

2.1 Color recognition

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1. Learning objectives

In this course, we can realize K210 vision module performs color recognition.

When any one of the color, such as red, yellow, blue and green is recognized, the Micro:bit displays the initial capital letter of the English word in the corresponding color.

2. Preparation for class

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



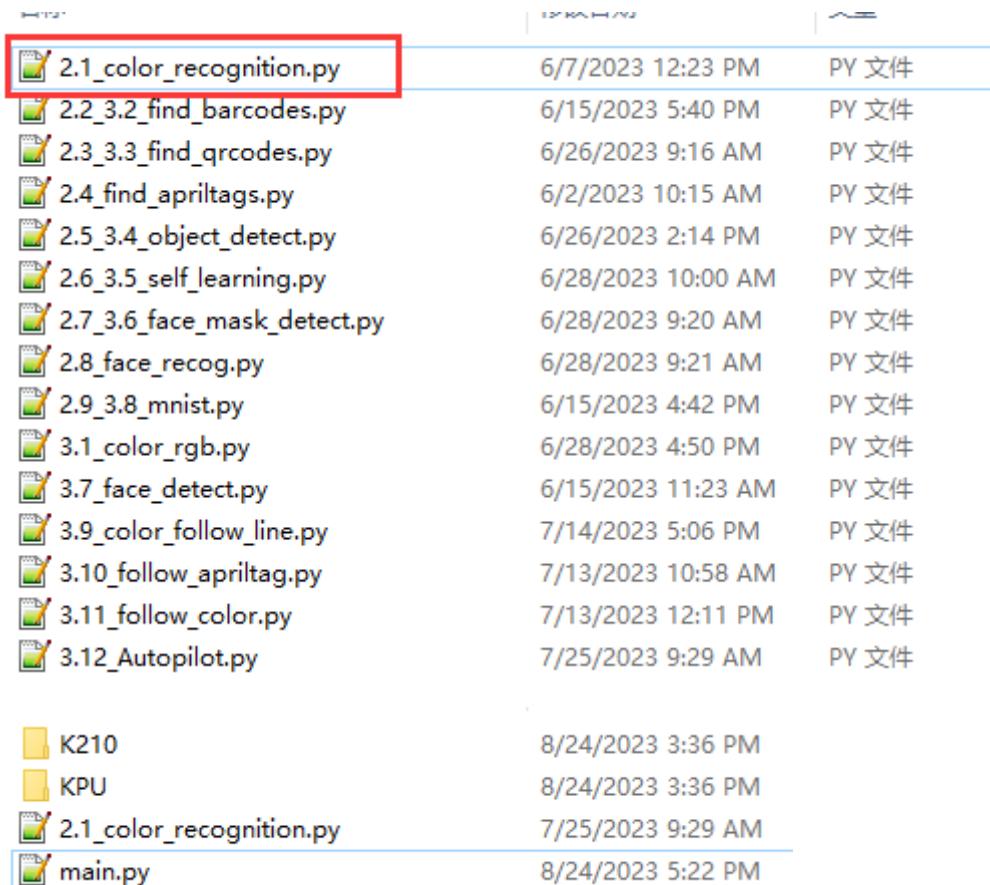
2. Plug the card reader into the computer, and wait for the computer to recognize the USB disk.



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

	K210	2023/6/28/周三 9:36	文件夹
	KPU	2023/4/13/周四 16:30	文件夹
	main.py	2060/1/1/周四 0:00	PY 文件 4 KB

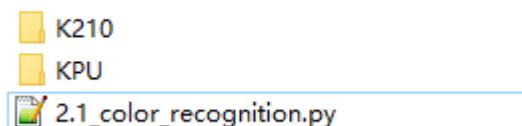
4. Go to the k210 folder, find the **2.1_color_recognition.py** file from the folder and copy it to the root directory.



	2.1_color_recognition.py	6/7/2023 12:23 PM	PY 文件
	2.2_3.2_find_barcodes.py	6/15/2023 5:40 PM	PY 文件
	2.3_3.3_find_qrcodes.py	6/26/2023 9:16 AM	PY 文件
	2.4_find_apriltags.py	6/2/2023 10:15 AM	PY 文件
	2.5_3.4_object_detect.py	6/26/2023 2:14 PM	PY 文件
	2.6_3.5_self_learning.py	6/28/2023 10:00 AM	PY 文件
	2.7_3.6_face_mask_detect.py	6/28/2023 9:20 AM	PY 文件
	2.8_face_recog.py	6/28/2023 9:21 AM	PY 文件
	2.9_3.8_mnist.py	6/15/2023 4:42 PM	PY 文件
	3.1_color_rgb.py	6/28/2023 4:50 PM	PY 文件
	3.7_face_detect.py	6/15/2023 11:23 AM	PY 文件
	3.9_color_follow_line.py	7/14/2023 5:06 PM	PY 文件
	3.10_follow_apriltag.py	7/13/2023 10:58 AM	PY 文件
	3.11_follow_color.py	7/13/2023 12:11 PM	PY 文件
	3.12_Autopilot.py	7/25/2023 9:29 AM	PY 文件
	K210	8/24/2023 3:36 PM	
	KPU	8/24/2023 3:36 PM	
	2.1_color_recognition.py	7/25/2023 9:29 AM	
	main.py	8/24/2023 5:22 PM	

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

Then, re-name the **2.1_color_recognition.py** file as the main file.



	K210
	KPU
	2.1_color_recognition.py

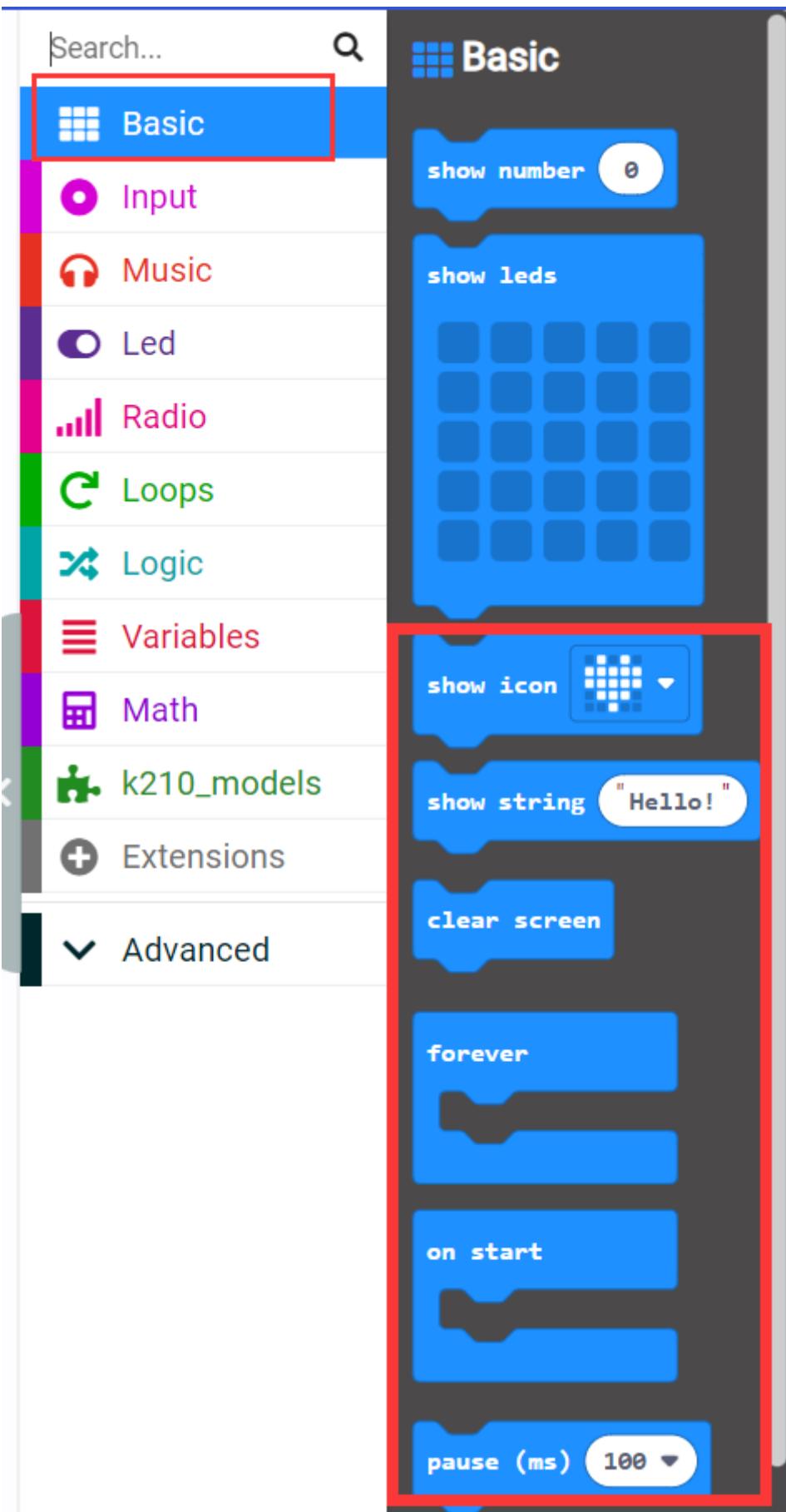
6. After re-name, pull out the card reader, remove the TF card and insert it back into the k210 vision module.

3. Programming Methods

Online programming: first copy this URL <https://makecode.microbit.org>. 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

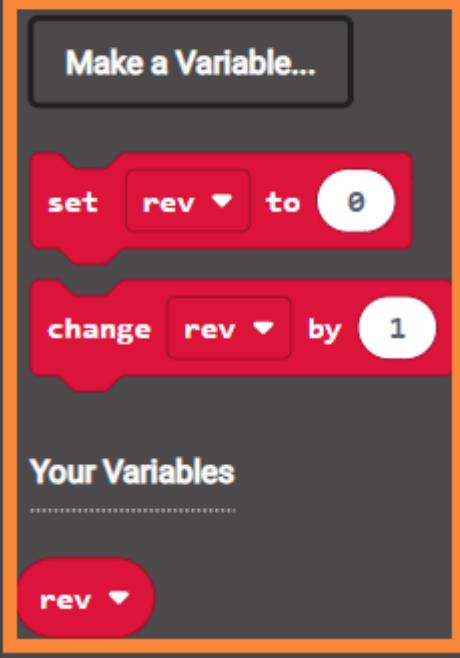
Variables

Make a Variable...

```
set rev to 0
change rev by 1
```

Your Variables

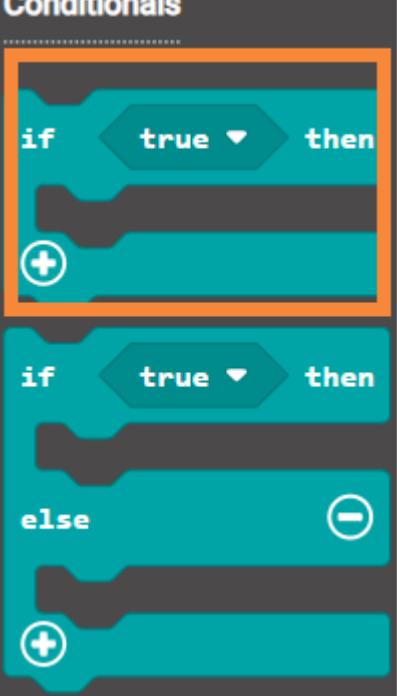
rev ▾



- BASIC
- Input
- Music
- Led
- Radio
- Loops
- Logic**
- Variables
- Math

Conditionals

```
if true then
else
```



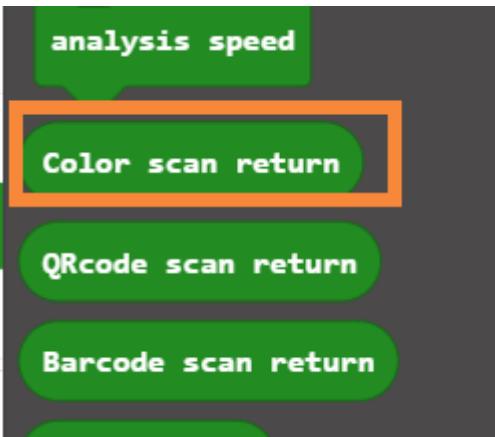
- Variables
- Math
- k210_models**
- Extensions
- Advanced

analysis speed

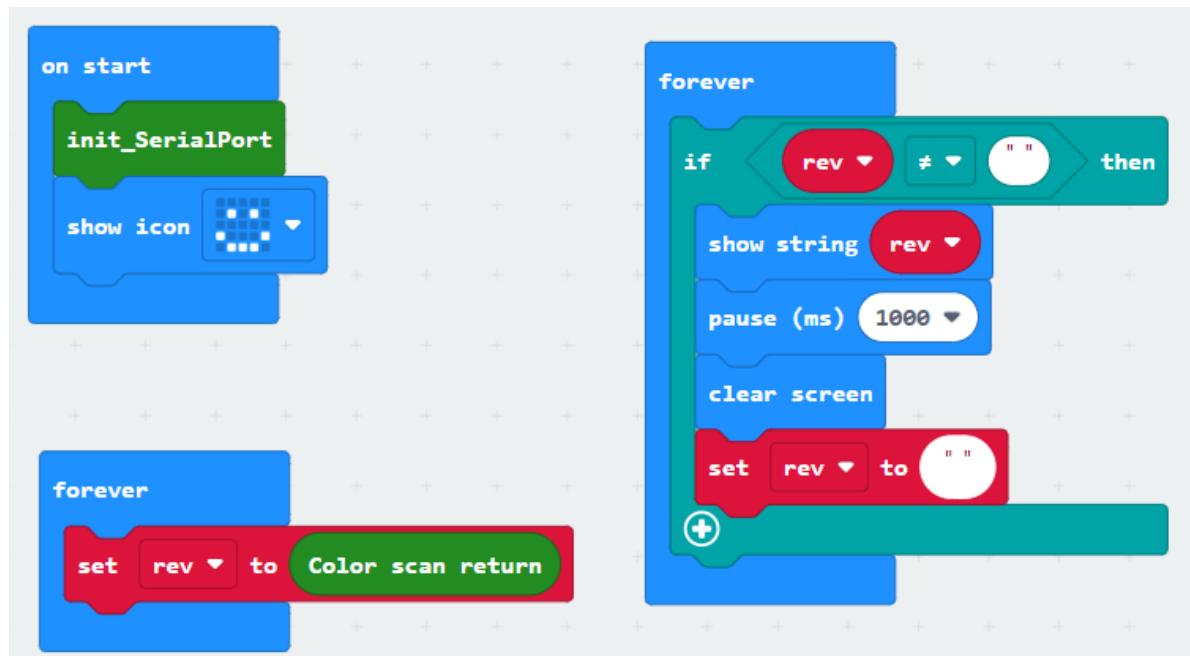
Color scan return

QRcode scan return

Barcode scan return



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-color_reg.hex** file 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 color that needs to be recognized.

When the color is recognized, the Micro:bit board will display the uppercase initials of the English word of the corresponding color.

As shown below.

