

ard_K210 Handwritten Digit Recognition

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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

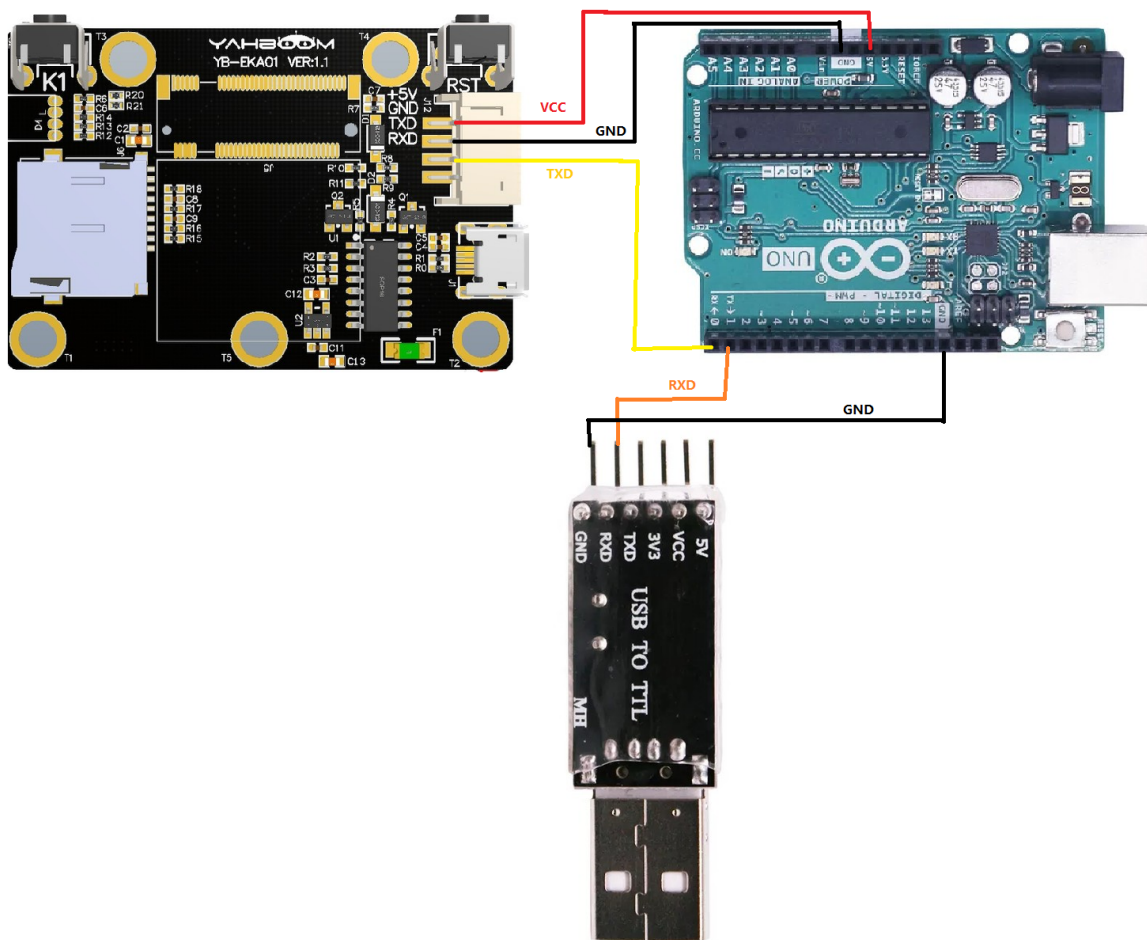
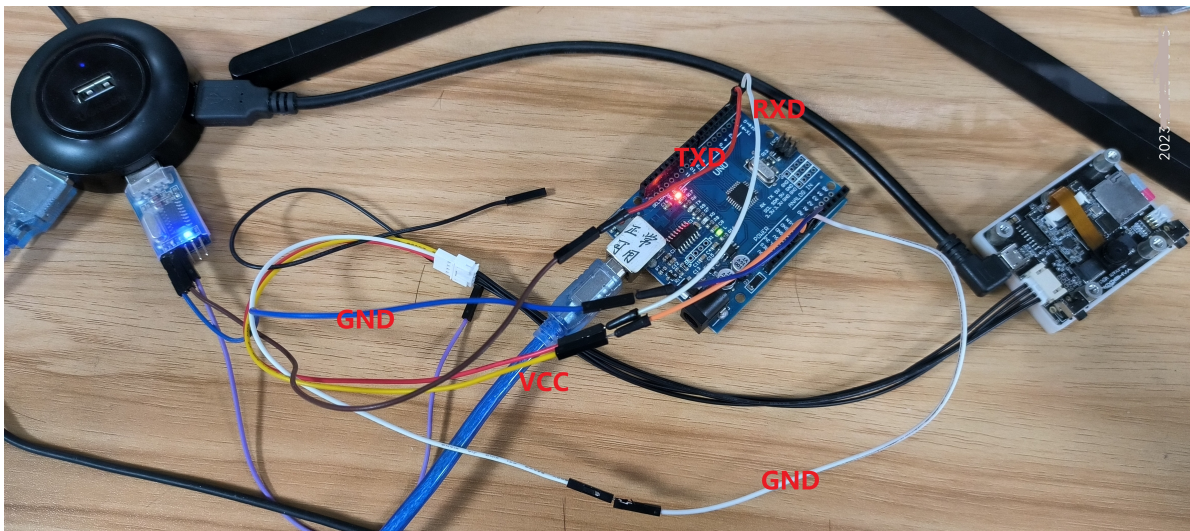
K210 perspective module * 1 (requires SD card (with AI model inside) and camera)

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 == 11)
      {
```

```

        sprintf(buff_com,"id = %c\r\n",k210_msg.id);
        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 1.4 experimental phenomena

1. After connecting the cable, the K210 perspective module runs offline. Please check 【6.2 K210 as coprocessor】 -- 【ReadMe】

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

COM Configs

Channel: COM1 #01

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 handwritten digit recognition routine, and the serial assistant will print out the important information transmitted from k210 to stm32, as shown in the following figure

```
id = 0
id = 8
id = 8
id = 8
id = 8
id = 8
id = 8
id = 8
id = 8
id = 8
id = 8
id = 8
id = 8
id = 8
id = 8
id = 0
id = 0
id = 6
id = 6
id = 5
id = 1
id = 9
id = 9
id = 1
id = 5
id = 6
id = 0
id = 6
id = 5
```

Handwritten digit recognition only transmits k210_ The id of the msg is a Member variable.
ID: Refers to the identified numerical ID (0-9)

