

3.2 Barcode recognition

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1. Learning Objectives

In this course. The K210 vision module recognizes barcodes. When the barcode is recognized, the content of the barcode is displayed on the microbit motherboard and the color of the car's searchlight changes to green. When the barcode is not recognized, the searchlight color changes to red.

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. You will see following content.




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

- Go to the k210 folder, find the **2.2_3.2_find_barcodes.py** file from the folder and copy it to the root directory.

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

 K210	8/24/2023 3:36 PM
 KPU	8/24/2023 3:36 PM
 2.2_3.2_find_barcodes.py	7/25/2023 9:29 AM
 main.py	8/24/2023 5:22 PM

- Delete the original **main.py** file.
Then, re-name the **2.2_3.2_find_barcodes.py** file as the **main.py** file.

 K210	8/24/2023 3:36 PM
 KPU	8/24/2023 3:36 PM
 2.2_3.2_find_barcodes.py	7/25/2023 9:29 AM

- 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>. and enter the online programming interface.

Click Extension, copy the package URL: <https://github.com/YahboomTechnology/K210-Module.git> to the input field, click Confirm to add package,

Click Extension again, copy the package URL: <https://github.com/YahboomTechnology/Tiny-bitLib> to the input field, click Confirm to add the package.

Finally you can use the K210 Vision Module package and Tinybit's building blocks.

4. Blocks used

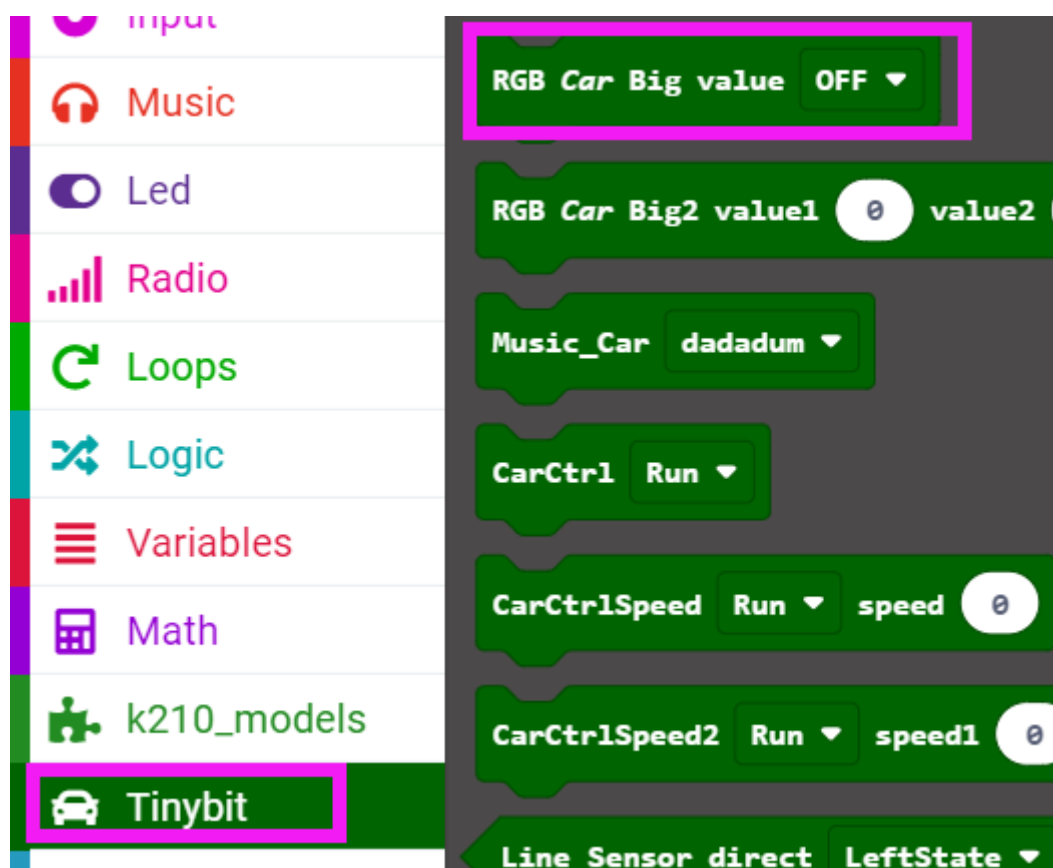
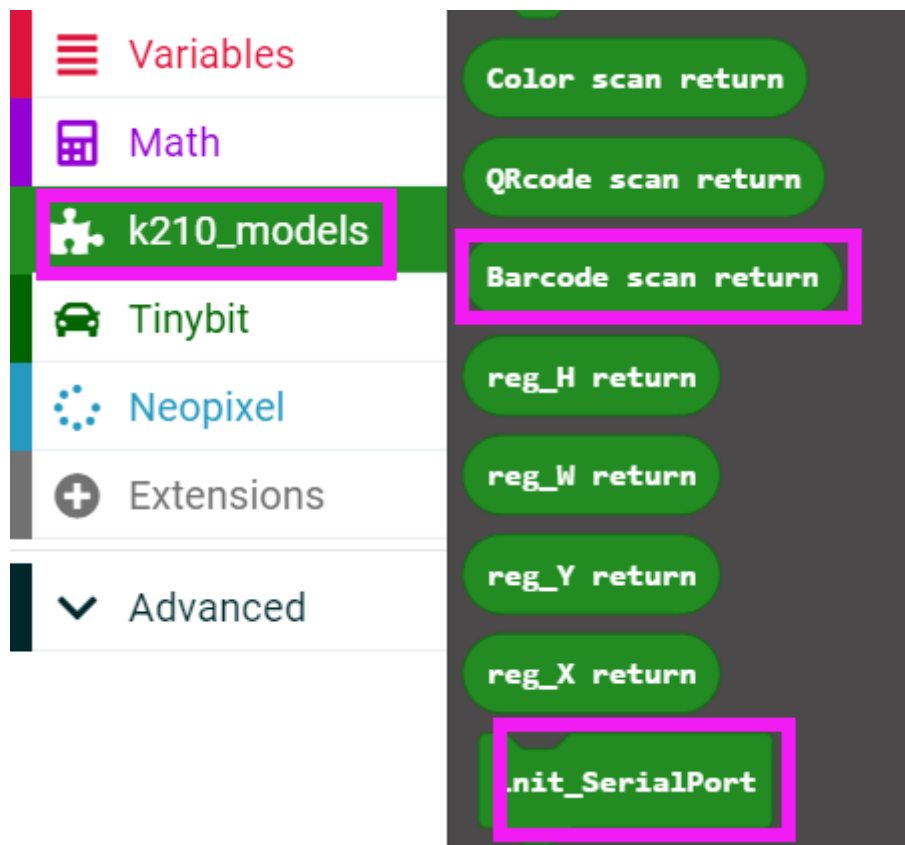
The image displays a block palette on the left and a workspace on the right. The palette is organized into categories: Basic, Input, Music, Led, Radio, Loops, Logic, Variables, Math, k210_models, Extensions, and Advanced. The workspace contains several blocks, some of which are highlighted with orange boxes.

Block Palette:

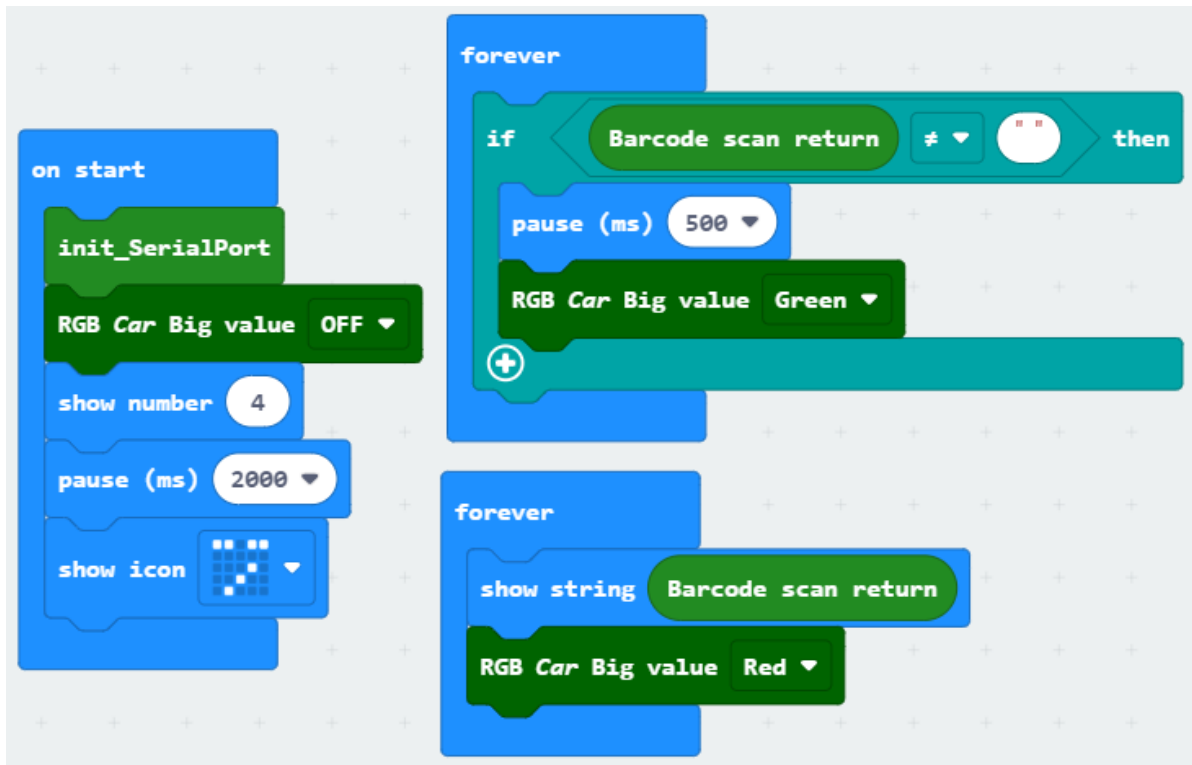
- Basic
- Input
- Music
- Led
- Radio
- Loops
- Logic
- Variables
- Math
- k210_models
- Extensions
- Advanced

Workspace:

- show number 0 (highlighted with an orange box)
- show leds (a 4x4 grid of blue squares)
- show icon (a dropdown menu with a grid icon)
- show string "Hello!"
- clear screen
- forever loop (highlighted with an orange box)
- on start (highlighted with an orange box)



5. Assortment blocks



6. Download code

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

Then, select the **k210_barcode.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.

Wait for the screen to display the camera screen, then point the camera at the barcode to be identified, after identification, the micro:bit board will display the content of the barcode and the searchlight color will turn green.



Barcode picture:

