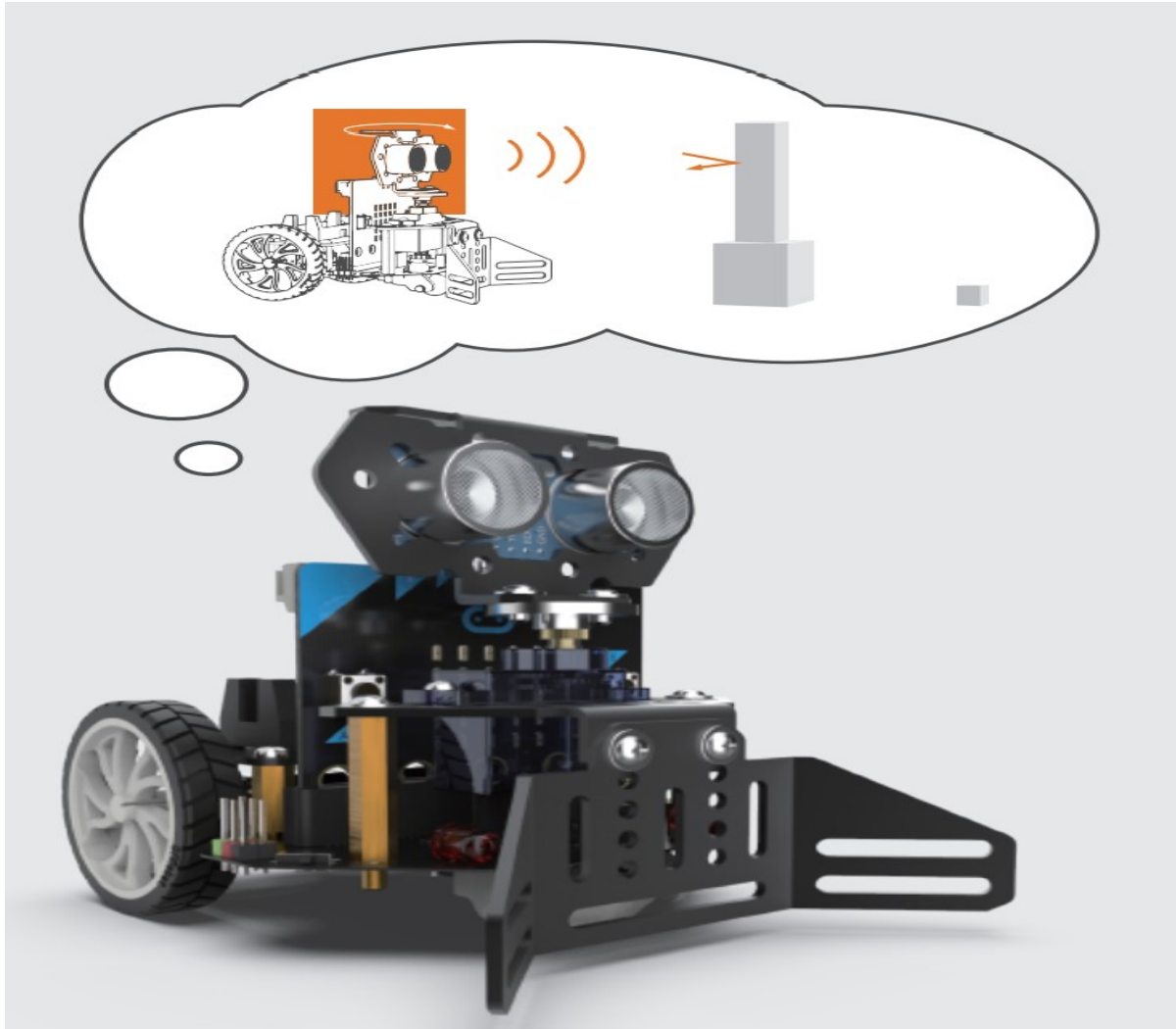


# Bluguard Maqueen Mechanic - Push



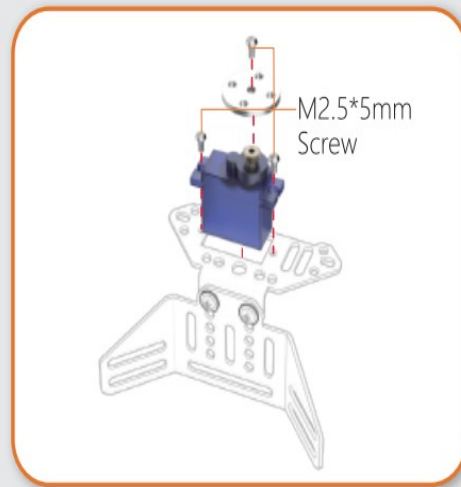
**Suggest Age: 9 +**

**Adult supervision is recommended for children under 9 years old.**

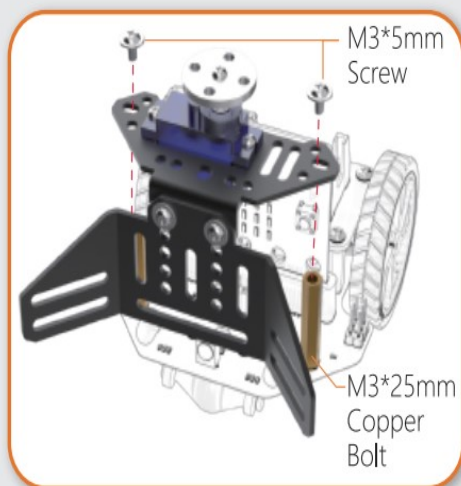
# Installation Diagram



● Step1



● Step2



● Step3

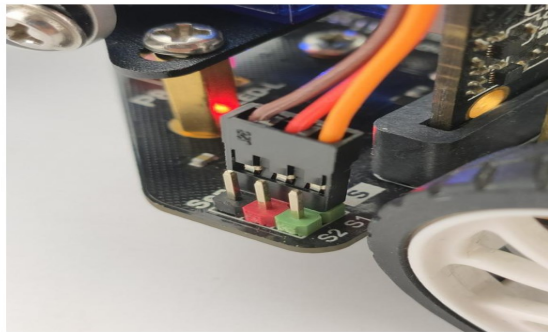


● Step4

# Method to Control

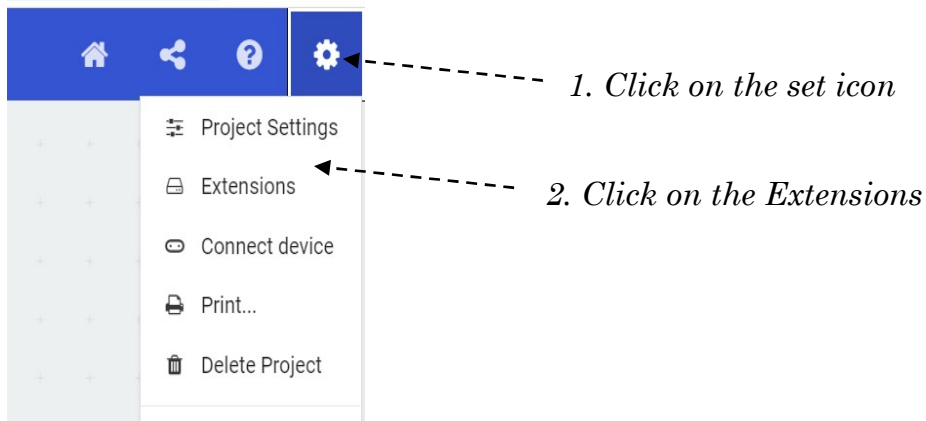
## 1. Wiring

- I. Plug the 3 pins 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

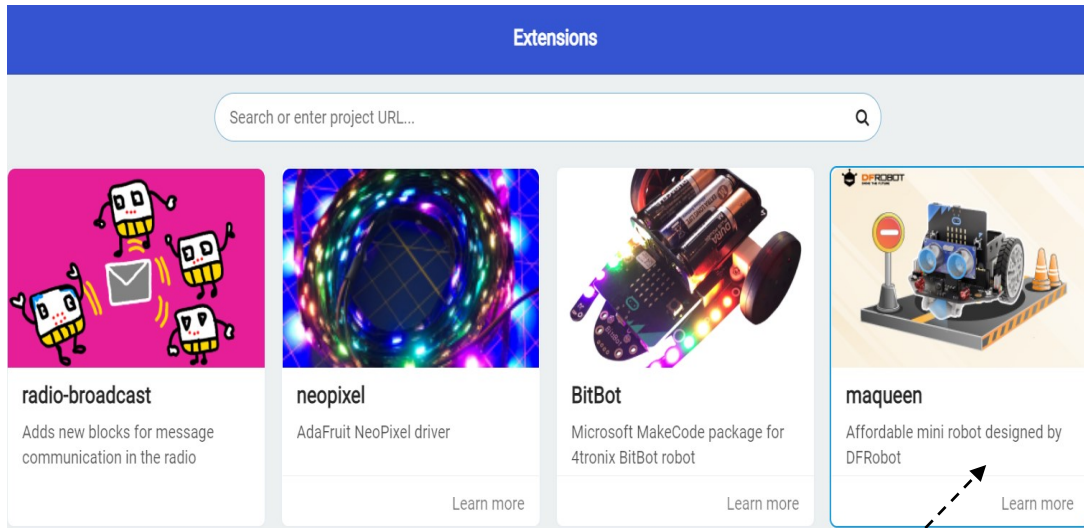


## 2. Makecode Tutorial

- I. Click the link <https://makecode.microbit.org>, enter the makecode graphical online programming platform and create **New Project**. (Note: Loading will be slow the first time, please wait patiently)
- II. Import the extensions.

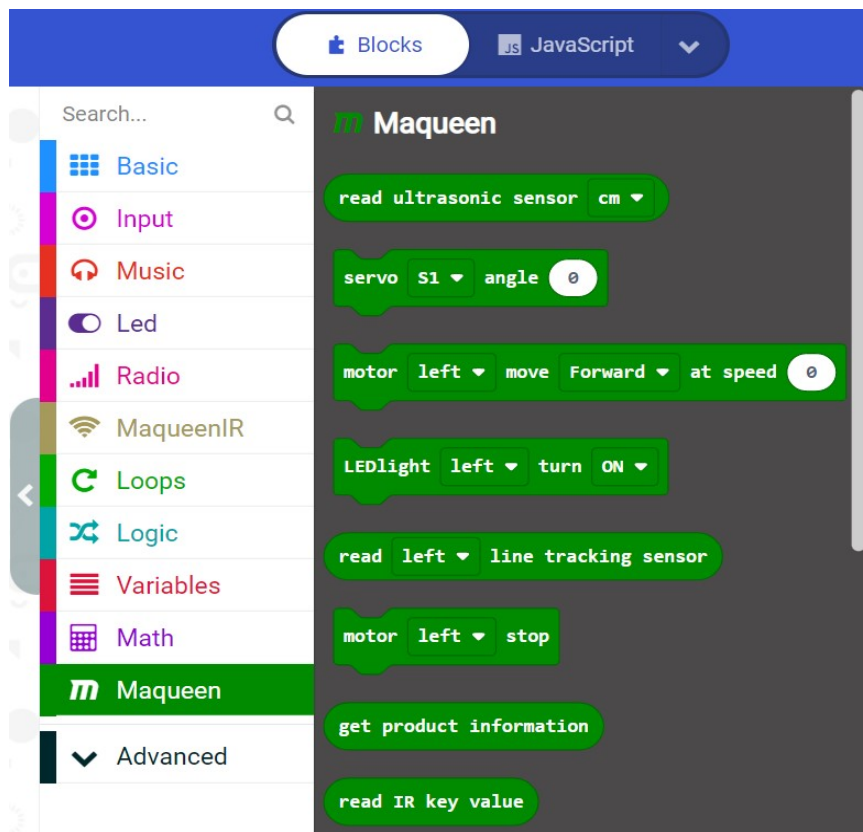


- III. Click on the Maqueen's library.



*Just click on it.*

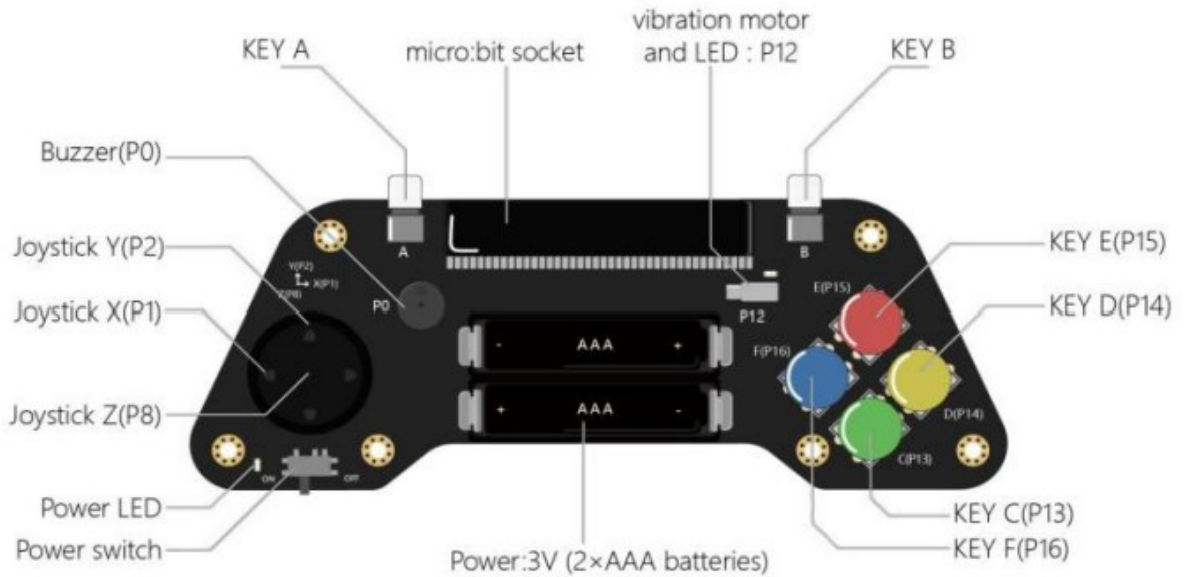
#### IV. Import completed.



### 3. GamePad Remote Control Bulldozer

- I. This program uses GamePad to remote control the Maqueen Mechanic-Push by wireless communication of two micro:bit boards. Through remote control, controlled-type Maqueen competition can be organized. In this sample, the joystick is set as an analog quantity

while controlling the car's speed and direction simultaneously. The more the joystick moves, the faster it goes. The left and right buttons control the lights on and off.



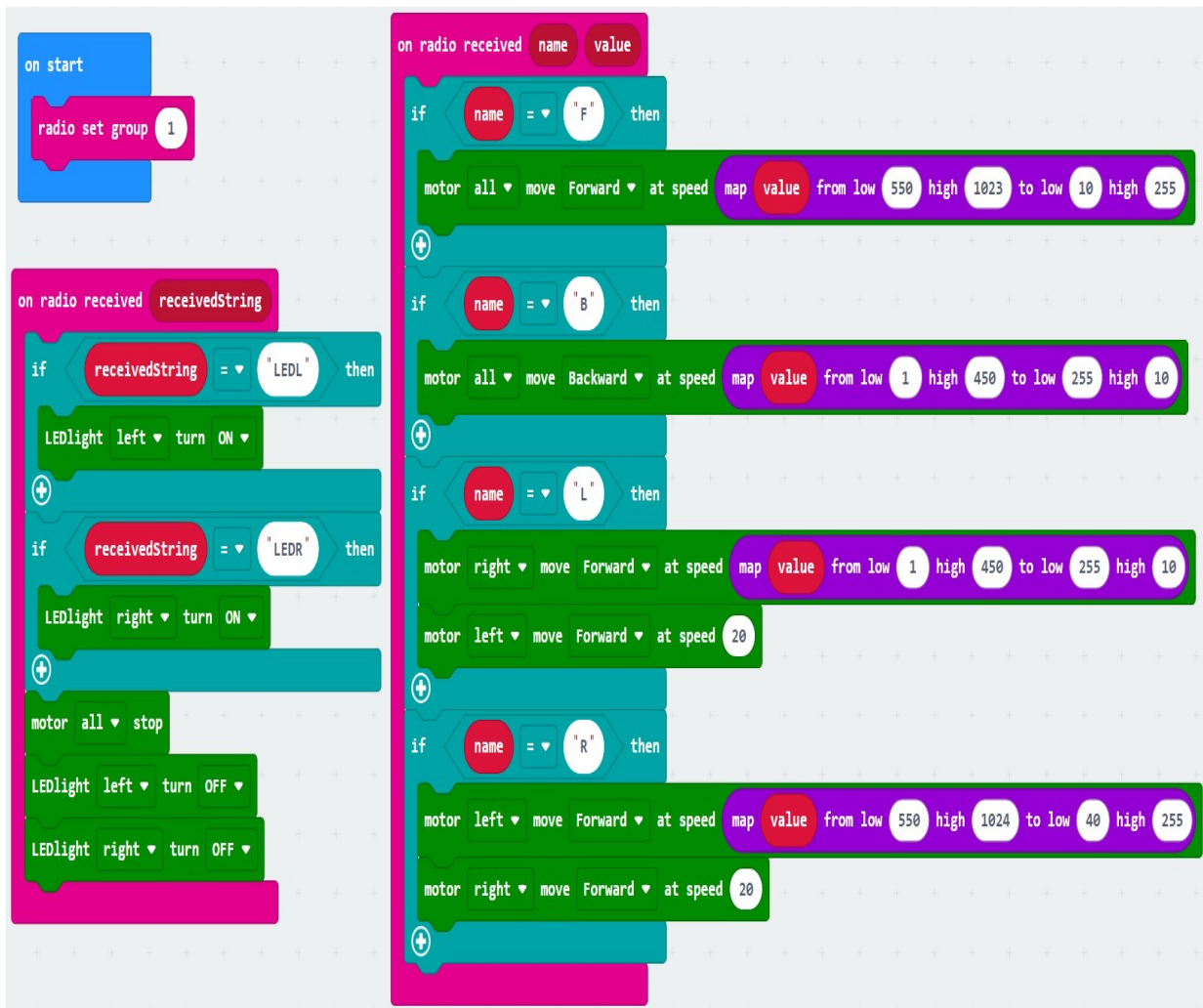
Program for GamePad : <https://makecode.microbit.org/5Fx1tPUP3U8g>

```
on start
  radio set group 1
  set pull pin P13 to none
  set pull pin P15 to none
  set pull pin P14 to none
  set pull pin P16 to none

forever
  if digital read pin P15 = 0 then
    radio send string "Open"
  else if digital read pin P13 = 0 then
    radio send string "Close"
  else if digital read pin P16 = 0 then
    radio send string "LEDL"
  else if digital read pin P14 = 0 then
    radio send string "LEDR"
  else
    if analog read pin P2 > 550 and analog read pin P1 > 400 and analog read pin P1 < 600 then
      radio send value "F" = analog read pin P2
    else if analog read pin P2 < 450 and analog read pin P1 > 400 and analog read pin P1 < 600 then
      radio send value "B" = analog read pin P2
    else if analog read pin P1 < 450 and analog read pin P2 > 400 and analog read pin P2 < 600 then
      radio send value "L" = analog read pin P1
    else if analog read pin P1 > 550 and analog read pin P2 > 400 and analog read pin P2 < 600 then
      radio send value "R" = analog read pin P1
    else
      radio send string "S"
```

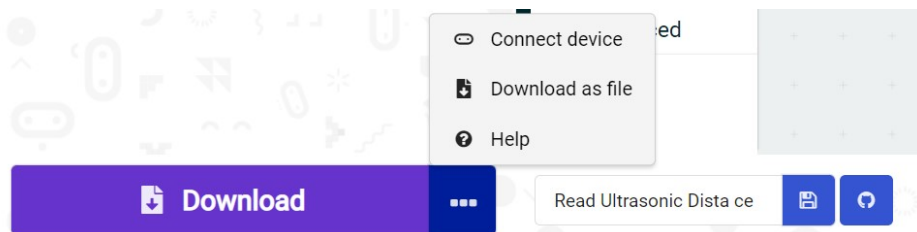


Program for Maqueen : <https://makecode.microbit.org/bXTMmc3D5H5c>



The image shows a Scratch script for a Maqueen robot. It consists of two main sections: 'on start' and 'on radio received'.  
The 'on start' section includes a 'radio set group' block with the value '1'.  
The 'on radio received' section is divided into two parts. The first part, with 'receivedString' as the variable, contains three 'if' blocks: 'if receivedString = "LEDL" then LEDlight left turn ON', 'if receivedString = "LEDR" then LEDlight right turn ON', and 'motor all stop', followed by 'LEDlight left turn OFF' and 'LEDlight right turn OFF'. The second part, with 'name' and 'value' as variables, contains four 'if' blocks: 'if name = "F" then motor all move Forward at speed map value from low 550 high 1023 to low 10 high 255', 'if name = "B" then motor all move Backward at speed map value from low 1 high 450 to low 255 high 10', 'if name = "L" then motor right move Forward at speed map value from low 1 high 450 to low 255 high 10 and motor left move Forward at speed 20', and 'if name = "R" then motor left move Forward at speed map value from low 550 high 1024 to low 40 high 255 and motor right move Forward at speed 20'.

- II. Go to 'connect device' after connecting the micro:bit with the cable. Just follow instructions and this step is just one-time setup. Click the 'Download' button to download the code to the micro: bit.



#### 4. Ultrasonic Obstacle Avoidance Vehicle

In this sample program, the front ultrasonic sensors on Maqueen car will detect the distance between itself and the obstacle ahead. If the distance is less than 30cm, the robot car will turn left or right randomly to avoid the obstacle.

**Program Link :**

<https://makecode.microbit.org/7Ay2qVeUUPi0>

```
forever
  if (read ultrasonic sensor cm < 30 and read ultrasonic sensor cm != 0) then
    set strip to pick random true or false
    if (strip = true) then
      motor left move Forward at speed 255
      motor right move Forward at speed 0
      pause (ms) 800
    if (strip = false) then
      motor left move Forward at speed 0
      motor right move Forward at speed 255
      pause (ms) 800
    else
      motor all move Forward at speed 255
```