microbit_k230 target tracking

K230 and microbit communication

1. Experimental Prerequisites

This tutorial uses a micro:bit. The corresponding example program path is [14.export\microbit-K230\15.Microbit_k230_nano_tracker].

To begin the experiment, you must run the [14.export\CanmvIDE-K230\15.nano_tracker.py] program on the K230. We recommend downloading the program for offline operation.
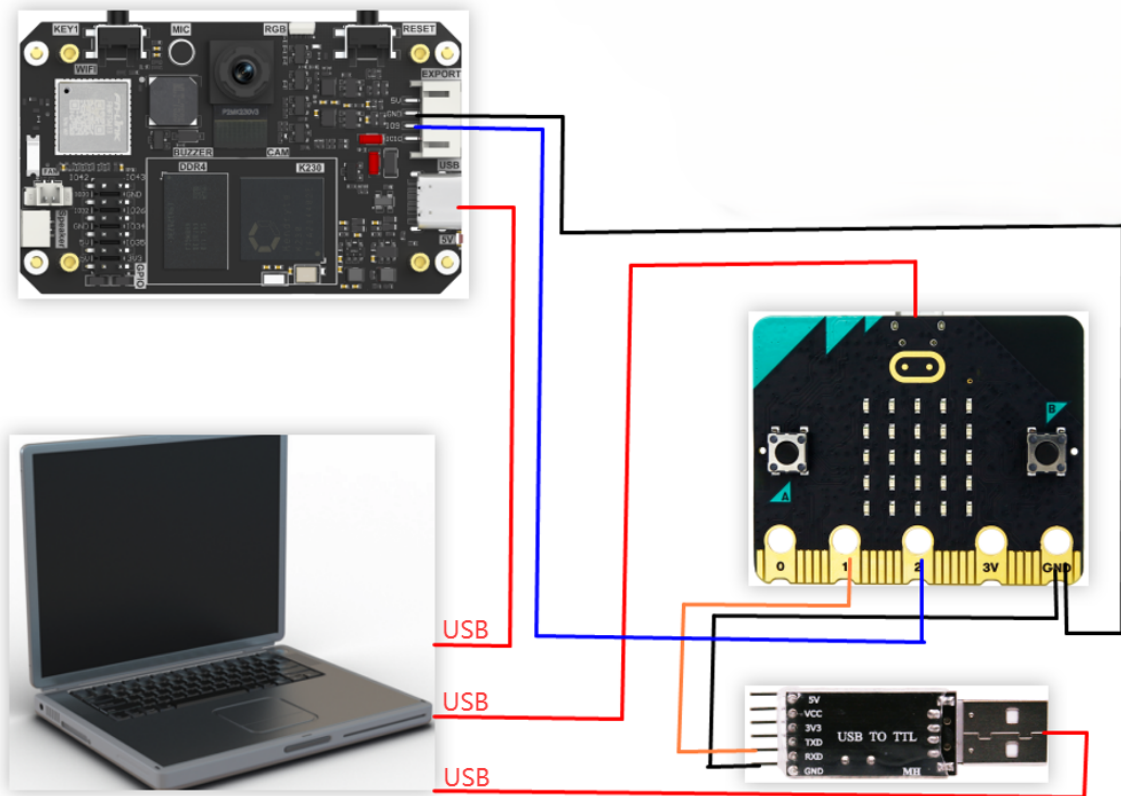
Items needed:

Windows computer, microbit, USB to TTL module, K230 vision module (including TF card with image burned), type-C data cable, connecting cable (Dupont cable), alligator clip, import K230AI library: https://github.com/YahboomTechnology/K230-Module.git
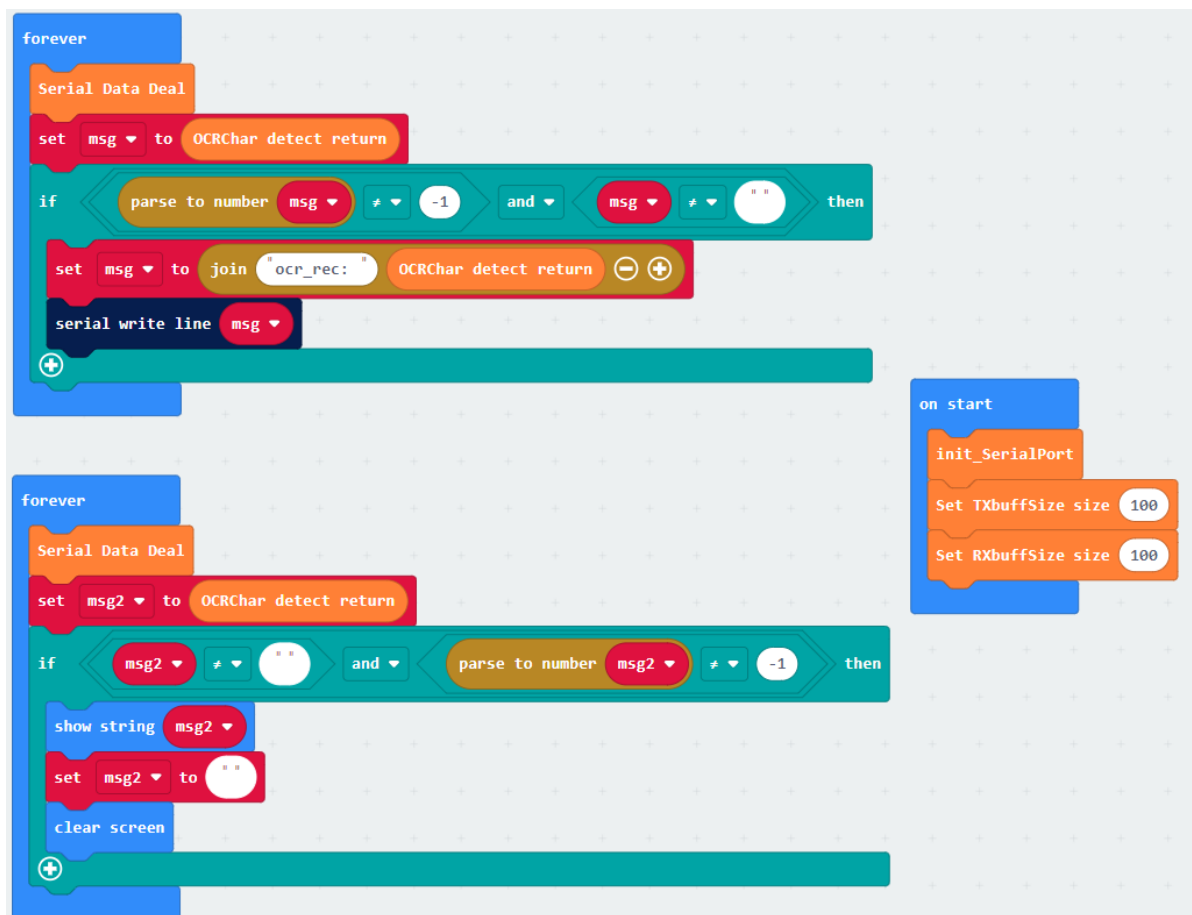
2. Experimental wiring

k230 vision module	Microbit
GND	GND
TXD(IO9)	P2

| USB to TTL module	Microbit
RXD	P1
GND	GND

3. Main code explanation

From the code, we can simply configure the serial port and call the relevant serial port and K230 building blocks to obtain data.

- x: The horizontal coordinate of the top left corner of the recognized box
- y: The vertical coordinate of the top left corner of the recognized box
- w: The width of the recognized box
- h: The height of the recognized box

If you want to open the source code of this tutorial, please drag the microbit source code corresponding to this tutorial into the makecode online programming webpage of the browser. The online programming website is: https://makecode.microbit.org/#

4. Experimental phenomenon

1. After connecting the cables, the k230 visual module runs offline
   After K230 is connected to Canmv IDE, open the corresponding program, click [Save open script to CanMV board (as main.py)] on the toolbar, and then restart K230.
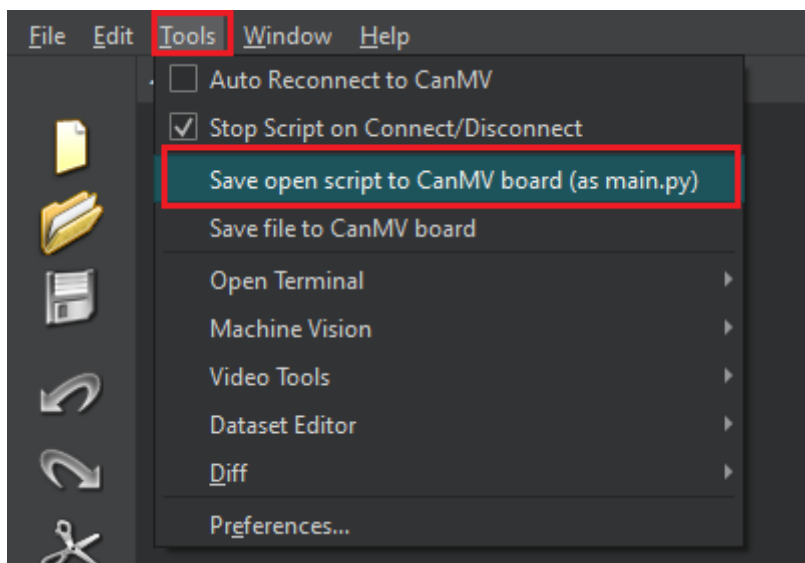
When the K230 is turned on, a green box will appear on the screen. Please aim the green box at the target to be tracked (using ultrasonic wave as an example here) and wait for a few seconds. When the green box turns red, it means the target has been detected. At this time, if you move the target object, you can see that the red box will move with it.
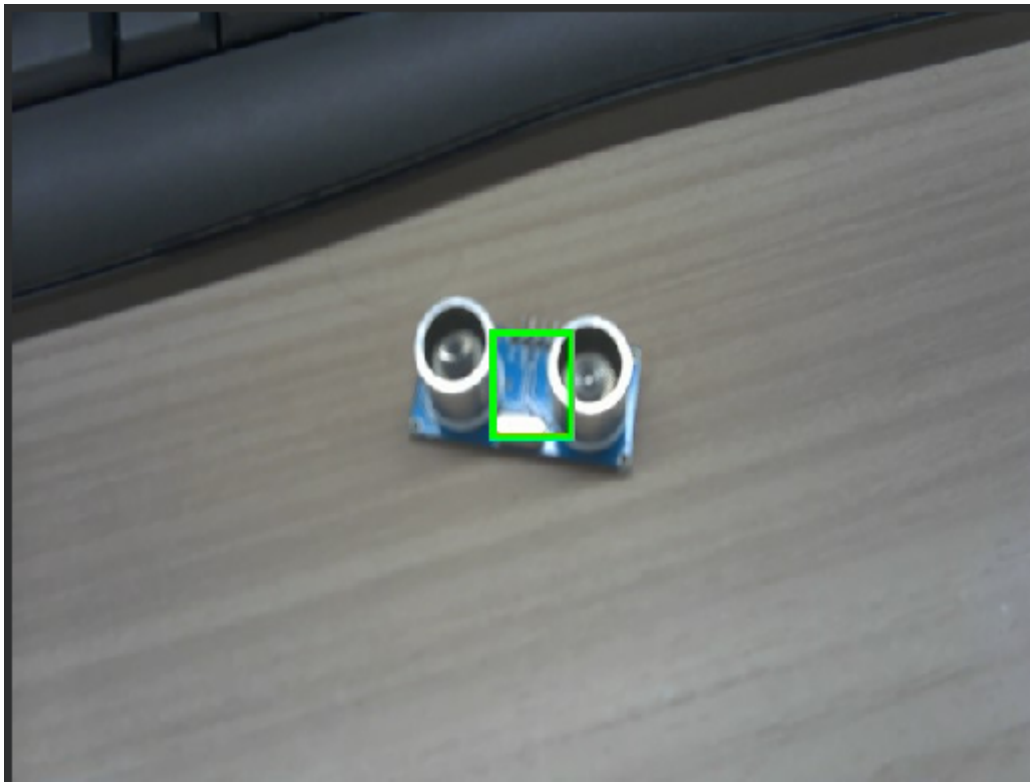
Note: Please do not move the object to be tracked quickly, otherwise it will not be tracked correctly

2. Find the hex program of this tutorial, right-click the hex program, and upload the hex program of this tutorial to the microbit

Microbit-k230-color-detect-hex   7/16/2025 7:38 PM   HEX File   1,297 KB

Open
- Edit with Notepad--
- Open with Sublime Text
- /-Zip   >
- Share
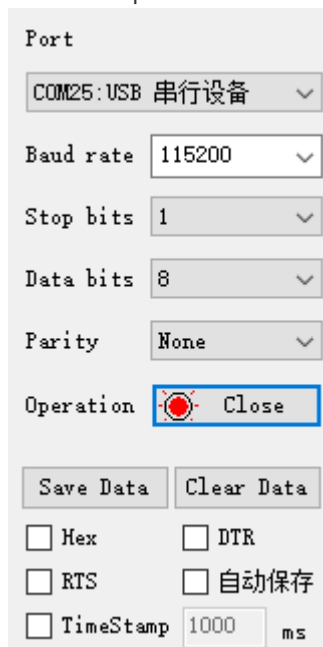- Open with   >
- WinMerge

Always available offline
Restore previous versions

Send to   >   Bluetooth device
                                                     Compressed (zipped) folder
Cut   Desktop (create shortcut)
Copy   Documents
                                                     Fax recipient
Create shortcut   Mail recipient
Delete   WinSCP
Rename   MICROBIT (E:)

Properties

3. The serial port assistant is set to the interface shown in the figure

Port

COM25:USB 串行设备   ∨

Baud rate   115200   ∨

Stop bits   1   ∨

Data bits   8   ∨

Parity   None   ∨

Operation   ◉ Close

Save Data   Clear Data

☐ Hex   ☐ DTR
☐ RTS   ☐ 自动保存
☐ TimeStamp 1000   ms

4. When the K230 camera recognizes the target object, the serial port assistant will print out the information transmitted from the K230 to the micro:bit.

- x: The horizontal coordinate of the top left corner of the recognized box
- y: The vertical coordinate of the top left corner of the recognized box
- w: The width of the recognized box
- h: The height of the recognized box

As shown in the figure below

```
tracker:x:303 y:214 w:52 h: 53
tracker:x:304 y:214 w:52 h: 53
tracker:x:305 y:214 w:52 h: 53

tracker:x:303 y:215 w:52 h: 53
tracker:x:305 y:214 w:52 h: 53

tracker:x:301 y:214 w:53 h: 52

tracker:x:304 y:216 w:53 h: 53
tracker:x:303 y:214 w:53 h: 52

tracker:x:304 y:214 w:53 h: 53
tracker:x:301 y:214 w:53 h: 53

tracker:x:304 y:214 w:53 h: 52

tracker:x:300 y:214 w:53 h: 52

tracker:x:304 y:215 w:53 h: 52
tracker:x:303 y:214 w:53 h: 53
```