

## 4. ard\_K210 mechanical code identification

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#### 1.K210 and Arduino communication

##### 1.1 Experimental premises

##### 1.2 Experimental wiring

##### 1.3 Main code explanation

##### 1.4 experimental phenomena

## 1.K210 and Arduino communication

### 1.1 Experimental premises

This tutorial uses arduino, and K210 requires running the program in **K210-AI (stm32\_pico\_arduino)** to start the experiment

arduino \*1

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

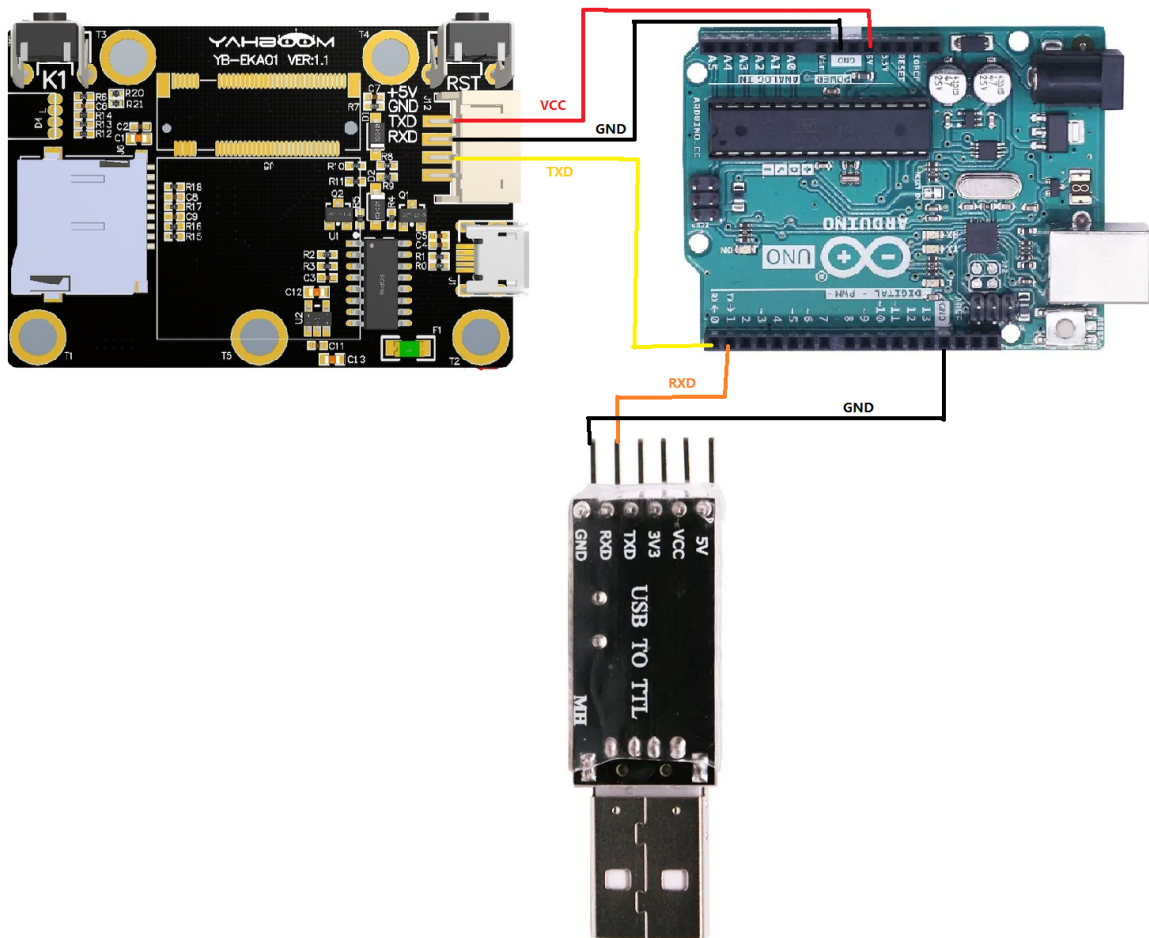
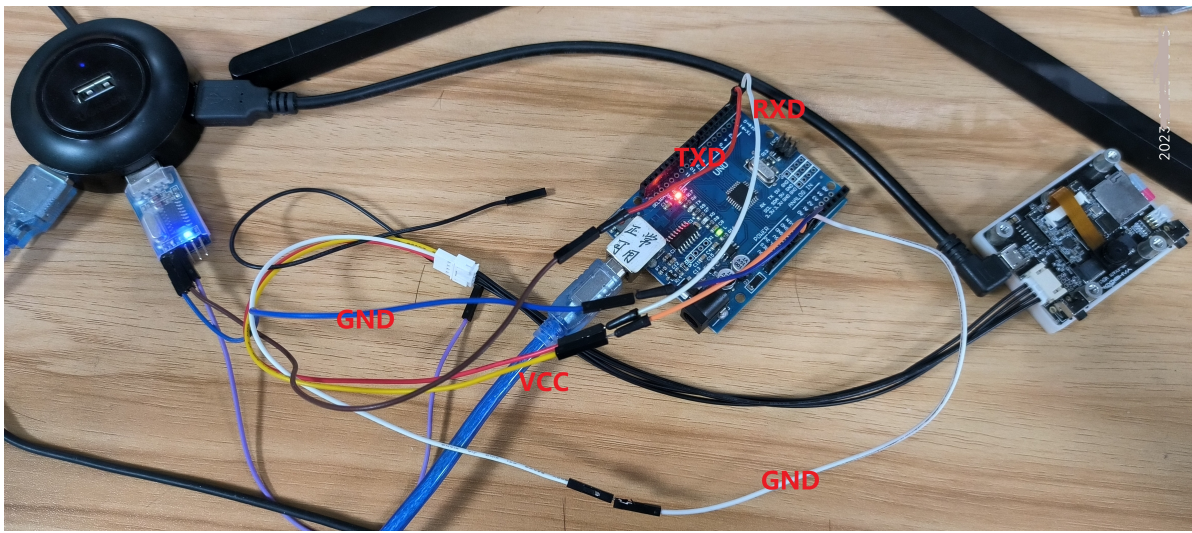
USB to TTL module \* 1

### 1.2 Experimental wiring

arduino	usb to ttl
TXD	RXD
GND	GND

arduino	K210 perspective module
RXD	TXD
GND	GND
VCC	5V

Wiring as shown in the diagram:



### 1.3 Main code explanation

```
void loop()
{
  while (K210Serial1.available())
  {
    recv_k210msg(K210Serial1.read());

    if (k210_msg.class_n != 0)
    {
      if(k210_msg.class_n == 4)
      {

```

```

    sprintf(buff_com, "x=%d,y=%d,w=%d,h=%d\r\n", k210_msg.x, k210_msg.y, k210_msg.w, k210_msg.h);
    k210Serial.print(buff_com);

    sprintf(buff_com, "id = %c%c, str = %s\r\n",
(k210_msg.id>>8), k210_msg.id, k210_msg.msg_msg);
    k210Serial.print(buff_com);

    k210_msg.class_n = 0;
}

}

}
}

```

After the above program, if you are running this routine, k210\_ The members of the msg structure have corresponding values and are processed through serial port printing

K210\_Msg: is a structure that receives information, and its main members are

- X: is the horizontal coordinate of the top left corner of the recognized box (range: 0-240)
- Y: is the vertical coordinate of the upper left corner of the identified box (range: 0-320)
- W: is the width of the recognized box (range: 0-240)
- H: The length of the recognized box (range: 0-320)
- ID: is the recognized label
- Class\_n: Routine number
- Msg\_Msg [20]: Valid data

After receiving and processing data, k210\_ Each member of the msg will store valid information. If you want to develop it again, call K210 directly\_ Members of msg are sufficient

## 1.4 experimental phenomena

1. After connecting the cable, the K210 perspective module runs offline

[K210 offline operation method](#)

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

COM Configs

Channel: COM1 串口1

Baudrate: 115200

Paritybits: NONE

Databits: 8

Stopbits: 1

Flowctrl: NONE

Close

Recv Options

☒ ASCII ☐ HEX

☒ Log display mode

☒ Auto linefeed

☐ Hide received data

☐ Recv save to file...

[AutoScroll](#) [Clear](#)

Send Options

☒ ASCII ☐ HEX

☒ Enable escape chars

☒ AT CMD auto CRLF

☐ Auto append bytes

☐ Send from file ...

☐ Period: 1000 ms

[Shortcut](#) [History](#)

3. Then run the mechanical code recognition routine, and the serial assistant will print out the important information transmitted from k210 to stm32, as shown in the following figure

```
id = 01, str = TAG16H5
x=112, y=17, w=23, h=23
id = 01, str = TAG16H5
x=112, y=18, w=23, h=22
id = 01, str = TAG16H5
x=111, y=19, w=23, h=22
id = 01, str = TAG16H5
x=109, y=19, w=24, h=22
id = 01, str = TAG16H5
x=109, y=18, w=23, h=23
id = 01, str = TAG16H5
x=106, y=19, w=23, h=23
id = 01, str = TAG16H5
x=107, y=20, w=23, h=22
id = 01, str = TAG16H5
x=106, y=19, w=23, h=22
id = 01, str = TAG16H5
x=104, y=13, w=23, h=22
id = 01, str = TAG16H5
x=101, y=4, w=24, h=23
id = 01, str = TAG16H5
x=102, y=7, w=24, h=23
id = 01, str = TAG16H5
x=103, y=9, w=23, h=23
id = 01, str = TAG16H5
```

Mechanical code recognition only transmits the six Member variable of k210\_msg, namely, x, y, w, h, msg and id.

