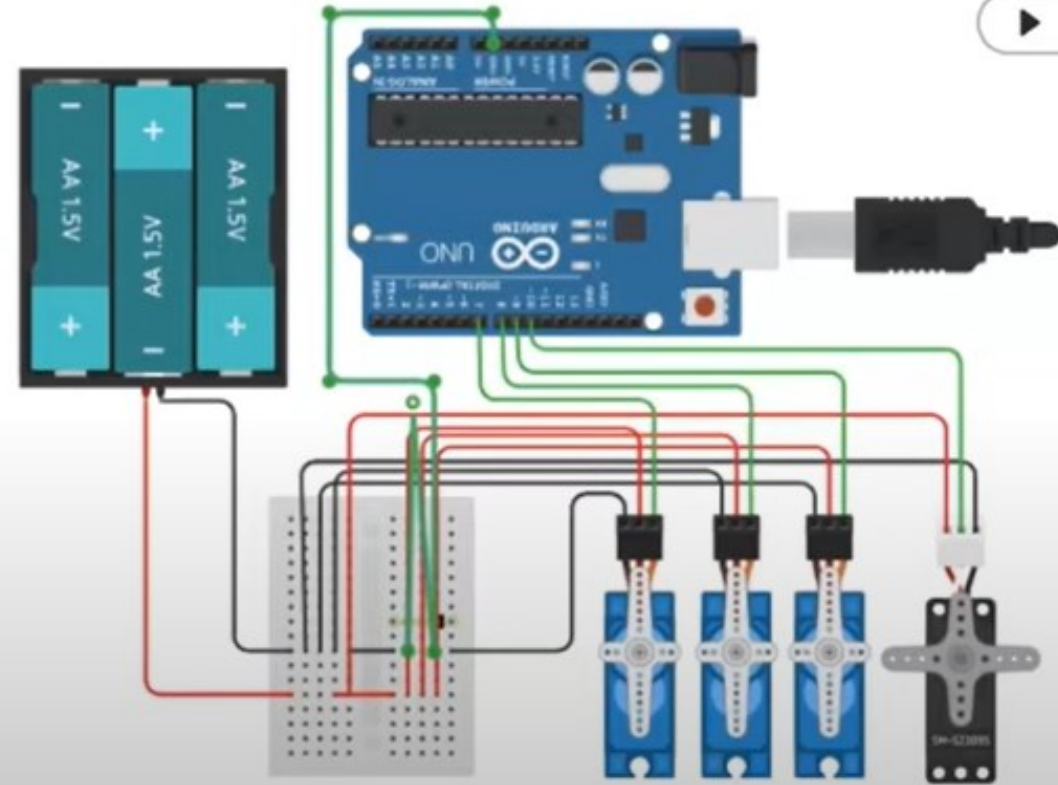
3D Designing and Printing a Factory Robot Arm

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<https://www.tinkercad.com/things/hWh0r270kNB-factory-robot-arm>

Designing and Building A Robot Arm Circuit (Arduino Servo Motor Controlled)



<https://www.tinkercad.com/things/jPndShsT7MF>

<https://www.youtube.com/watch?v=QiVavG58UYI&list=PLV6cmKvnKRs4l7FF0kieb84rl3C3L2sbS&index=1>

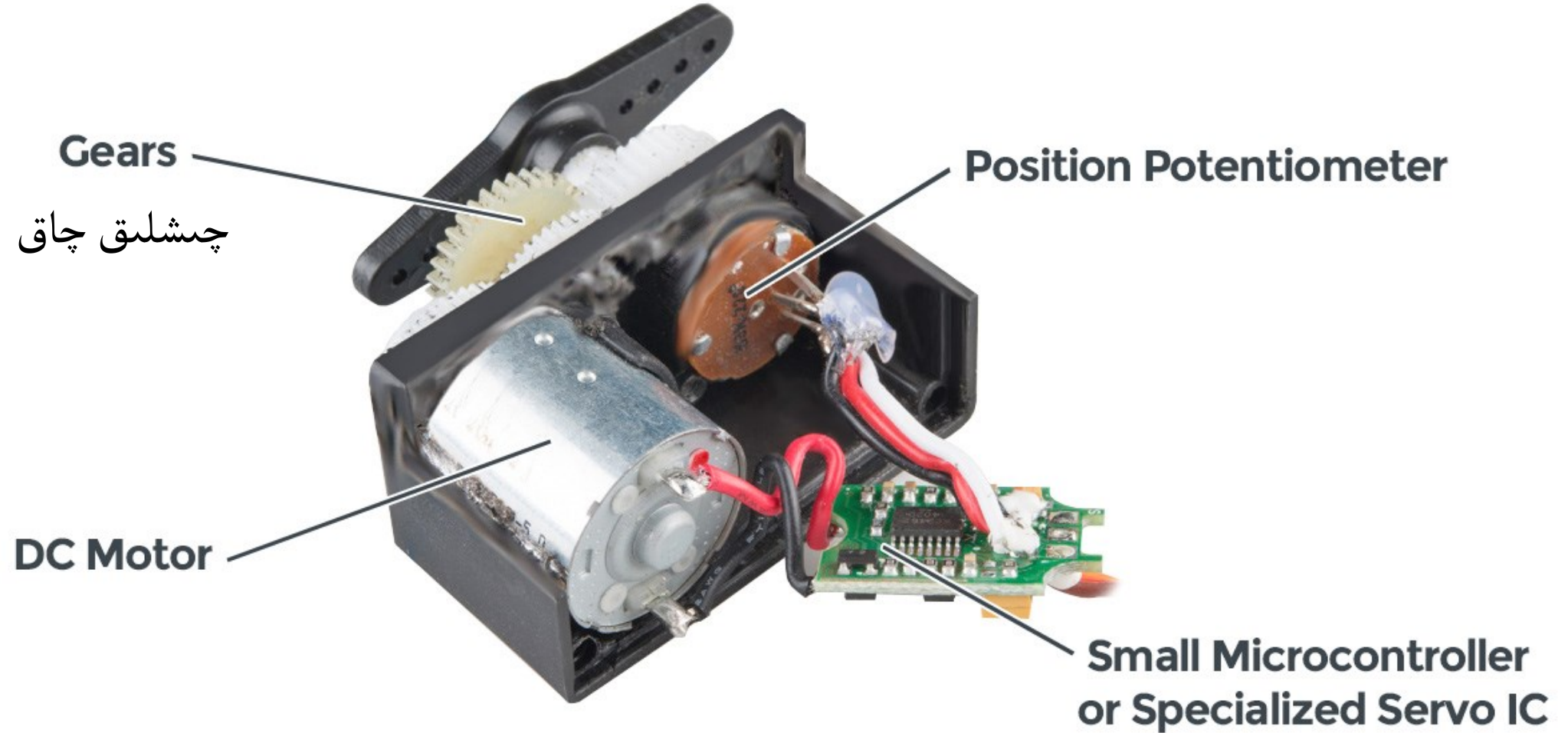
ئىدىيەدىن پروتوتىپقىچە

Idea to Prototype / Innovation

ئىشچىلارنىڭ بىخەتەرلىكىنى ئۆستۈۈش	ئىدىيە	What
ئىش ئورنىدا يارلىنىش	سەۋەب	Reason, Why
كشىگە دەخلى قىلمايدىغان يېڭى لايىھە تۈزەش	قانداق	How
يارىلانغانلارغا تېز ياردەم بېرىش، ئالدىنى ئېلىش	پايدىسى	Benefit

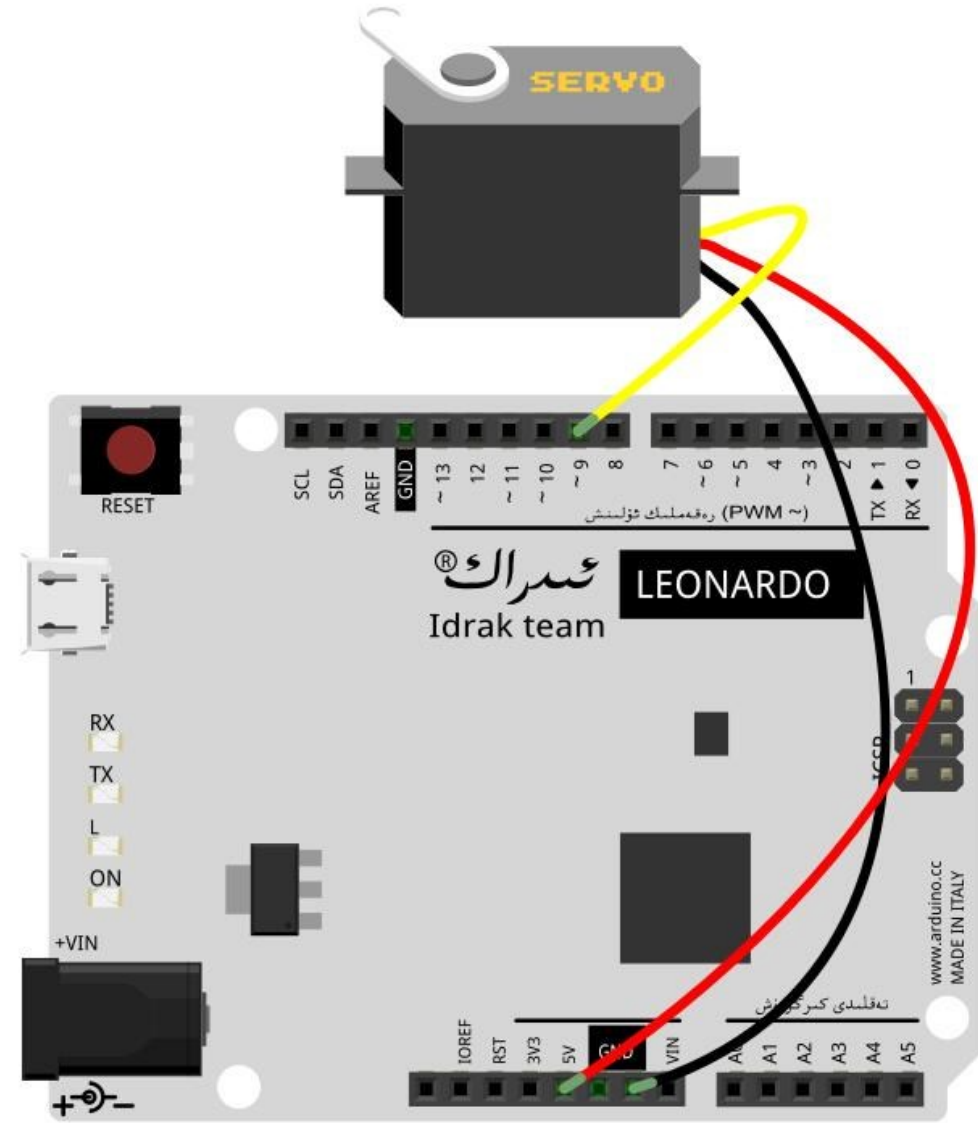
سېرۋو ماتورى

Servo



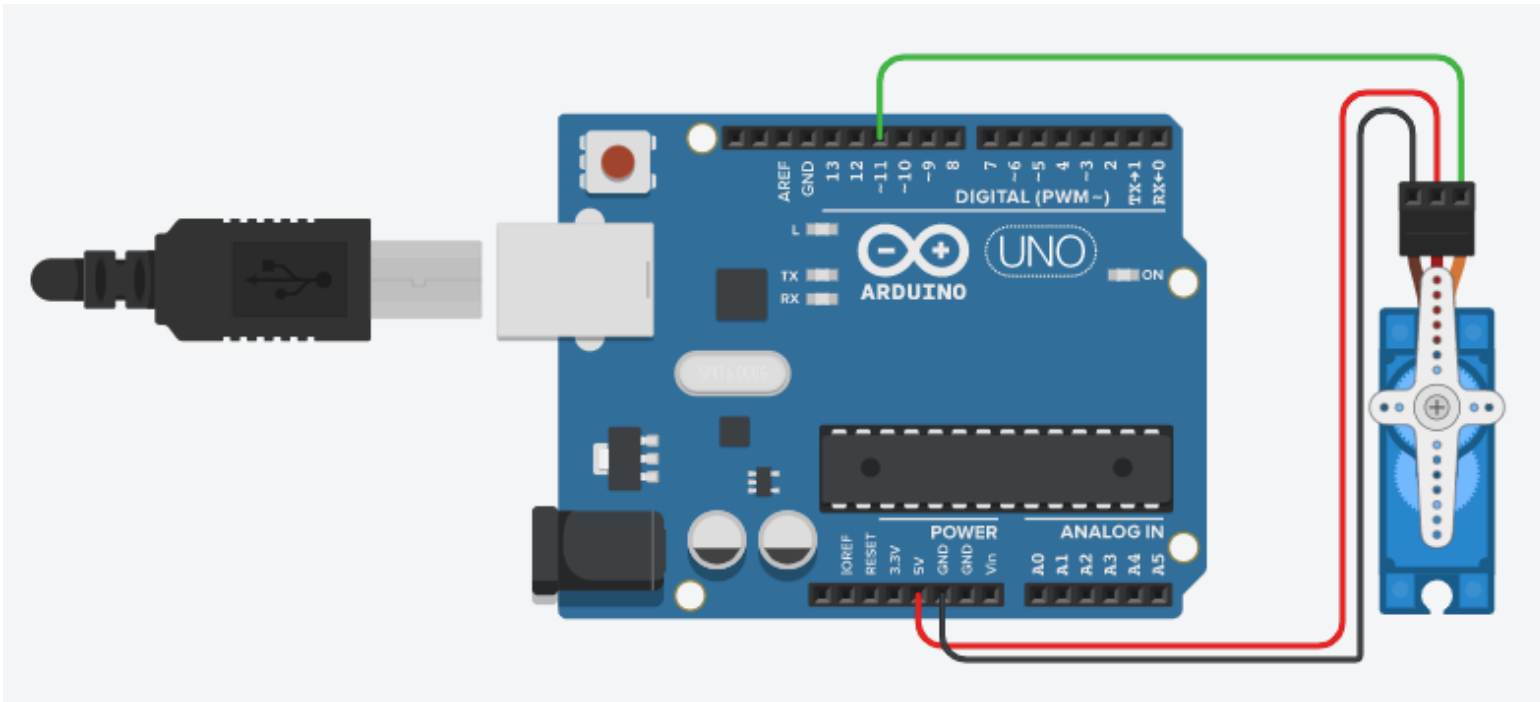
Source: <https://www.sparkfun.com/servos>



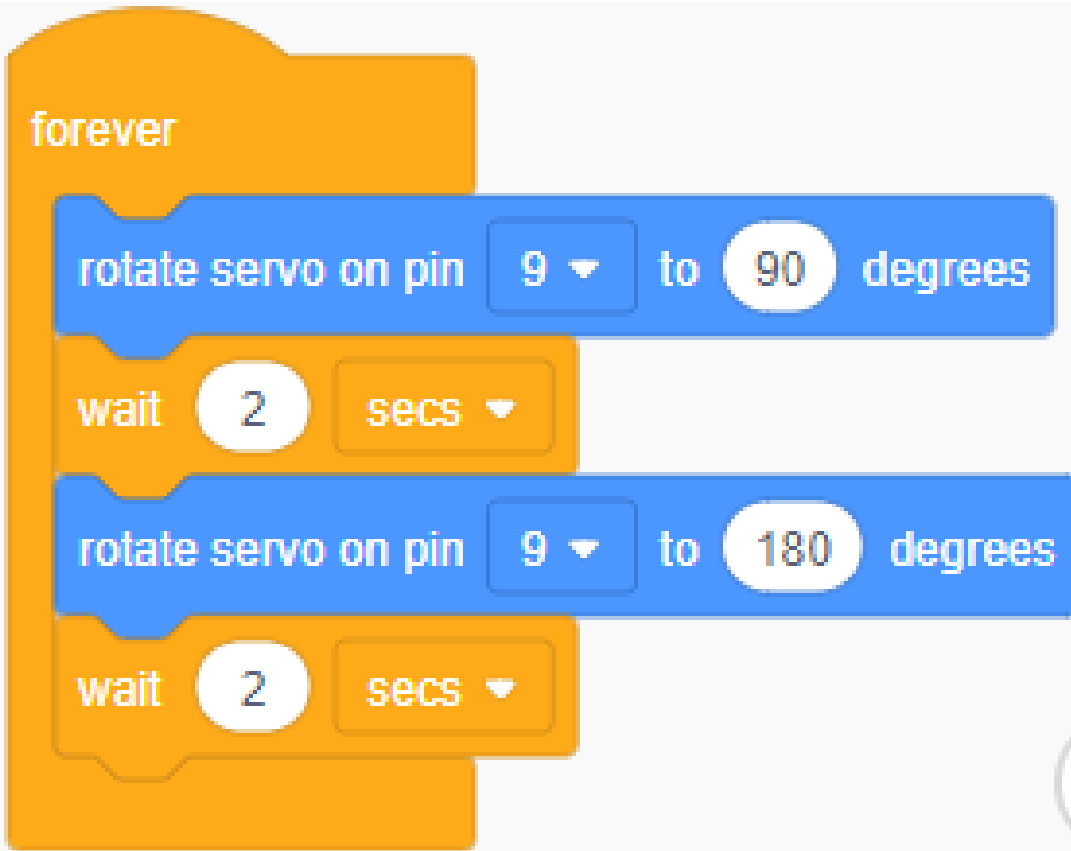


ئىدراك
IDRAK

سپرۆ ماتور



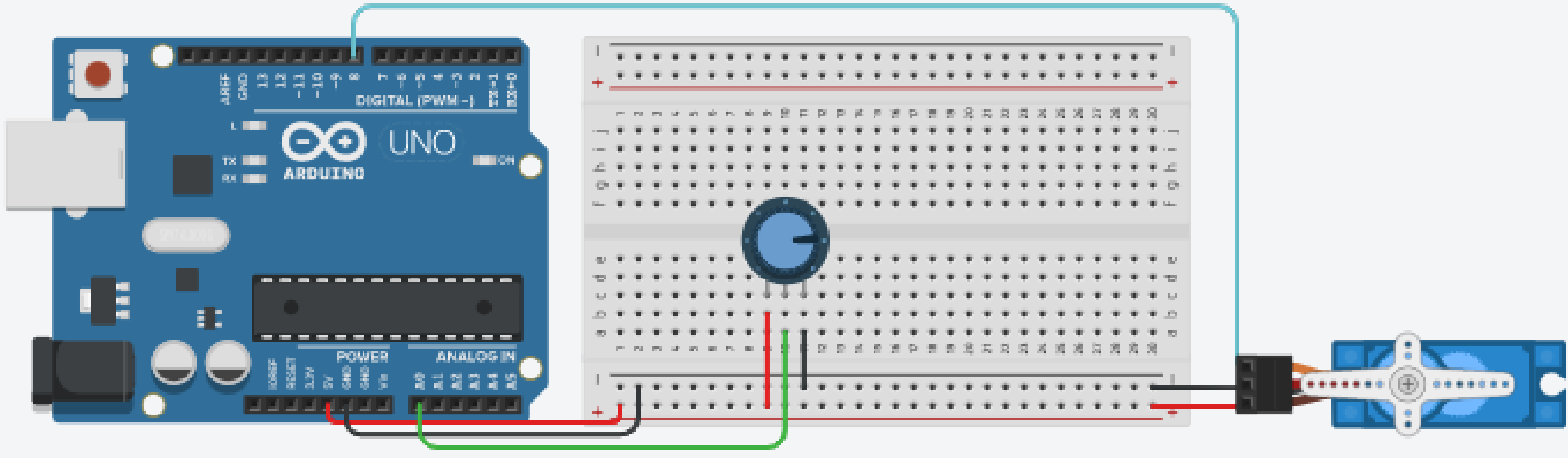
سپرڈو ماتور



```
1 // C++ code
2 //
3 #include <Servo.h>
4
5 int pos = 0;
6
7 Servo servo_9;
8
9 void setup()
10 {
11     servo_9.attach(9);
12 }
13
14 void loop()
15 {
16     servo_9.write(90);
17     delay(2000); // Wait for 2000 millisecond(s)
18     servo_9.write(180);
19     delay(2000); // Wait for 2000 millisecond(s)
20 }
```

int i;

Servo_9.write(0);



```
forever
  set potentiometer to read analog pin A0
  set output to map potentiometer to range 0 to 180
  rotate servo on pin 8 to output degrees
```

بۇ پوتېنسىئومېتىرنىڭ قايسى پۇتقا
ئۇلانغانلىقىنى دەيدۇ

بۇ پوتېنسىئومېتىرنىڭ چۈگىلەش ئۆلچەمىنى
سېرۋو ماتورغا ئۆزگەرتىدۇ

بۇ سېرۋو ماتورنىڭ
چۈگىلىشىنى بەلگىلايدۇ

Servo Motors

- <https://wiki.nus.edu.sg/display/Arduino/Servo+Motors>
- <https://docs.arduino.cc/learn/electronics/servo-motors>
- <https://howtomechatronics.com/how-it-works/how-servo-motors-work-how-to-control-servos-using-arduino/>

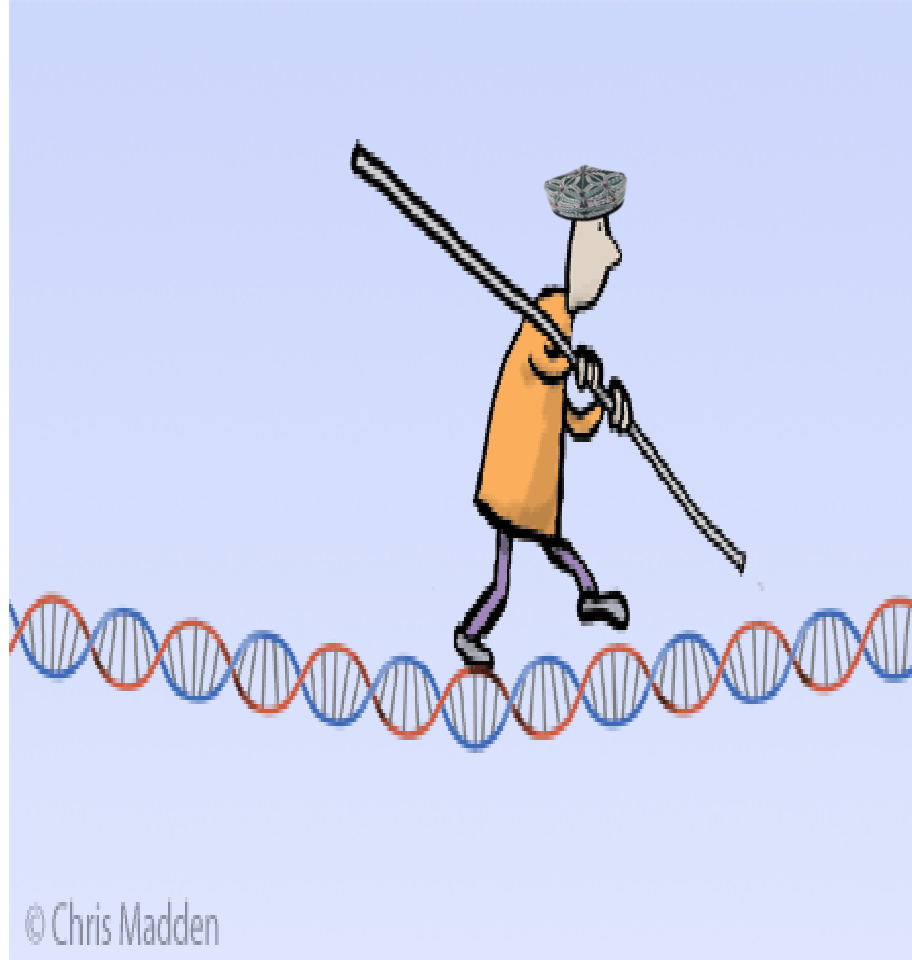
مەڭگۈتەك تۈر پائالىيىتى

ئىدىيەدىن پروتوتىپقىچە

لايىھىلەش تېمىلىرىنى تىزىملاش

<https://forms.gle/uEuEbSYz2K4KzvEX7>

نوۆه تنكى مه سىلله ر



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توغرا ماھارەت Right skills

توغرا دېتال Right tools

توغرا ئىرادە Right mindset



