

# Chapter 2

Let's move, Maqueen!

Here is our Maqueen Plus, look at this cool guy! You must be wanna play with him right now. Ok, let's get started.

## Goal



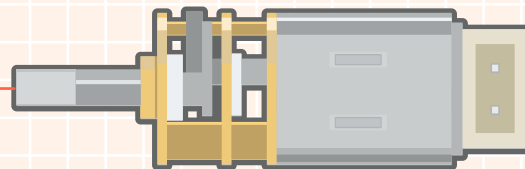
Learn how to drive a motor.

## Electronic Component



### Motor Brief

Motor



Motors can be used to drive Maqueen Plus to move left, right, backward, or go straight.

## Command Learning



### Block Brief

Forever

forever

Repeats the code forever in the background. On each iteration, allows other codes to run.

Motor Controlling

Motor left direction cw speed 0

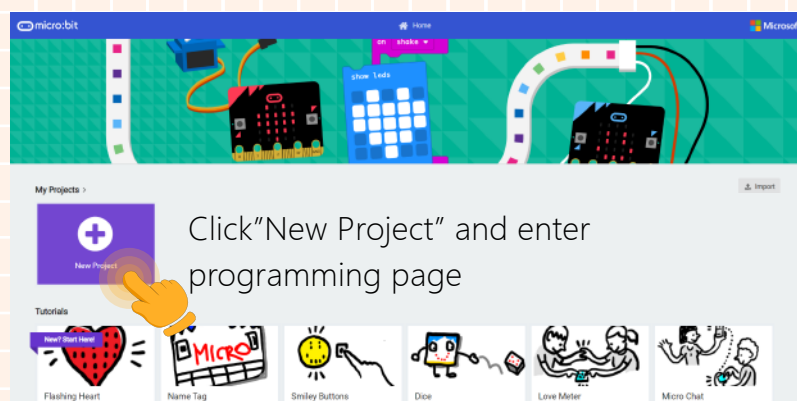
Control the speed and direction of the motor.

## Hands-on Practice

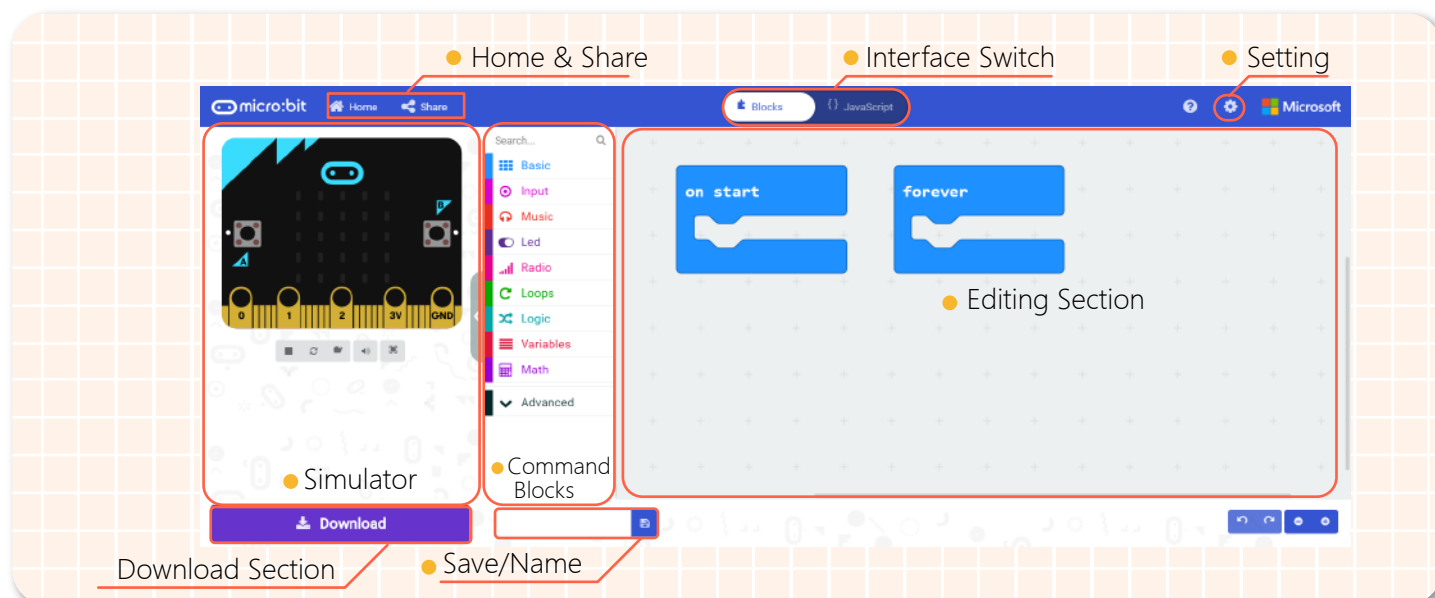


### Step 1: Create a new project

1. Input <https://makecode.microbit.org/> into your browser to enter MakeCode editor.



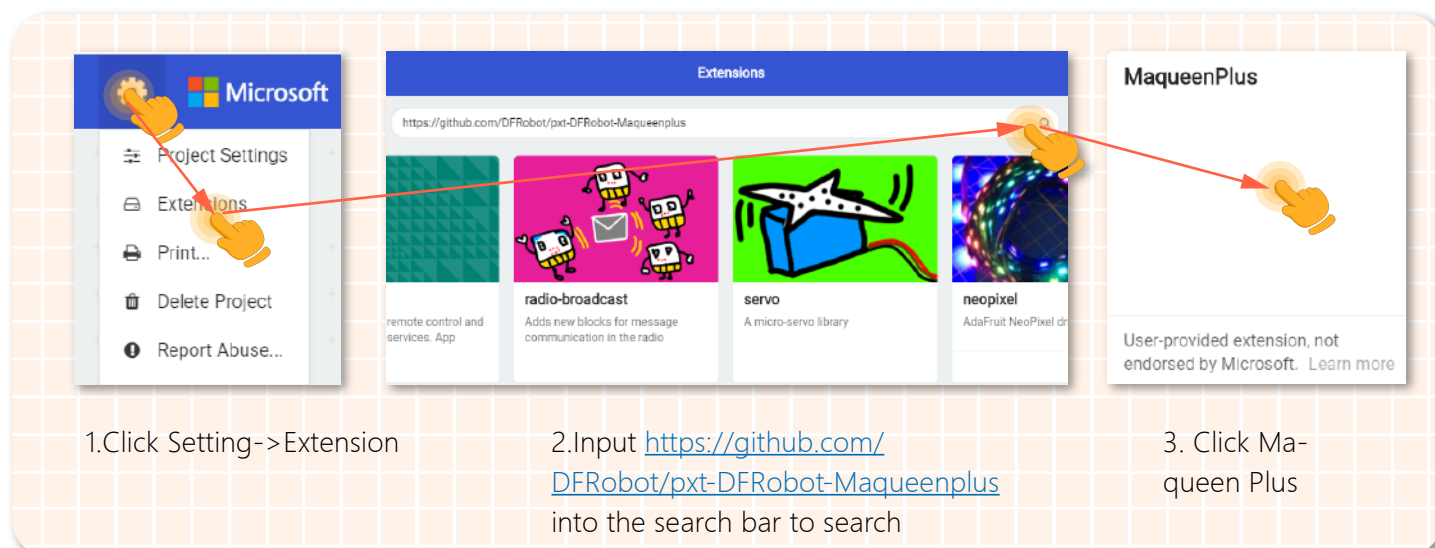
2. Click "new project" to enter MakeCode programming interface.



## Step 2 Add the Maqueen Plus library

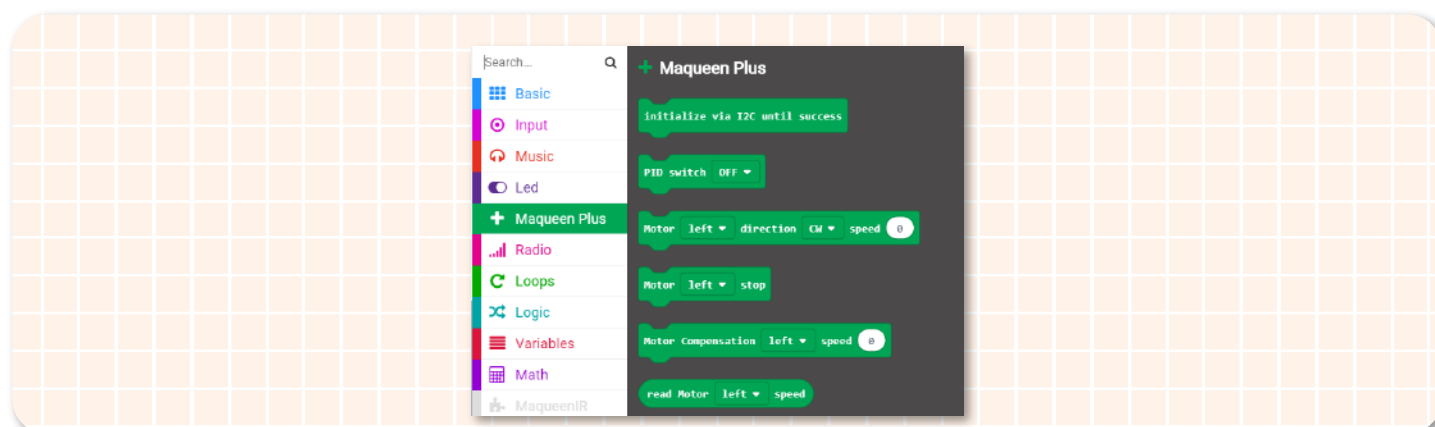
1. To program Maqueen Plus, we have to find the related blocks in MakeCode Extension.

Maqueen Plus Library: <https://github.com/DFRobot/pxt-DFRobot-Maqueenplus>



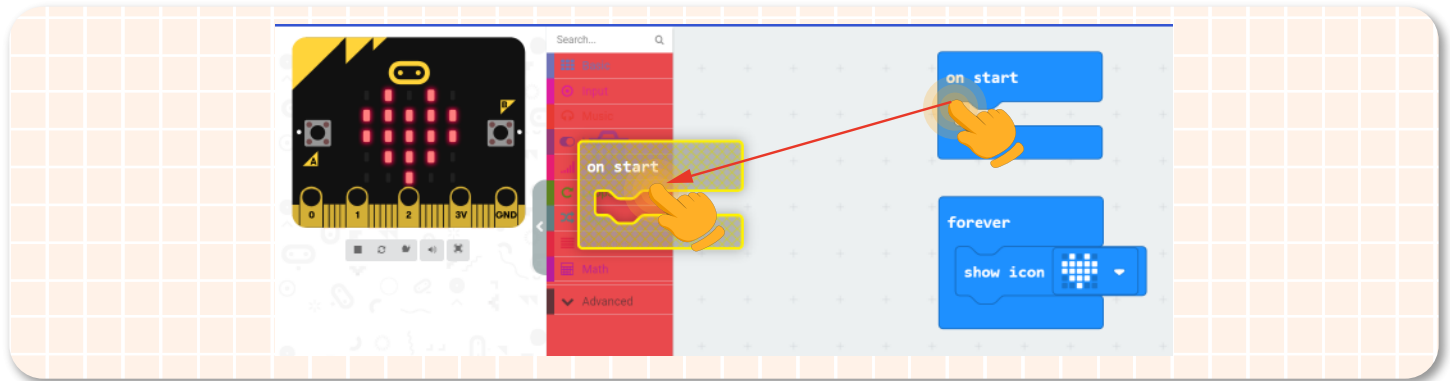
2. When the Maqueen Plus library is loaded successfully, there will be a icon " + Maqueen Plus " appearing in the command block section. Click the icon then you will see all the related blocks.

Refer to the attached document to check the detailed description of these blocks.

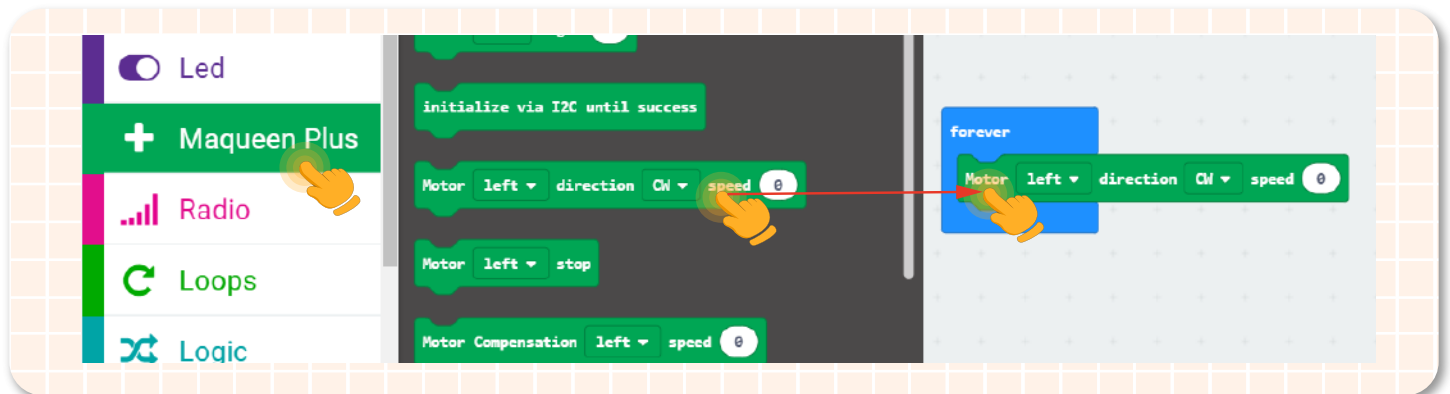


### Step 3 Programming

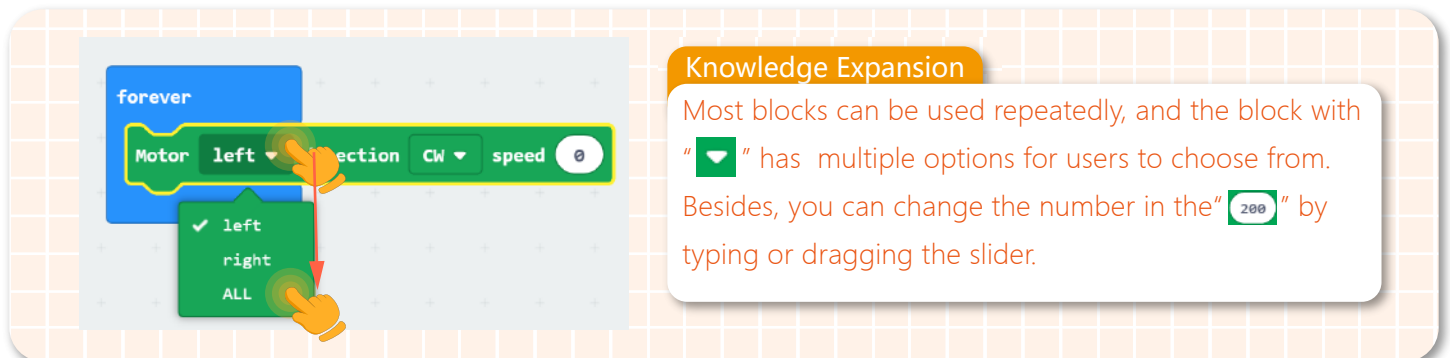
1.Delete the block we don't need currently.



2.Embed the motor control block into the "forever" block.



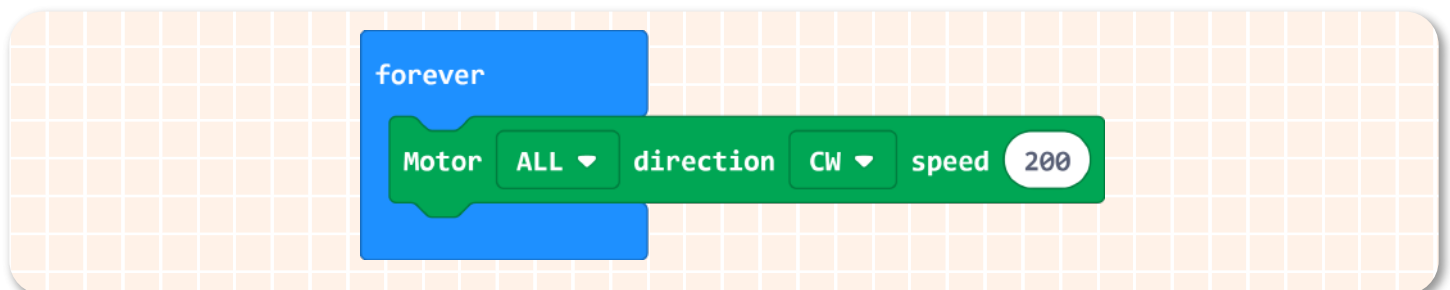
3.Change the "left" to "all" in the motor block to let Maqueen's both wheels to move at the speed of 200.



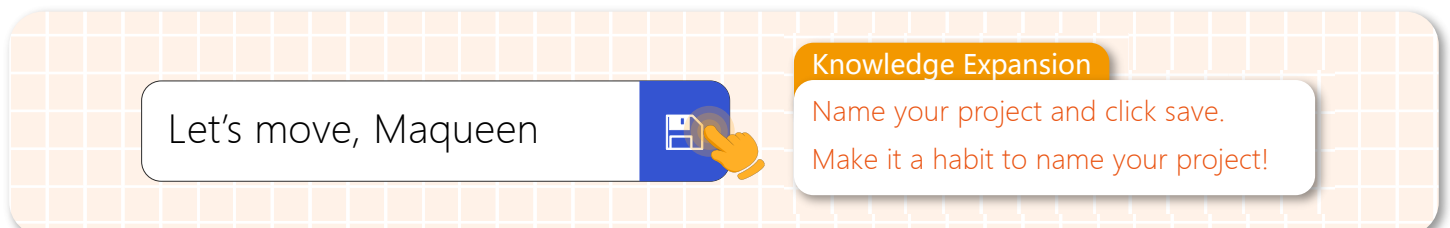
#### Knowledge Expansion

Most blocks can be used repeatedly, and the block with "▼" has multiple options for users to choose from. Besides, you can change the number in the "200" by typing or dragging the slider.

4.The complete program is shown below.



5.Save and name the project as "Let's move, Maqueen".

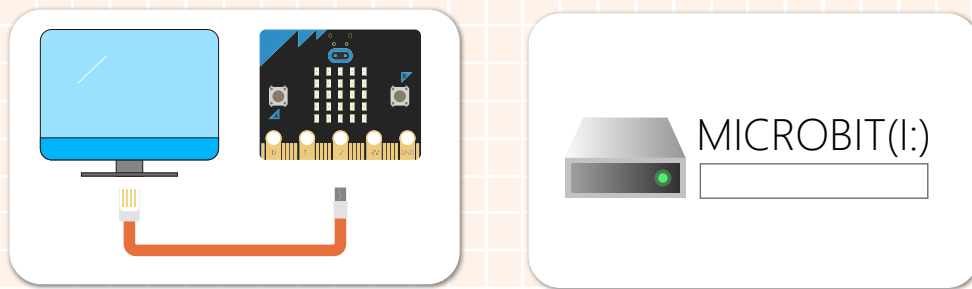


#### Knowledge Expansion

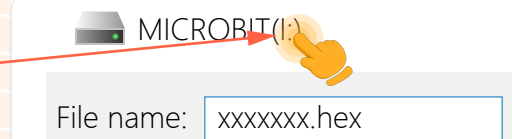
Name your project and click save. Make it a habit to name your project!

## Step 4 Download a Program

**1. Connect to a Computer:** Connect the micro:bit to your computer with a USB cable before downloading. There will be a hard-disk named micro:bit appearing in the computer when the connection is successful.



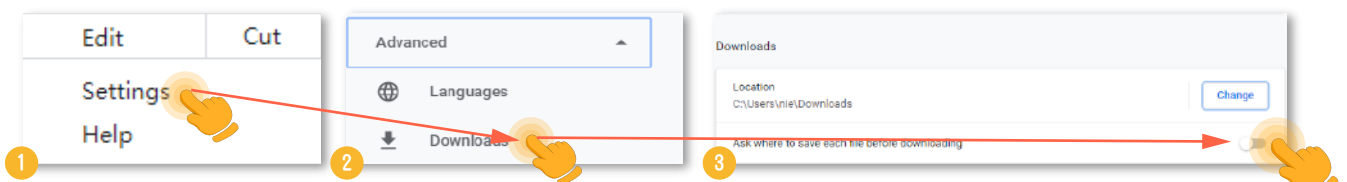
**2. Download the program:** Download your project into the micro:bit hard-disk.



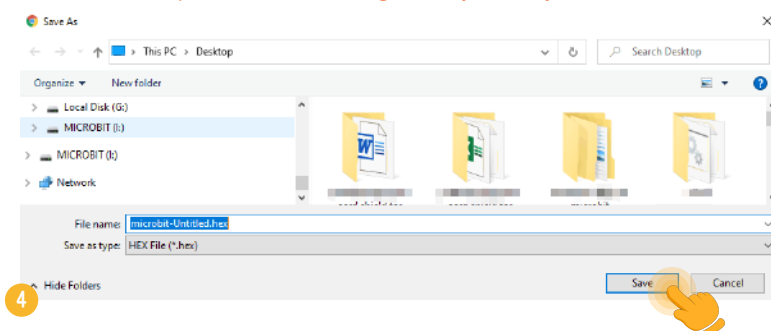
## Knowledge Expansion

Note: there will be no box popping out in Google browser since your files are directly downloaded into the default download folder. You have to change it in the setting of Google browser.

Step1: enter the setting interface in Google browser, scroll down to find the download setting part, enable "Ask where to save each file before downloading"

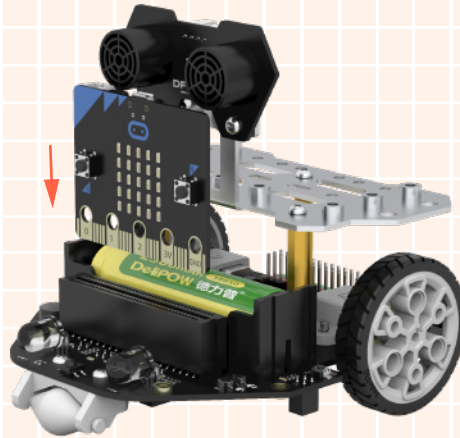


When completed the setting, every time you click "download" the following box pops out.



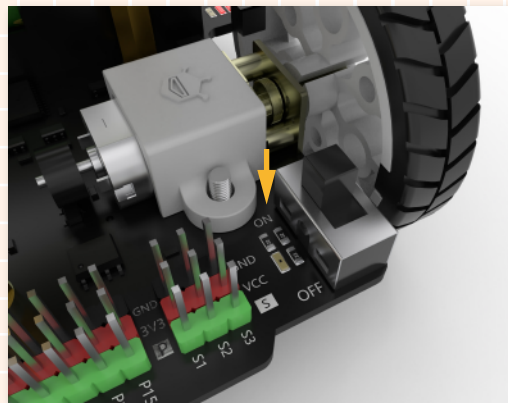
When writing data, the power indicator on the back of micro:bit board keeps flashing. Please do not disconnect the USB during downloading.

**3. Install the micro:bit Board:** After downloading the program, plug the micro:bit board into Maqueen Plus. Keep the LED matrix face forward, shown as below:



### Step 5 Effect Display

When you completed all the above steps, turn on the power switch of Maqueen Plus, then it starts running!



Turn on the power switch to awaken Maqueen Plus.

## Think & Explore

We have learned the program to make Maqueen Plus move forward, but in our daily life, a car is also able to move backward, do you know how to realize that on Maqueen Plus? Can you program Maqueen Plus to go backward at the speed of 100. Give it a try!

*Tip: Just do a little bit changes in the motor control block!*

Motor left ▼ direction cw ▼ speed 0