



愛動智教育系統

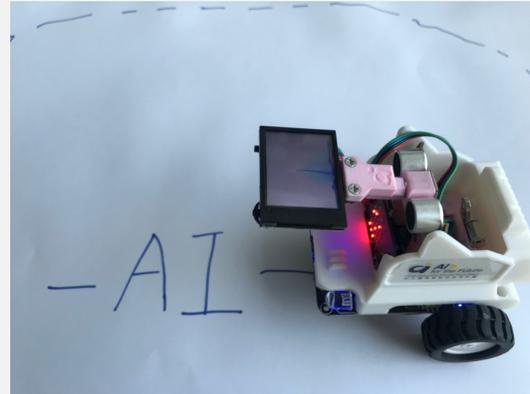
CUHK iCar Experiment Manual
Experiment 1: Face Following Experiment

Code Cloning

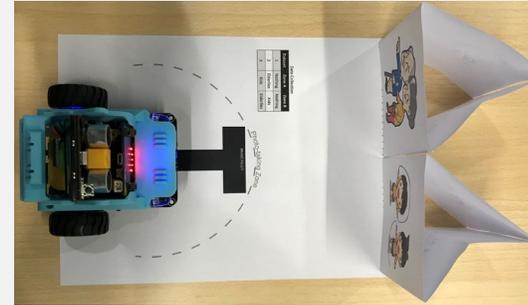
CUHK iCar



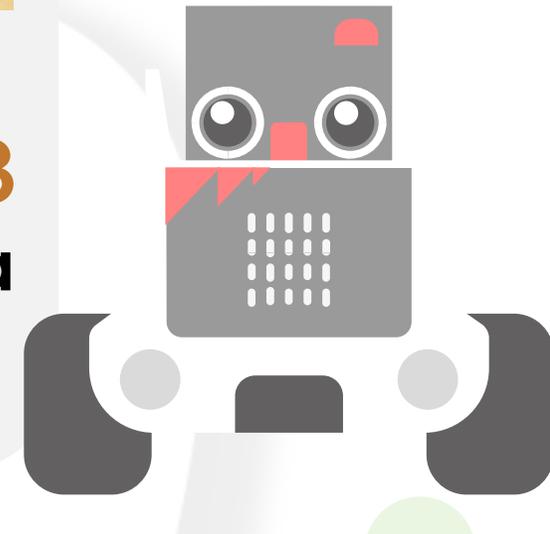
Experiment 1
Face Following



Experiment 2
Line Tracking



Experiment 3
Moral Dilemma



Face Following Experiment

Introduction Of The Experiment

This experiment showcases how the self-driving car follows a specific face.



Download Program To micro:bit

Face_following.hex

```
on start
  Huskylens initialize I2C until success
  Huskylens switch algorithm to Face Recognition
  show icon
  forever
    call Face_following_Mode

function Move_Forward
  iCar Move Forward at speed 30 %

function Turn_Left
  iCar Turn Left at speed 30 %

function Turn_Right
  iCar Turn Right at speed 30 %

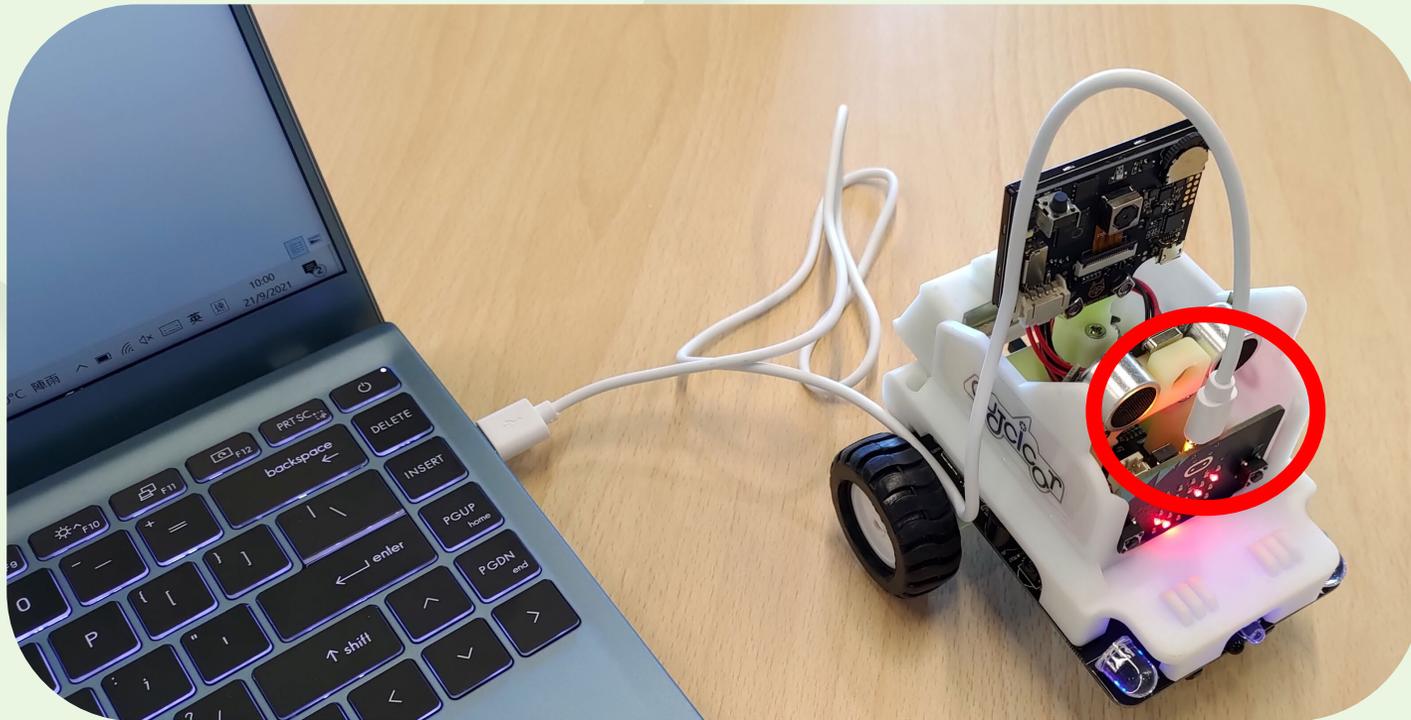
function Face_Following_Mode
  Huskylens request data once and save into the result
  if Huskylens check if ID 1 frame is on screen from the result then
    set xcenter to Huskylens get X center of ID 1 frame from the result
    if xcenter < 50 then
      call Turn_Left
    if xcenter >= 50 and xcenter <= 240 then
      call Move_Forward
    if xcenter > 240 then
      call Turn_Right
    else
      iCar Stop
```

Method 1

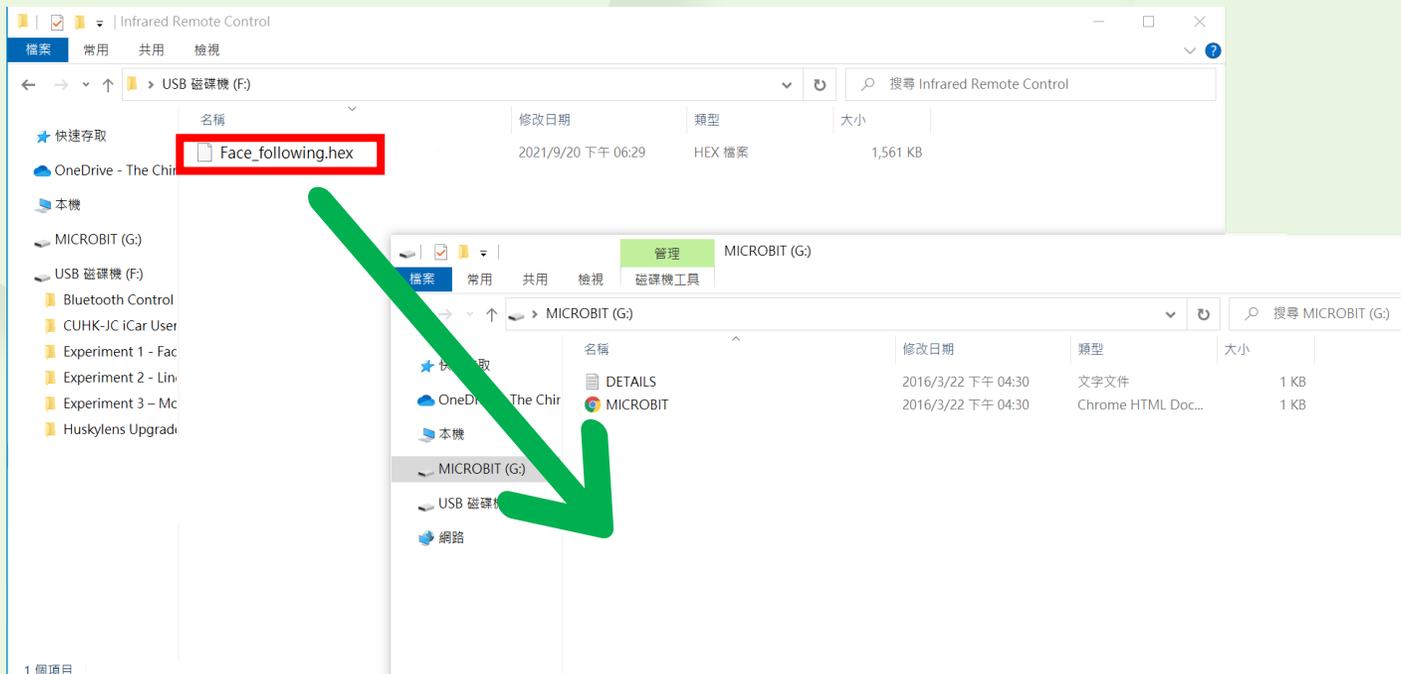
Clone the .hex to micro:bit directly

Method 2

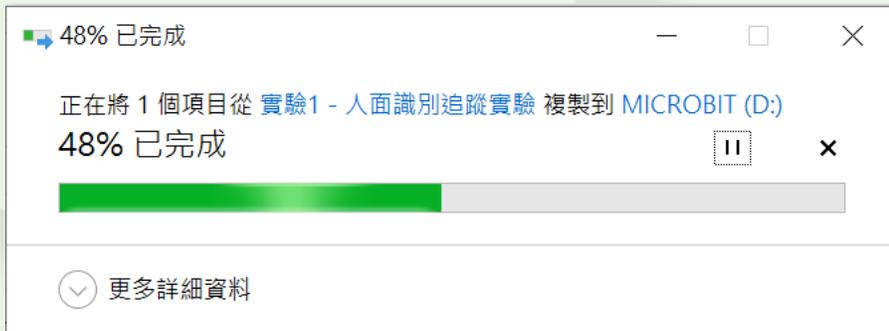
Write your own code on MakeCode



Step 1:
Connect the micro:bit to
computer by a micro USB cable



Step 2:
Drag the
“Face_following.hex”
file into the micro:bit window



Step 3:
Wait for the completion of cloning process

Caution:

- The micro:bit window will potentially disappear after the completion
- After the completion of cloning process, the hex file will not be displayed in the micro:bit window

Step 4:
Disconnect the micro:bit from your computer

If the connection between CUHK iCar and the computer is failed:

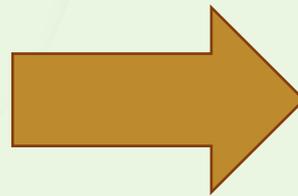
- Restart the computer
- Try another USB port
- Change the micro USB cable



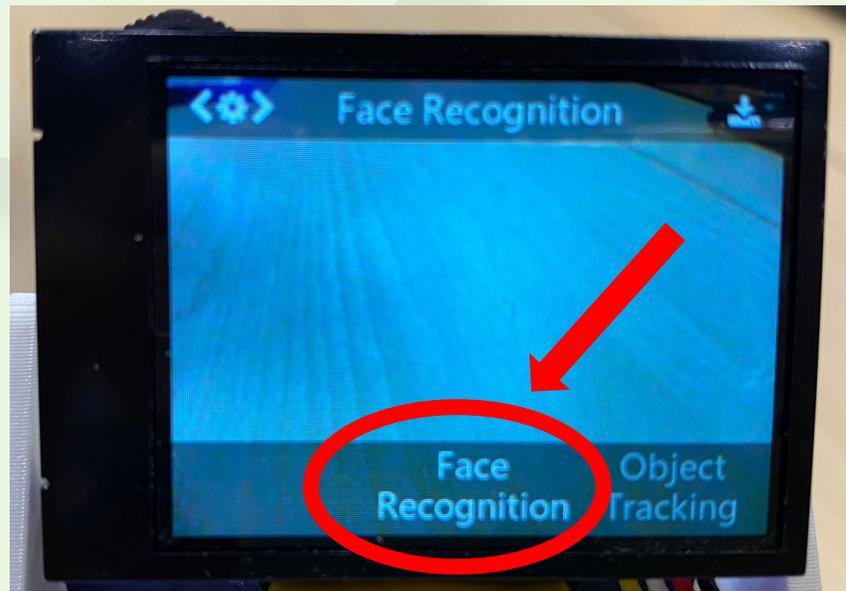
You have cloned the code successfully!

Let's start the experiment!

Switch On Your CUHK iCar

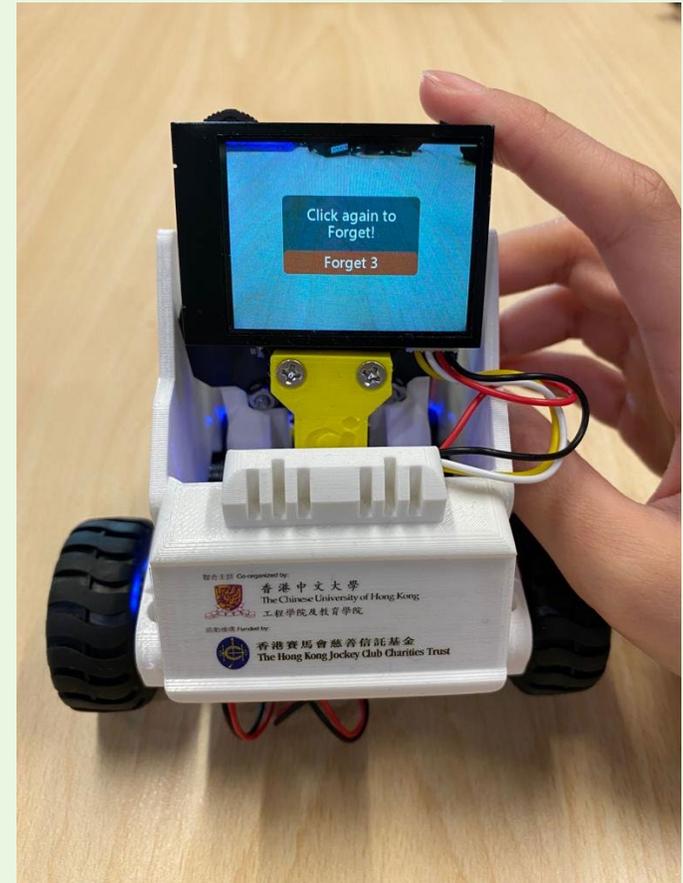


Once it is switched on, the HuskyLens will automatically adjust to Face Recognition Mode.

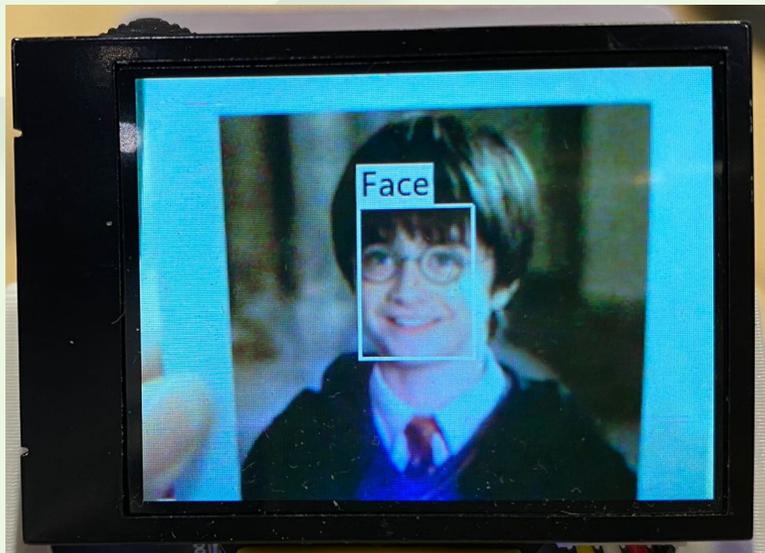


Clear The Previous Data

Press the learning button.
Then, press the button again when the confirmation box is appeared to “Forget” the data.



When a portrait photo is placed before the HuskyLens, a white frame will be displayed to indicate the position of the face.



Press the learning button to record the face. The frame will turn from white to blue, adding a label of "ID1".

Then, CUHK iCar will track and follow the face labelled as "ID1".



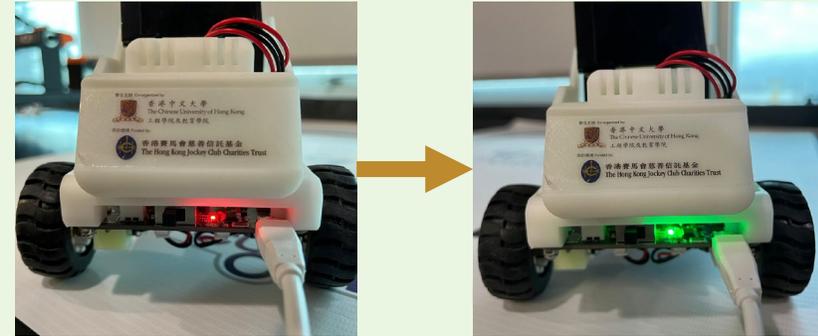
If another face is shown, a white frame will be displayed, as HuskyLens has not yet “learned” such person’s face.

If you would like the CUHK iCar to track and follow another face, you are required to clear the previous recorded face by pressing the learning button twice.

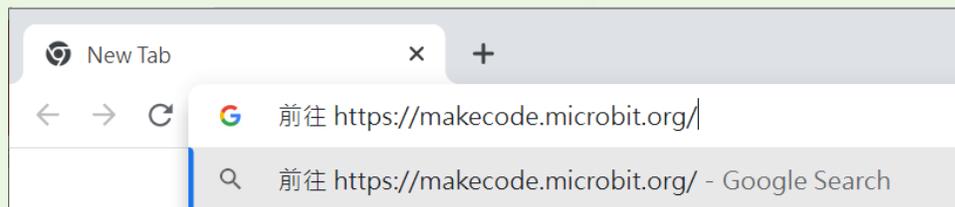


If CUHK iCar does not work as expected:

- Try to fully charge the CUHK iCar
- If the CUHK iCar still does not work as expected, then you can try to revise the provided program by yourself



 Browse <https://makecode.microbit.org/>



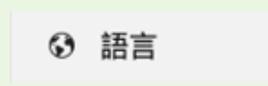


Caution
Please Set **English** As The Language!

1. Click



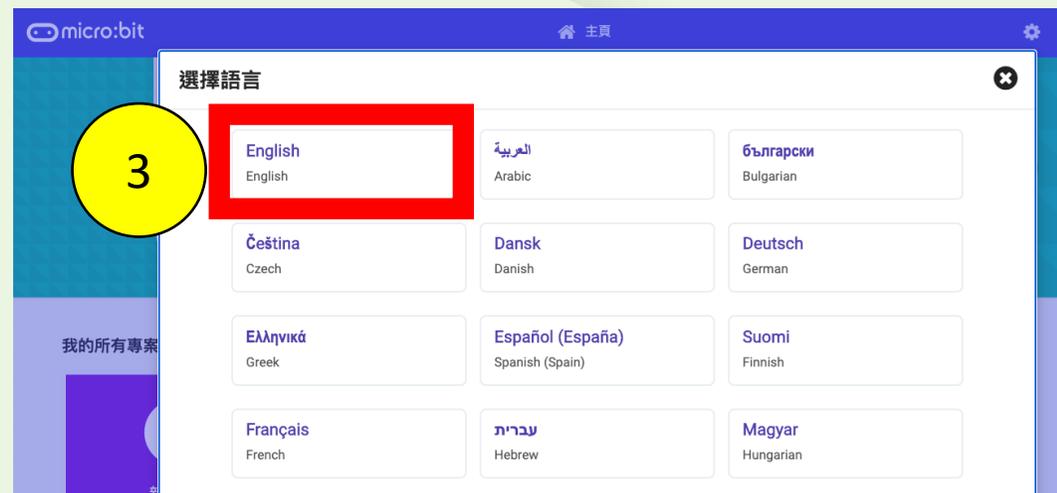
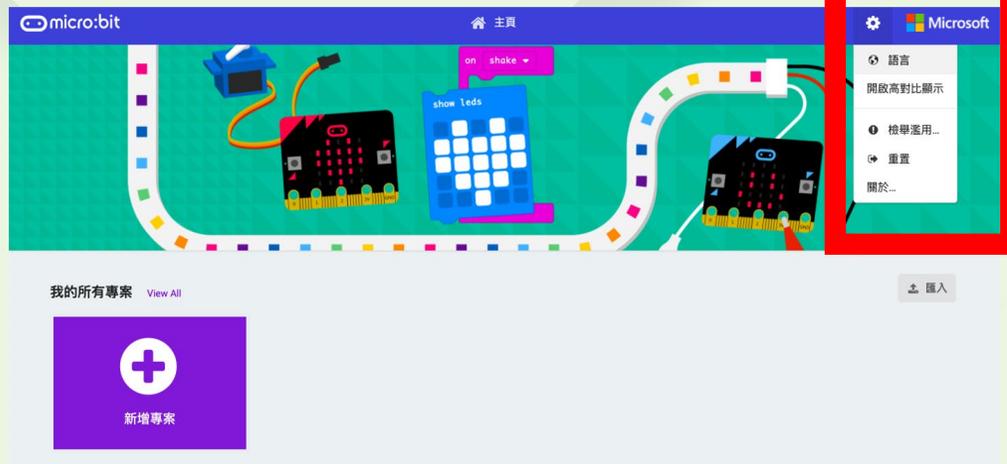
2. Click



3. Click English



English must be set as the language, otherwise the program may fail.



Microsoft | micro:bit

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Code Cloning

檔案 常用 共用 檢視

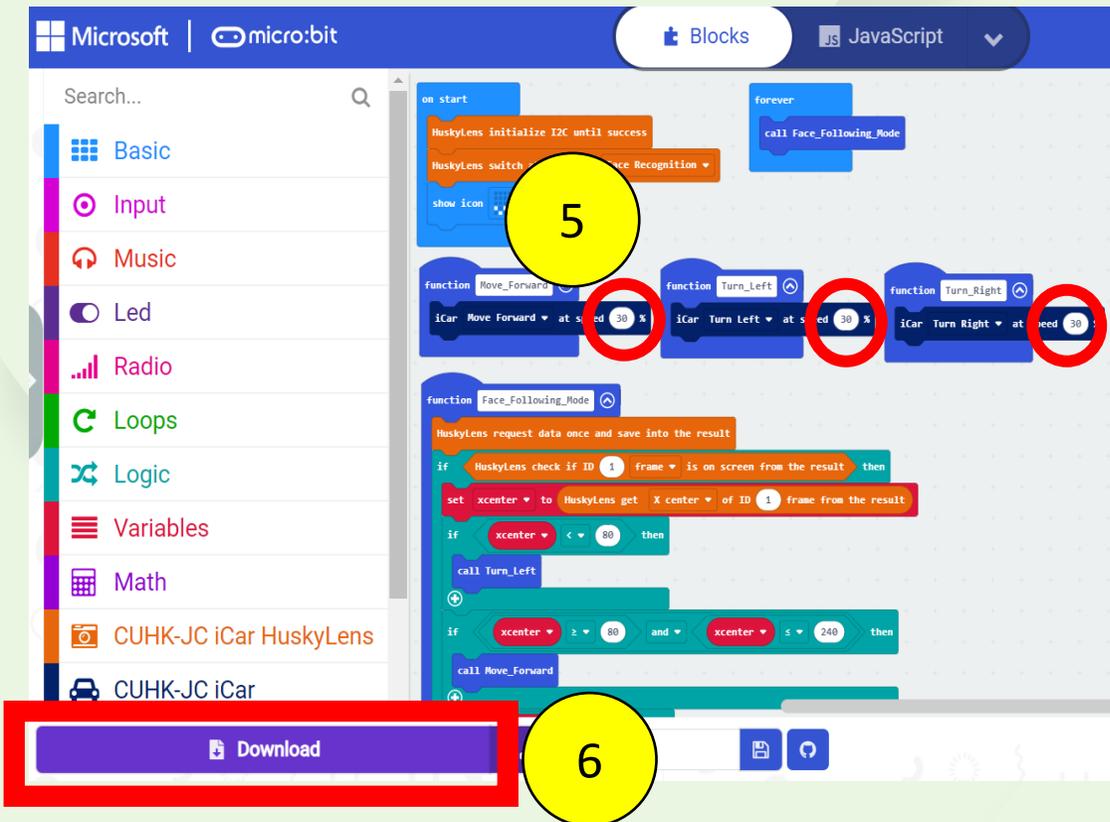
快速存取

- 桌面
- 下載
- 文件
- 圖片
- 螢幕擷取畫面
- kk

名稱

Face_following.hex

4. Drag the “Face_following.hex” file into the micro:bit window



The numbers circled in red are the recommended speeds when the battery is fully charged

5. Please adjust the speed gradually by +/- 5 according to the battery capacity or battery age, then re-enter the adjusted value to the position marked by the red circle
6. After the adjustment, download the program to the micro:bit again. For details, please refer to slide 5