

microbit_ K210 color recognition

1.K210 and microbit communication

1.1 Experimental premises

This tutorial uses microbit V2.0, and K210 requires running the program in * * K210-AI (microbit) *
* to start the experiment

Microbit * 1

Eyu clip * 3

Several DuPont Lines

K210 perspective module * 1 (requires SD card (with AI model inside) and camera)

USB to TTL module * 1

Import k210AI library: <https://github.com/YahboomTechnology/K210-Module>

1.2 Experimental wiring

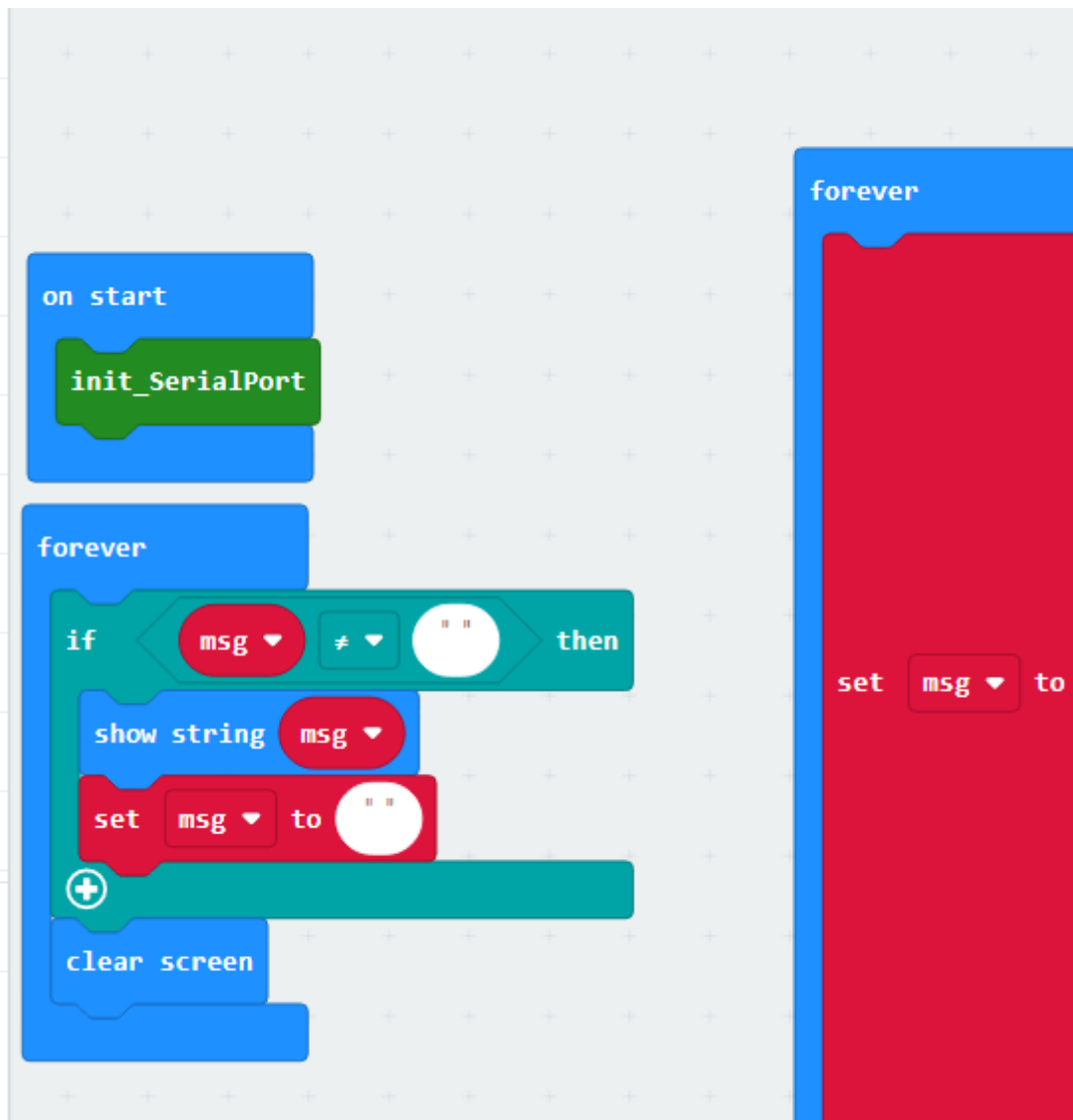
microbit	USB to TTL module
P1	RXD
GND	GND

microbit	k210
P2	TXD
GND	GND

Wiring as shown in the diagram:



1.3 Main code analysis



From the code, simply configure the serial port and call the relevant serial port and K210 building blocks for data acquisition

- X: The abscissa of the identification box
- Y: The vertical coordinate of the identification box
- W: The width of the identification box
- H: The height of the identification box

1.4 experimental phenomena

1. After connecting the cable, the K210 perspective module can be run offline
[K210 offline operation method](#)

2. Set the serial port assistant to the interface shown in the figure

The image shows two overlapping dialog boxes from a serial communication software. The top dialog, titled 'COM Configs', has fields for Channel (COM1), Baudrate (115200), Paritybits (NONE), Databits (8), Stopbits (1), and Flowctrl (NONE), with a 'Close' button. The bottom dialog, titled 'Recv Options', has radio buttons for ASCII (selected) and HEX, and checkboxes for Log display mode, Auto linefeed, Hide received data, and Recv save to file... It also has 'AutoScroll' and 'Clear' links. Below it, the 'Send Options' dialog has radio buttons for ASCII (selected) and HEX, and checkboxes for Enable escape chars, AT CMD auto CRLF, Auto append bytes, Send from file ..., and Period (1000 ms), with 'Shortcut' and 'History' links.

3. Download the hex program of this tutorial into microbit
4. After starting recognition, you can see that the serial assistant prints something and the microbit screen also scrolls to display the received information. The experimental results in the following figure show the phenomenon of color recognition

The image shows a microbit screen with a black background and green text. The text is organized into a grid of 5 rows and 4 columns. Each row contains the same four values: 'x:0', 'y:0', 'w:319', and 'h:239'. A vertical scrollbar is visible on the right side of the screen.

```
x:0 y:0 w:319 h:239
x:0 y:0 w:319 h:239
x:0 y:0 w:319 h:239
x:0 y:0 w:319 h:239
x:0 y:0 w:319 h:239
x:0 y:0 w:319 h:239
x:0 y:0 w:319 h:239
x:0 y:0 w:319 h:239
x:0 y:0 w:319 h:239
x:0 y:0 w:319 h:239
x:0 y:0 w:319 h:239
x:0 y:0 w:319 h:239
x:0 y:0 w:319 h:239
x:0 y:0 w:319 h:239
x:0 y:0 w:319 h:239
x:0 y:0 w:319 h:239
```

This experiment displays the four values of x, y, w, and h in the color recognition box

1.5 Microbit calls the building blocks to parse the results of K210, and the role of each block

Website of K210 library: <https://github.com/YahboomTechnology/K210-Module>

