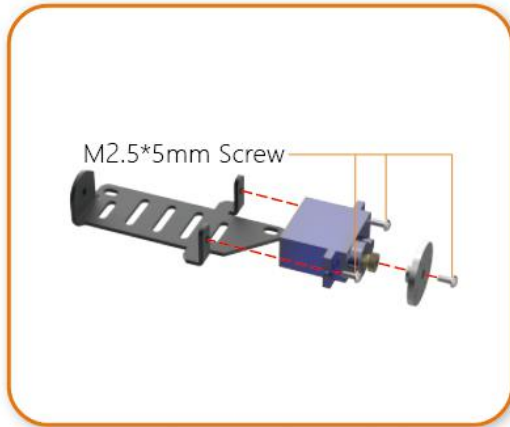# Tutorial of

Maqueen Mechanic-Loader

[ROB0156-L]
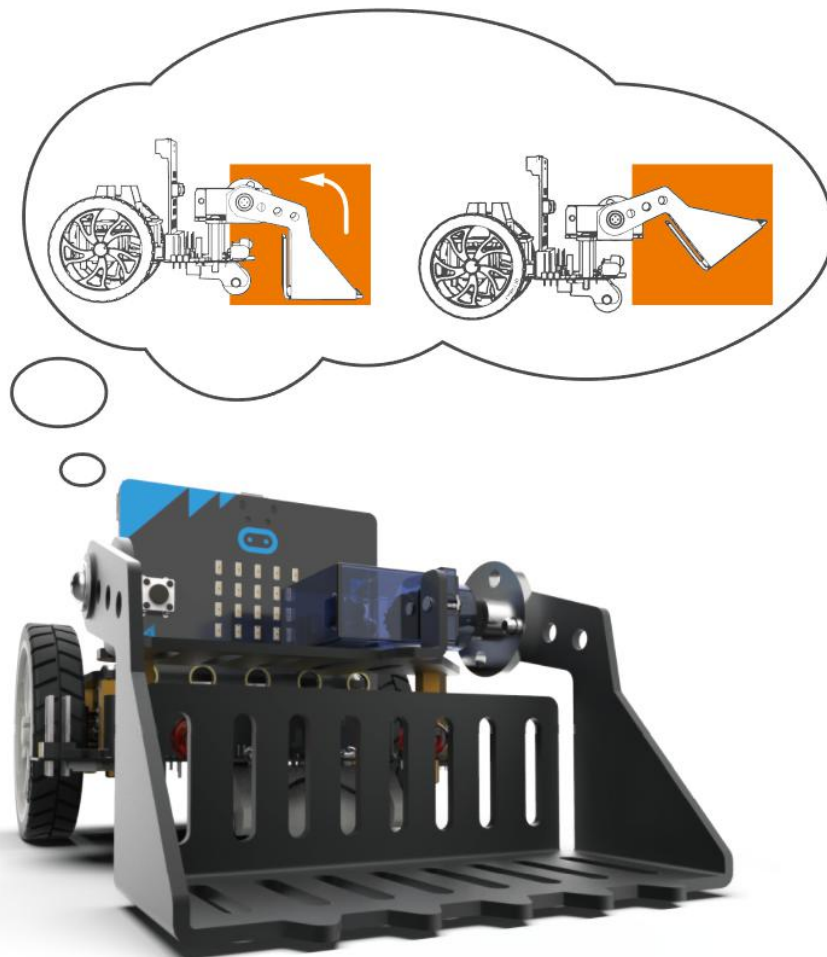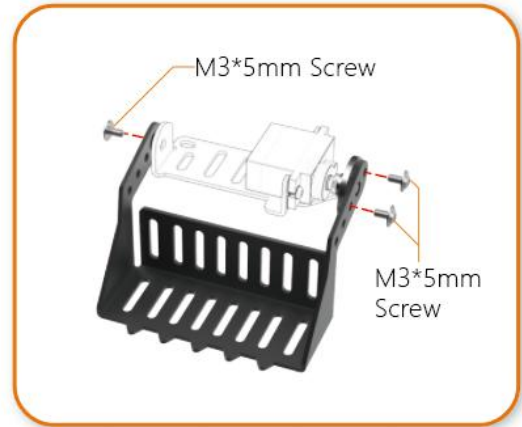

www.DFRobot.com

Installation Diagram

M2.5*5mm Screw

● Step1

M3*5mm Screw

M3*5mm Screw

● Step2

M3*15mm Copper Bolt

● Step3

M3*5mm Screw
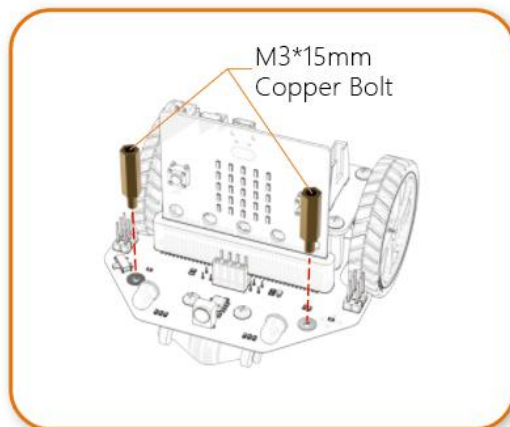
● Step4

Method to Control

1. Wiring

Plug the 3pin servo wire into port S1 or S2 of Maqueen, shown as below:
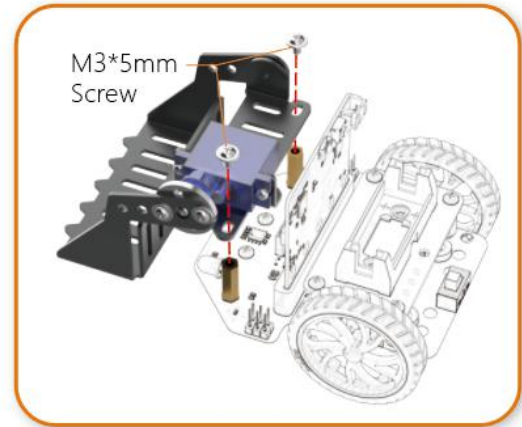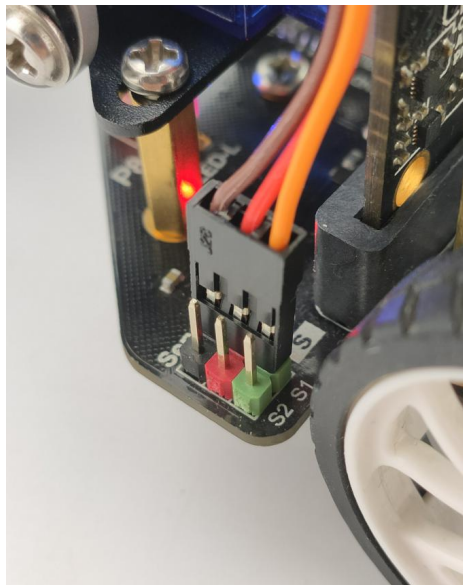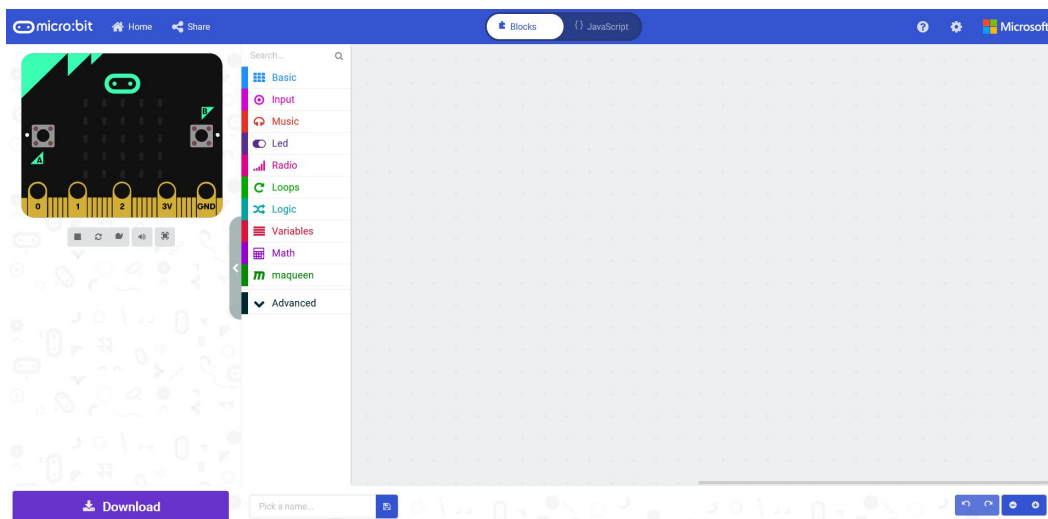
- Brown wire to Black pin

- Red wire to Red pin

- Orange wire to Green pin
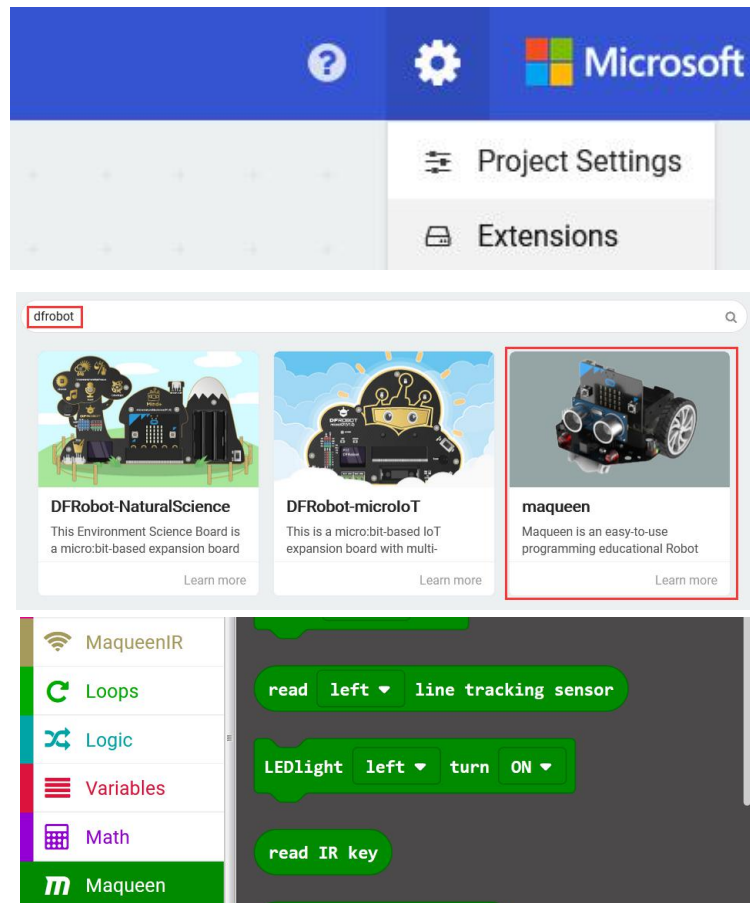

2. Makecode Tutorial

1. Click to open the Makecode programming web： https://makecode.microbit.org/#editor

2.Import extensions for Maqueen:

    1) Click **More**

    2) Click **Extensions**

    3) Search **dfrobot**
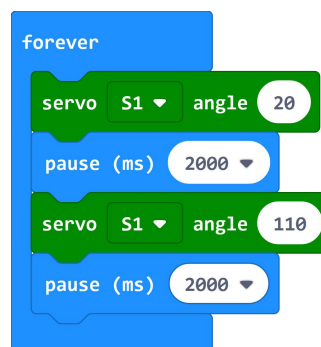
    4) Click to select **Maqueen**

As shown in the figure:

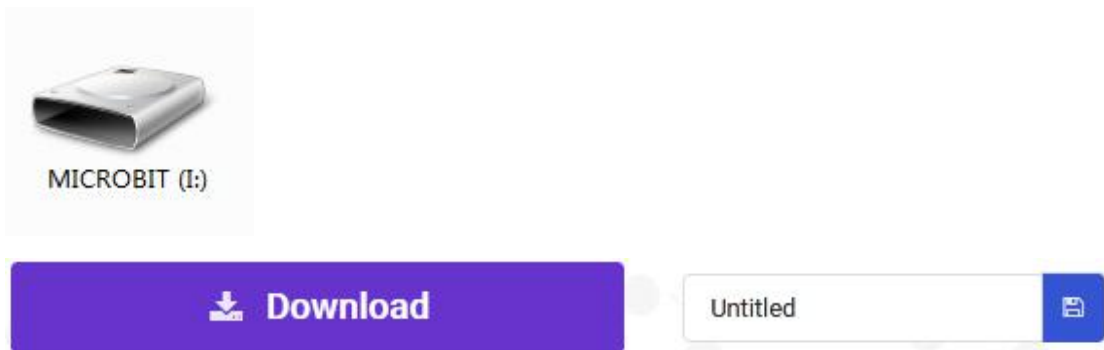

3. Examples

1. Turn the shovel up and down

    1) The example will use a servo to make a shovel to rotate up and down.

    The code is as follows:

2) Connect the micro: bit to the computer via a USB cable. Meanwhile, a new "MICROBIT" disk will show in the computer.

3) Click the "Download" button to download the code to MICROBIT disk.

As shown in the figure:

4) Turn Maqueen on when the example code is downloaded, then the shovel will turn up and down at 90°.

There are two ways to adjust the starting and ending angles of rotation:

- Adjust the angle value in the code.
- Remove the two screws on the servo and turn the servo by hand, then reinstall the screws. As shown in the figure:
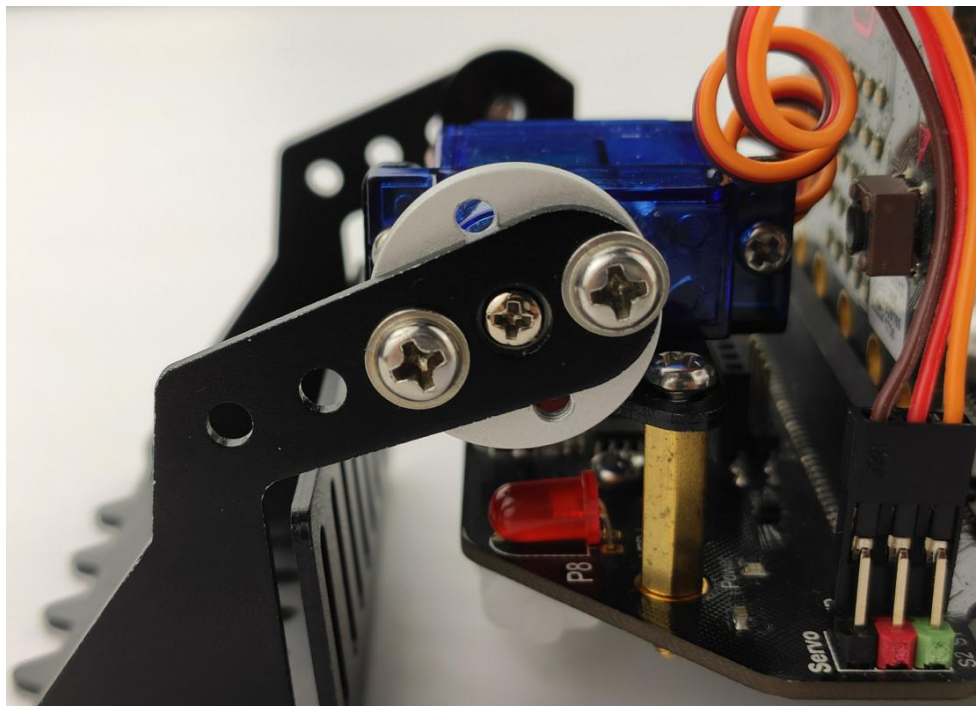
2. IR Remote control of the shovel

This example uses the infrared remote control to make the shovel rotate up and down.
Each button of the infrared remote control is corresponding to one key value.

Key	Key Value（Decimal）
Red Key	0
VOL+	1
FUNC/STOP	2
Rwd	4
Pause/Play	5
Fwd	6
Down Triangle	8
VOL-	9
Up Triangle	10
0	12
EQ	13
ST/REPT	14
1	16
2	17
3	18
4	20
5	21
6	22
7	24
8	25
9	26
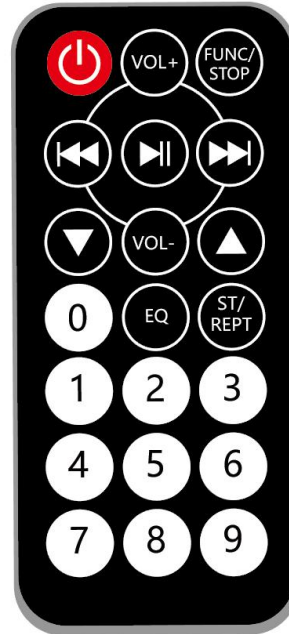
Key value table of infrared remote control

Now, let's program an example to control the angle of the shovel by the infrared remote control.
The code is shown in the figure:

After the code is downloaded to micro: bit, pointing the infrared remote control to the infrared receiver of Maqueen, holding the Up Triangle and the Down Triangle respectively, and the shovel will rotate continuously.

3. IR Remote control of the Maqueen Mechanic-Loader

In the two programs above, we have controlled the movement of the shovel separately.
The example below is a comprehensive program.
It uses the infrared remote control to enable the maqueen move forward and backward and the shovel rotate up and down.
Code URL: https://makecode.microbit.org/_D3bFyhgyYT7A

The code is shown as below:

In this example, Keys 2, 8, 4, 6, 5 are used to control Maqueen to move forward, move backward, turn left, turn right and stop;

Using the Up Triangle to make the shovel move-up, and the Down Triangle to make the shovel move-down.