2.4 Machine code recognition

1. Learning Objective

In this course. We will realize K210 vision module recognizes the machine code. When recognized, the ID of the machine code is displayed on the Micro:bit board.

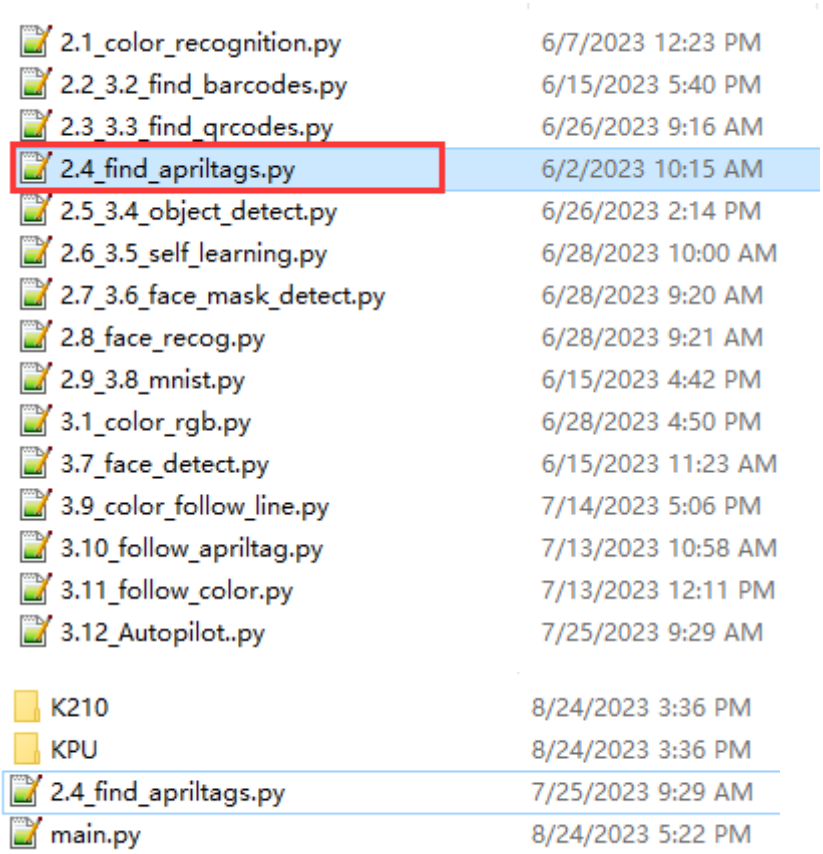
2. Preparation for class

1. Remove the TF card from the k210 vision module and insert it into the card reader.

2. Plug the card reader into the computer, and wait for the computer to recognize the USB U disk.

3. Then, enter the TF card U disk. You will see following content.

4. Go to the k210 folder, find the **2.4_find_apriltags.py** file from the folder and copy it to the root directory.



5. Delete the original **main.py** file.

   Then, re-name the **2.4_find_apriltags.py** file file as the **main.py** file.

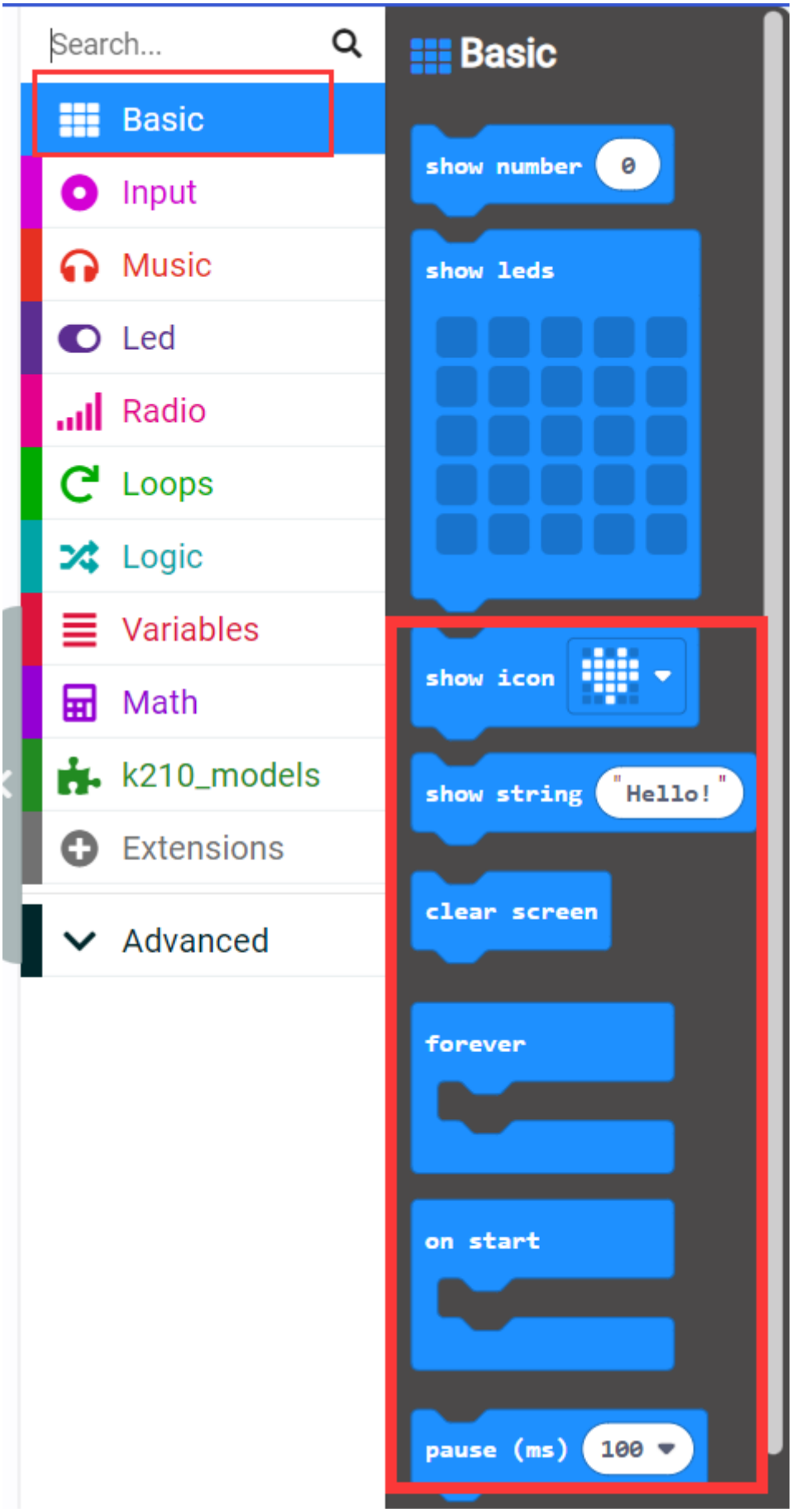
6. After renaming, pull out the card reader, remove the TF card and insert it back into the k210 vision module.

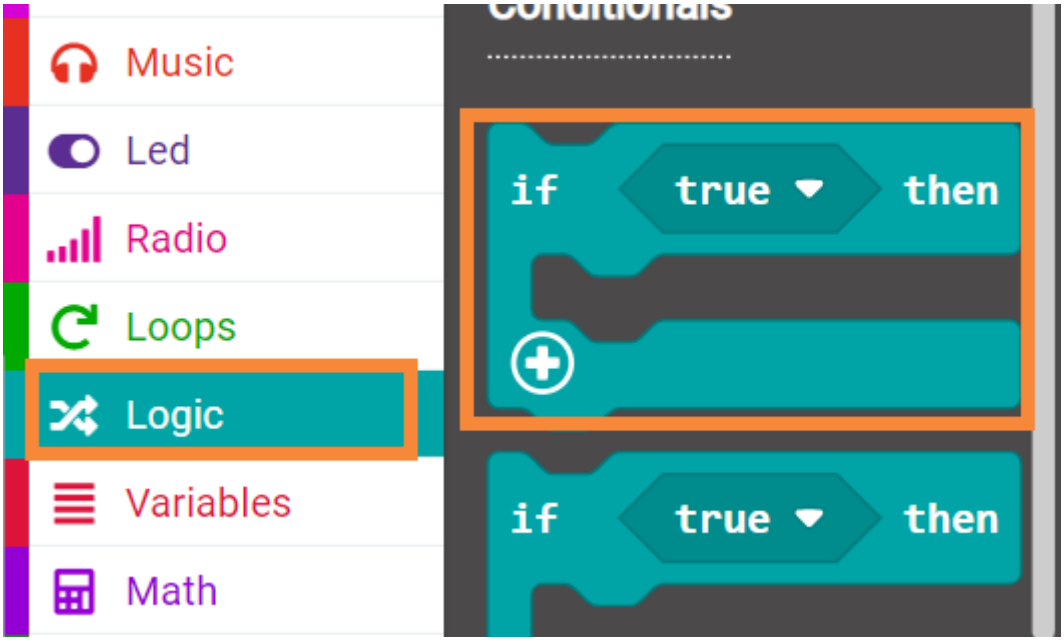
3. Programming Methods

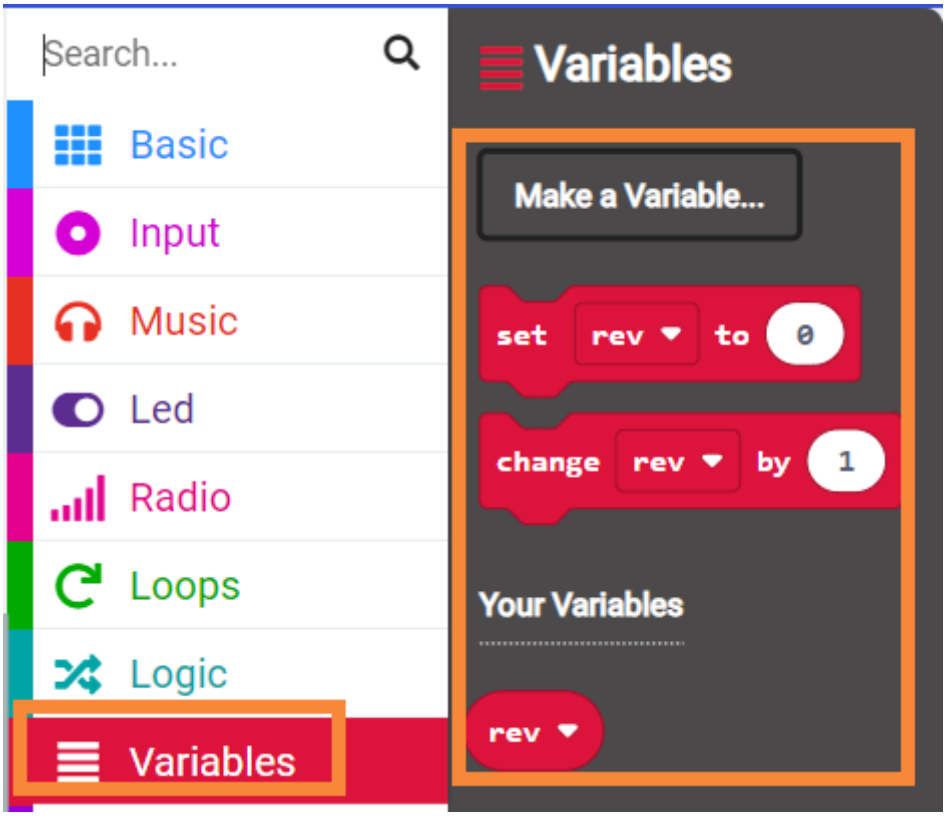
Online programming: first copy this URL https://makecode.microbit. and enter the online programming interface.

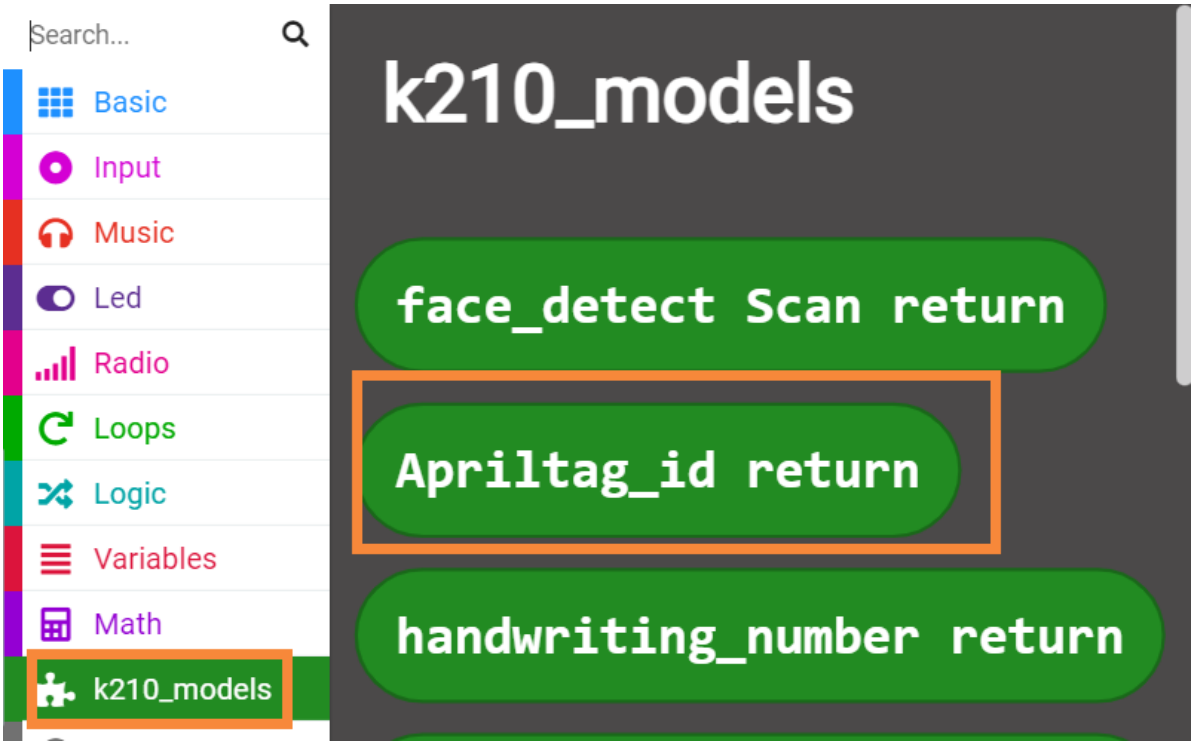
Copy the package URL: https://github.com/YahboomTechnology/K210-Module.git to the input field, click confirm to add the package, after that you can use the blocks of K210 vision module package.

4. Blocks

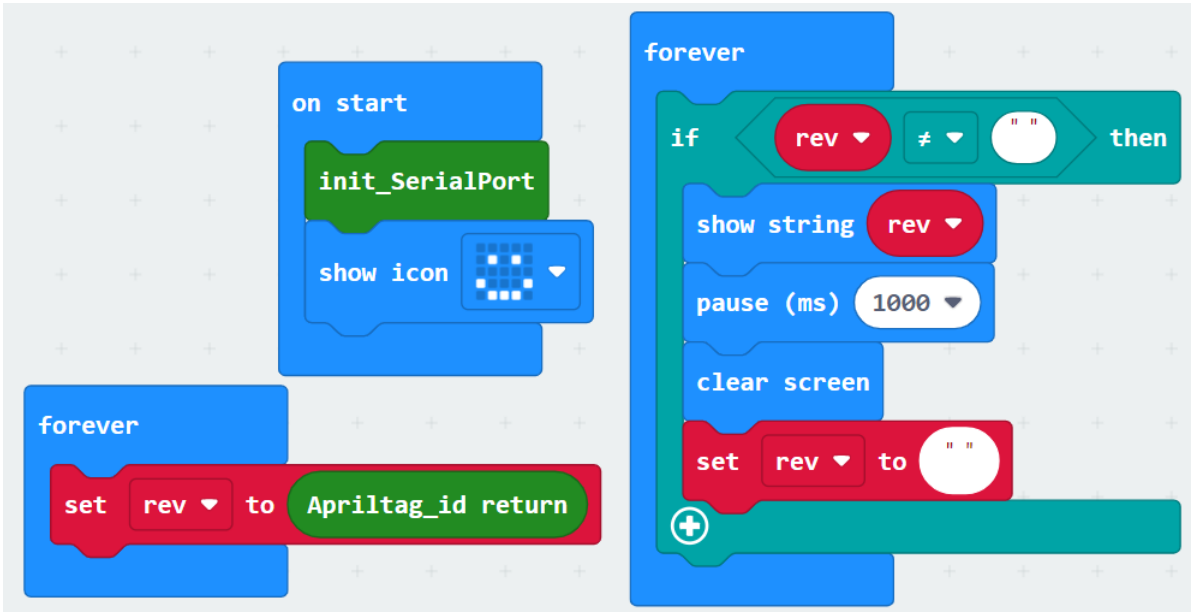

Search...
Basic
Input
Music
Led
Radio
Loops
Logic
Variables
Math
k210_models
Extensions
Advanced
Basic
show number 0
show leds
show icon
show string "Hello!"
clear screen
forever
on start
pause (ms) 100


Music
Led
Radio
Loops
Logic
Variables
Math
if true then
if true then


Search...
Basic
Input
Music
Led
Radio
Loops
Logic
Variables
Variables
Make a Variable...
set rev to 0
change rev by 1
Your Variables
rev



5. Code



6. Download code

Connect the Micro:bit board to the computer via Micro:bit USB cable, the computer will pop up a USB disk.

Then, select the **microbit-apriltag.hex** code and right click to send it to the Micro:bit U disk.

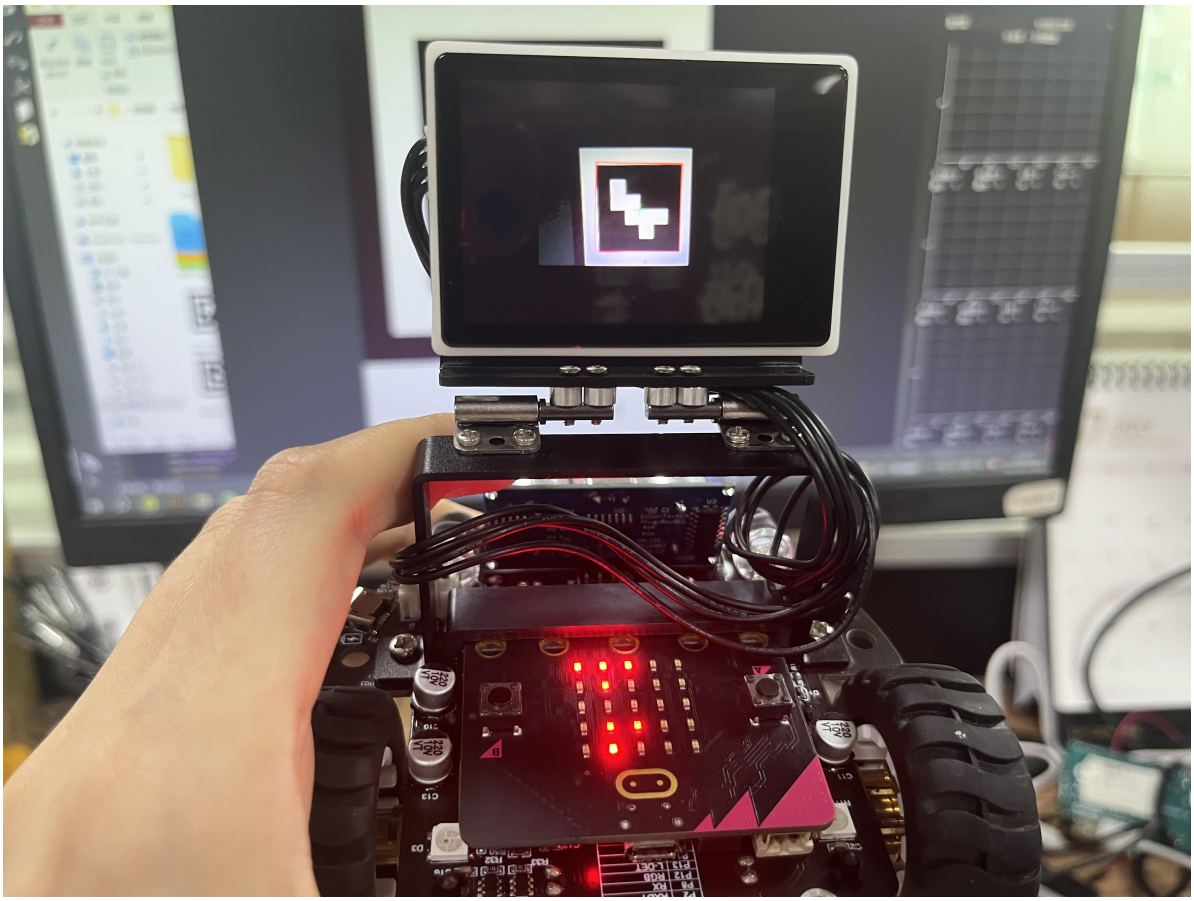
Wait until sending is complete and unplug the Micro:bit USB cable. Plug the Micro:bit board into the car.

7. Experimental phenomena

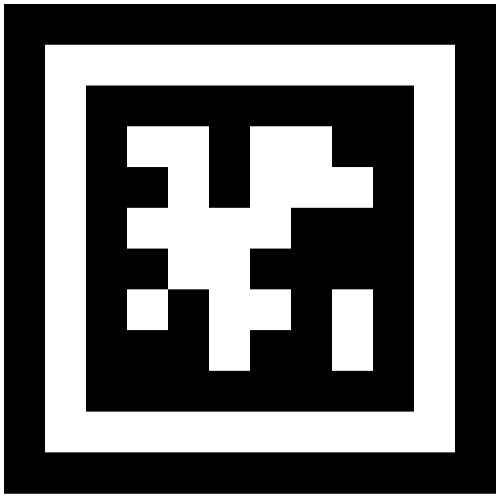
After starting the car, wait for the screen to display the camera image. After the camera screen appears, point the camera at the machine code that needs to be recognized.

When the machine code is recognized, the Micro:bit board will display the id of the machine code.

As shown below.



Machine code picture:



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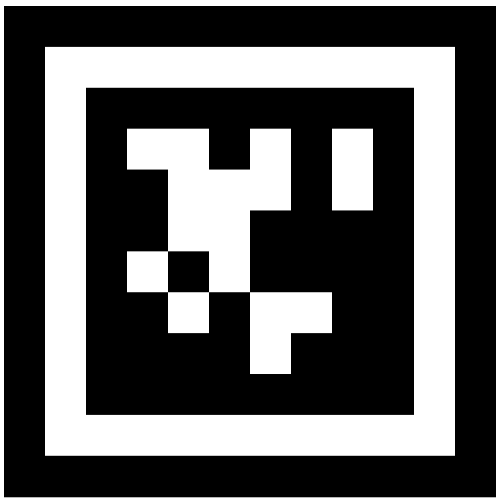

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