

ard_K210 facial 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)

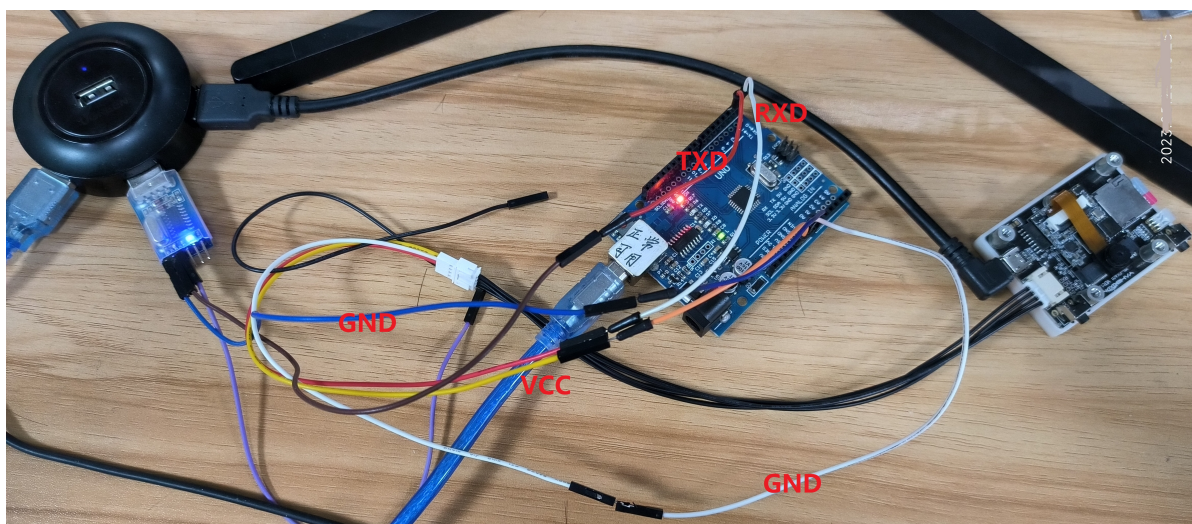
USB to TTL module * 1

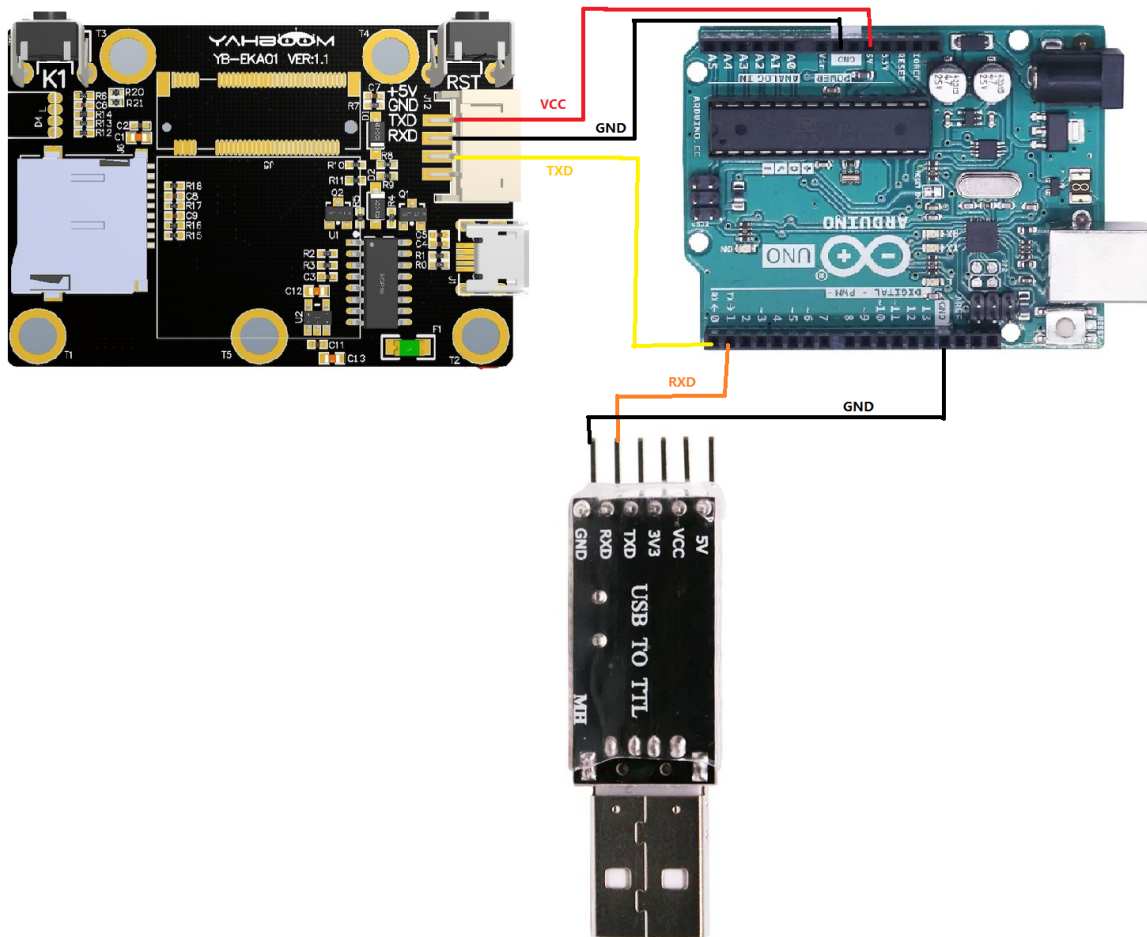
1.2 Experimental wiring

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 (K210Serial.available())
    {
        recv_k210msg(K210Serial.read());

        if (k210_msg.class_n != 0)
        {
            if(k210_msg.class_n == 8)
            {

                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);

                if(k210_msg.id == 'Y' || k210_msg.id == 'y')
                {
                    sprintf(buff_com, "Yes\r\n");
                    K210Serial.print(buff_com);
                }
                else
                {
                    sprintf(buff_com, "NO\r\n");
                    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

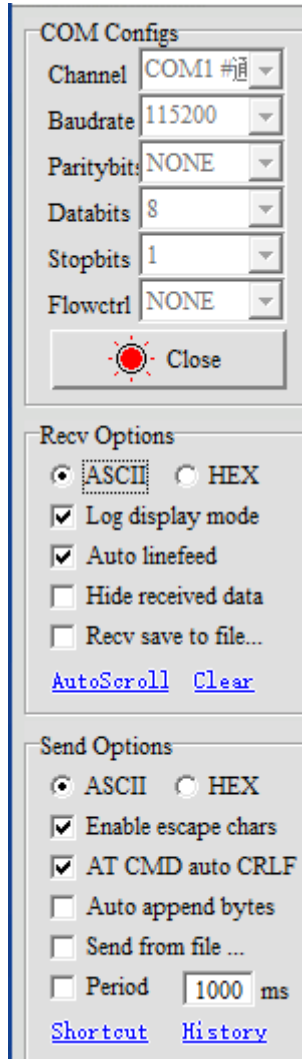
After receiving and processing data, k210_ Each member of the msg will store valid information. If you want to develop it again, call K210 directly_ Members of msg are sufficient

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



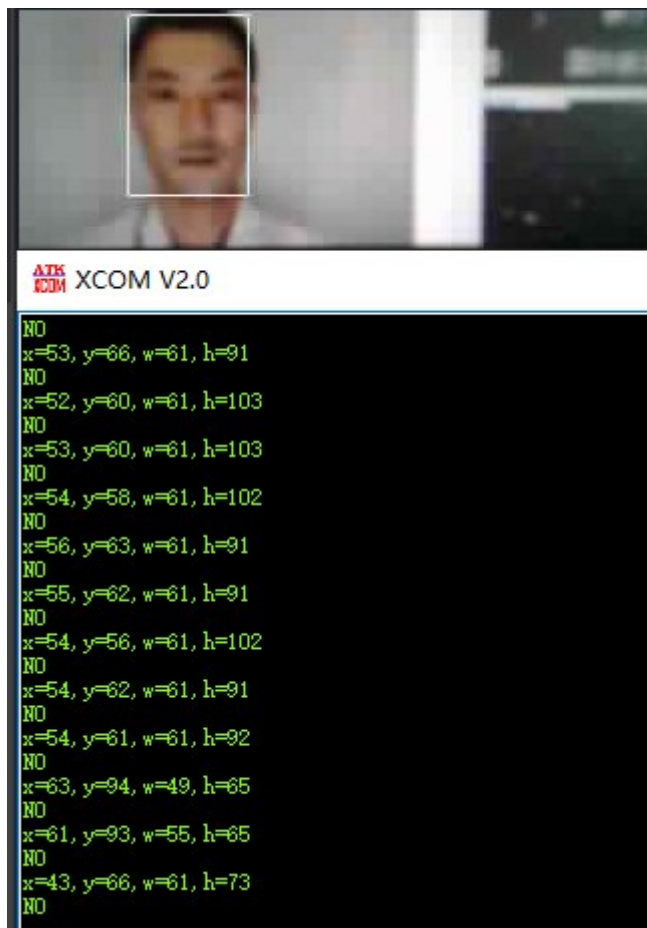
The screenshot displays the Serial Assistant interface, which is divided into three main sections: COM Configs, Recv Options, and Send Options.

COM Configs: This section contains several dropdown menus for configuring the serial port. The Channel is set to COM1, Baudrate is 115200, Paritybits is NONE, Databits is 8, Stopbits is 1, and Flowctrl is NONE. A red circular icon with a crosshair is visible next to the Close button.

Recv Options: This section contains several checkboxes and radio buttons. The ASCII radio button is selected, and the HEX radio button is unselected. The checkboxes for Log display mode, Auto linefeed, Hide received data, and Recv save to file... are all checked. The AutoScroll and Clear buttons are located at the bottom of this section.

Send Options: This section contains several checkboxes and radio buttons. The ASCII radio button is selected, and the HEX radio button is unselected. The checkboxes for Enable escape chars, AT CMD auto CRLF, Auto append bytes, Send from file ..., and Period are all checked. The Period is set to 1000 ms. The Shortcut and History buttons are located at the bottom of this section.

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



Face recognition only transmits the five Member variable of k210msg, namely, x, y, w, h, and id.
ID: The information is Y/N, with Y: recorded faces and N: mismatched faces