microbit_k230 object detection

K230 and microbit communication

1. Experimental Prerequisites

This tutorial uses a micro:bit. The corresponding example program path is [14.export\microbit-K230\14.Microbit_k230_object_detect].

To begin the experiment, you must run the [14.export\CanmvIDE-K230\14.object_detect_yolov8n.py] program on the K230. We recommend downloading it as an offline program.

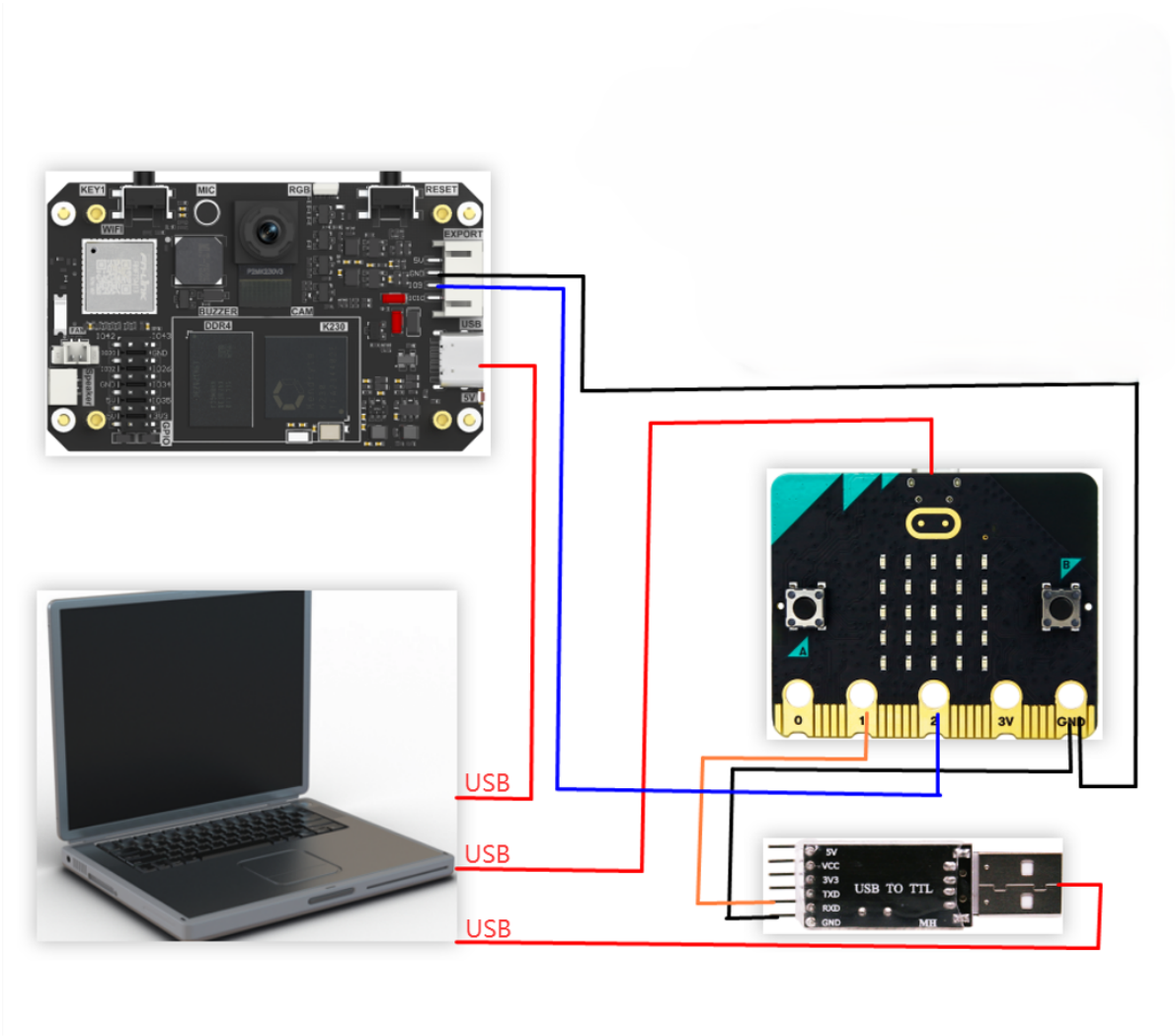
Items needed:

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

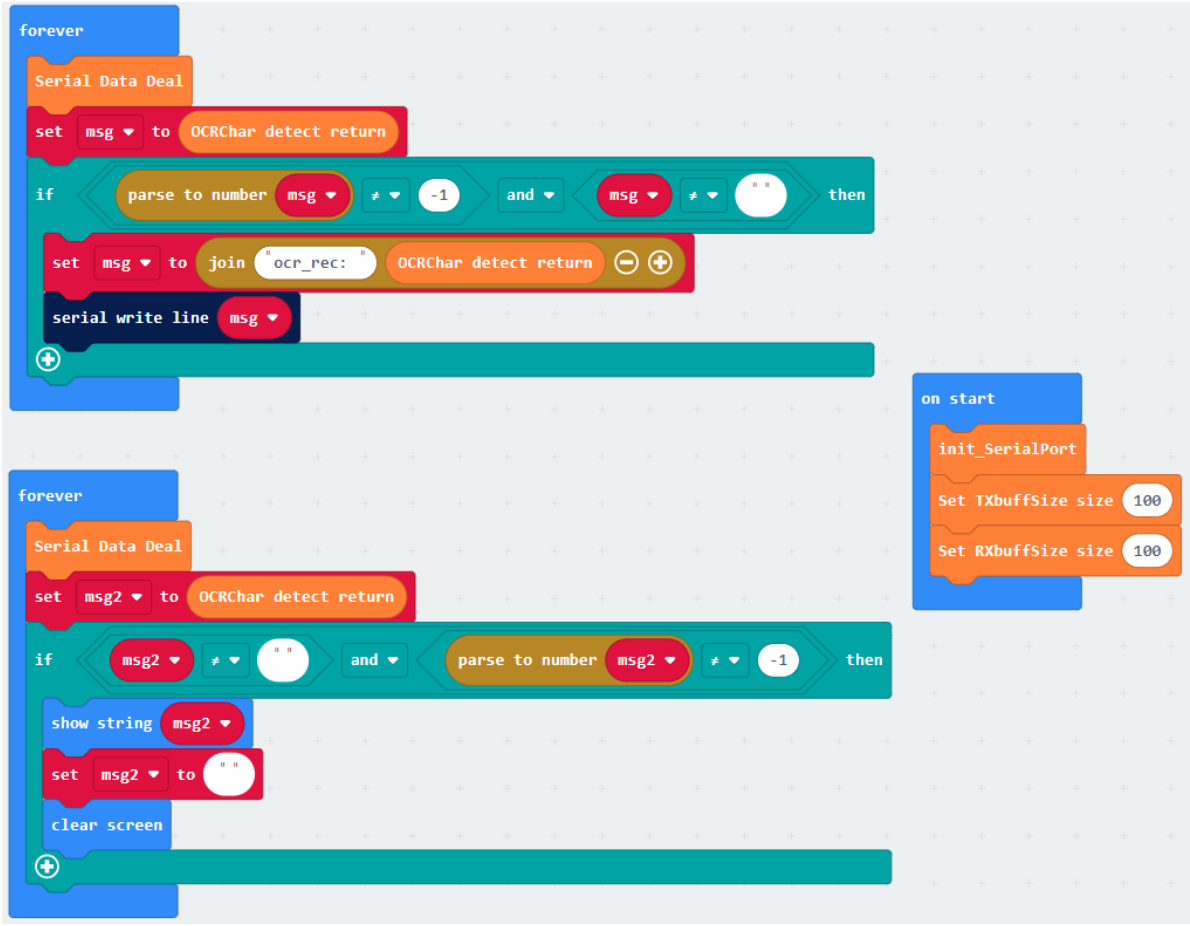
2. Experimental wiring

k230 vision module	Microbit
GND	GND
TXD(IO9)	P2

USB to TTL module	Microbit
RXD	P1
GND	GND



3. Main code explanation

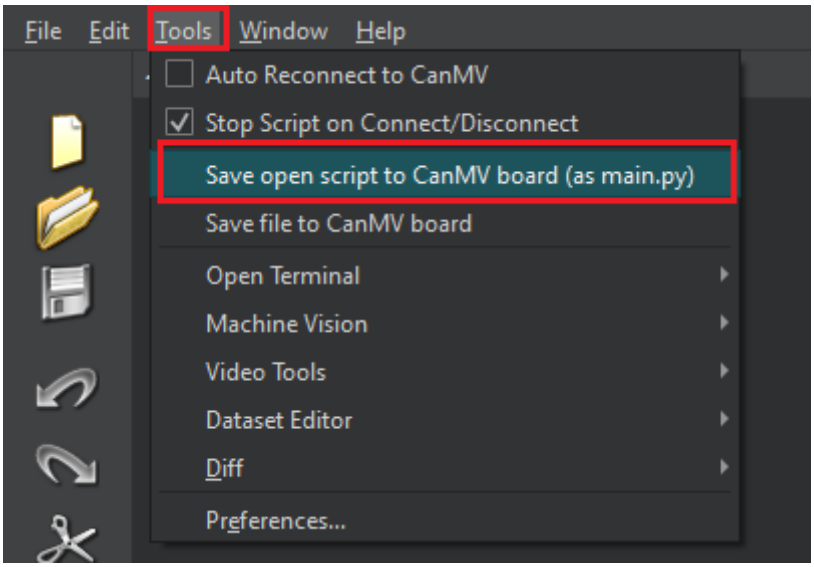


As can be seen from the code, simply configure the serial port and call the relevant serial port and K230 building blocks to obtain data.

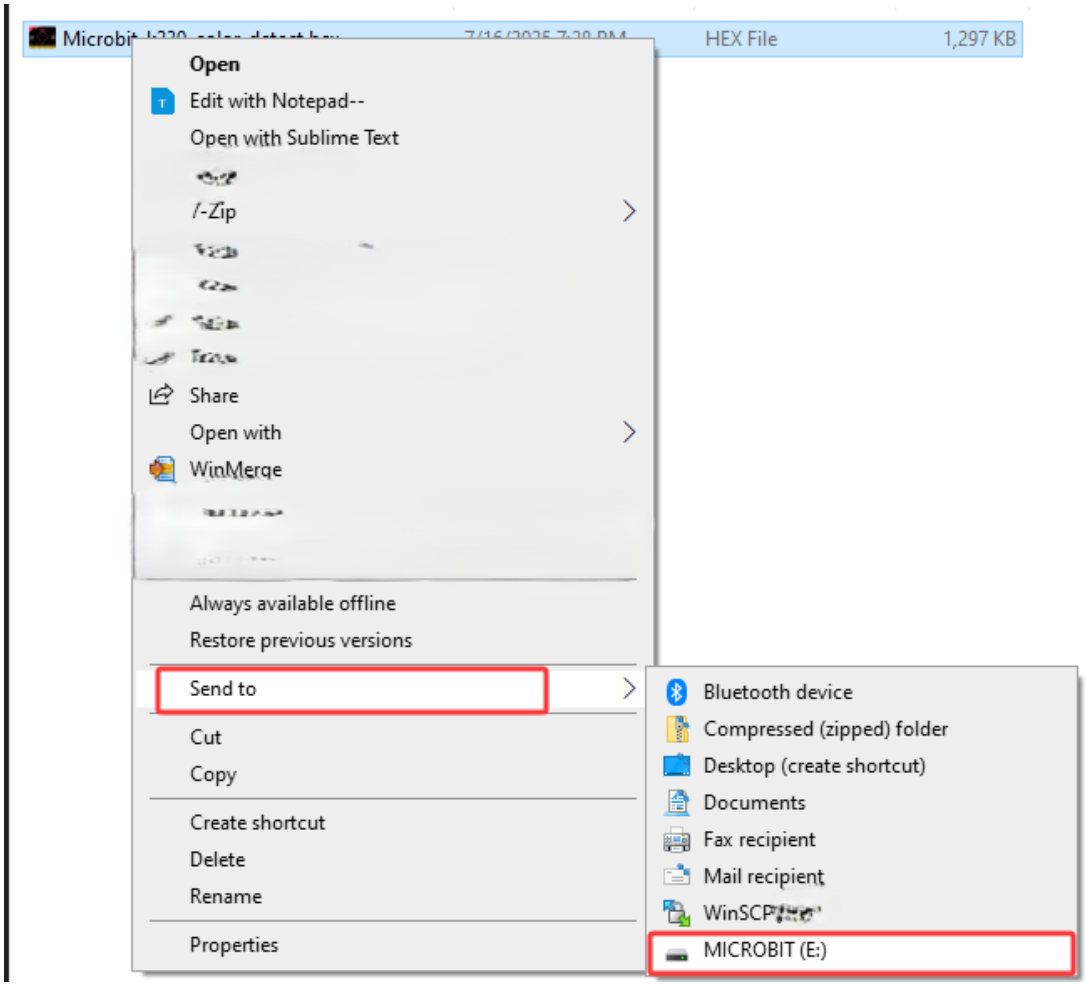
- x: The horizontal coordinate of the top left corner of the recognized box
- y: The vertical coordinate of the top left corner of the recognized box
- w: The width of the recognized box
- h: The height of the recognized box
- msg: The object type

4. Experimental phenomenon

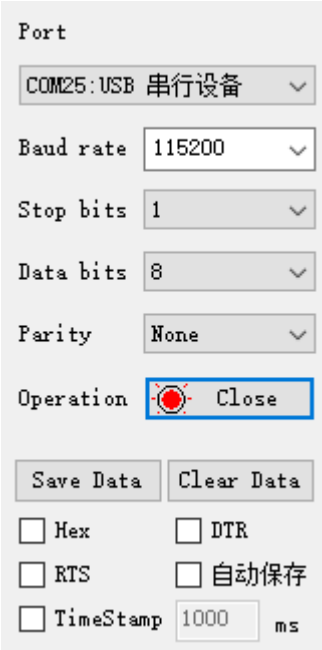
1. After connecting the cables, the K230 vision module runs offline.
   After connecting the K230 to the CanMV IDE, open the program, click [Save open script to CanMV board (as main.py)] on the toolbar, and then restart the K230.



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



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



4. When the K230 camera detects an 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
- msg: The object type

As shown in the figure below

```
object:x:69 y:0 w:297 h: 357 class:person

object:x:64 y:0 w:307 h: 357 class:person

object:x:69 y:0 w:297 h: 357 class:person

object:x:64 y:0 w:307 h: 357 class:person

object:x:64 y:0 w:307 h: 357 class:person

object:x:64 y:0 w:307 h: 357 class:person

object:x:64 y:0 w:307 h: 357 class:person

object:x:64 y:0 w:307 h: 357 class:person

object:x:64 y:3 w:307 h: 349 class:person

object:x:64 y:0 w:307 h: 357 class:person

object:x:64 y:0 w:307 h: 357 class:person
```