Project 23 - Bluetooth Controlled LED

1. project description

Through this project, you can learn how to use ZY -type-c Nano to control the LED module to turn on and off by receiving instructions from a Bluetooth device. The function of this program is to light up the LED module when it receives the specific button information sent by the Bluetooth device , and turn off the light when it receives the information again .

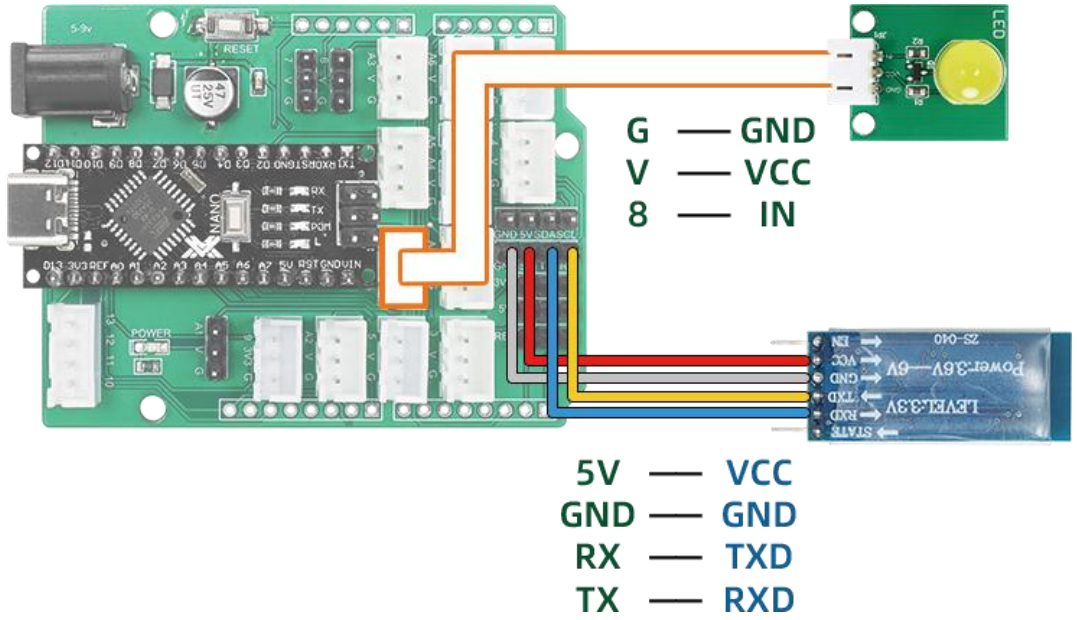
2. Introduction to modules

2.1 BT05 Bluetooth

Bluetooth is a wireless technology standard used in various fields such as industry, science and medicine to exchange data at short distances between different devices using short-wave ultra - high frequency radio waves in the radio frequency band (2.400 to 2.485 GHz) . This set is equipped with a BT05 Bluetooth, and a Bluetooth APP for remote control is prepared in the data package: TSCINBUNY.apk. BT05 Bluetooth has 4 pins, which must be connected correctly to function, otherwise the Bluetooth will be damaged. Note that one side of the Bluetooth has been marked, and the pin placement is as follows:

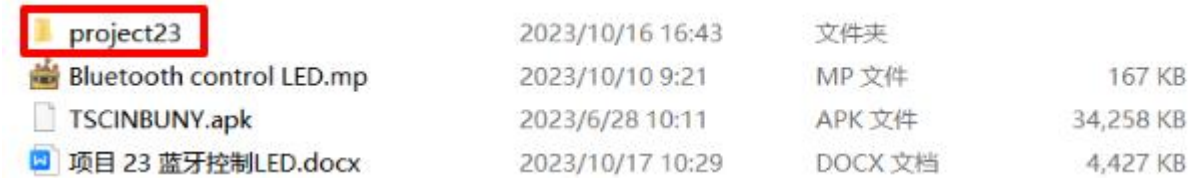
The bluetooth module	Expansion board
RXD	Tx
TxD	RX
GND	GND
VCC	5V

3. Project wiring diagram



4. Download Arduino code

Open the project Arduino code file (path: Project 23 Bluetooth Control LED\project23\project23.ino)



Connect the main control board to the computer using USB, select the board type as Nano, select the newly displayed COM number, click "Download" to start compiling and downloading the program to the main control board. (At the same time, you should unplug the Bluetooth before downloading, and then plug the Bluetooth back in after the download is successful.)

Code analysis:

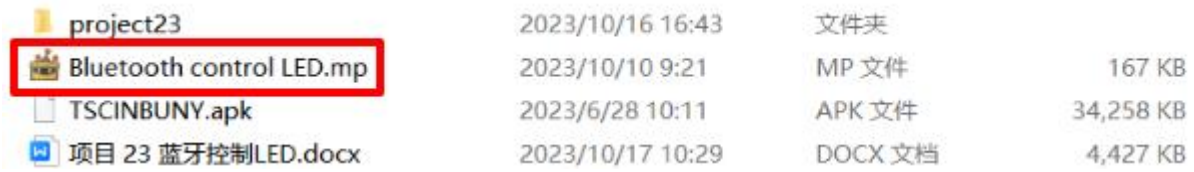
```
#define LED_Pin 8             //定义LED引脚8    Define the LED pin 8
bool LED_Status = LOW;        //定义LED初始状态低电平   Define the LED initial state low level
char ser_val;                 //定义接收蓝牙信息的字符变量    Defines a character variable that

void setup() {
  Serial.begin(9600);
  pinMode(LED_Pin, OUTPUT);   //设置LED引脚为输出   Set the LED pin as the output
  digitalWrite(LED_Pin, LOW); //设置LED初始状为灭灯   Set the LED to be off initially
}
```

```
11  void loop() {
12    if(Serial.available() > 0)  //判断串口是否接收到蓝牙信息    Determine whether the serial p
13    {
14      ser_val = Serial.read();  //将接收到的蓝牙信息保存到变量ser_val   Save the received Blue
15      if(ser_val == 'K')        //如果接收到的信息是字符“K”，证明按下正确的按钮   If the receiv
16      {
17        LED_Status = digitalRead(LED_Pin);  //获取LED的状态  Gets the LED status
18        // Serial.print("LED_Status=");
19        // Serial.println(LED_Status);
20        if(!LED_Status){                    //如果LED在灭灯状态就打开，如果是在打开状态就灭灯
21          digitalWrite(LED_Pin, HIGH);
22        }else{
23          digitalWrite(LED_Pin, LOW);
24        }
25      }
26    }
27  }
```

5. Download Mind+ graphical code

Open the project Mind+code file (path: Project 23 Bluetooth control LED\Bluetooth control LED.mp)



Connect the main control board to the computer with a USB cable and select the newly appeared CH340 serial port COM number. Click "Upload to Device" to complete the code upload.(At the same time, you should unplug the Bluetooth before downloading, and then plug the Bluetooth back in after the download is successful.)

Code block analysis:

Since there is no direct "reverse" code block in graphical programming, "variable setting" is used to change the LED light status flag. When LED_Status=1, turn on the light and set this variable to 0. In the same way, the status flag will be changed the next time Bluetooth information is received.

Complete code:

6. Install APP:TSCINBUNY.apk

2.1 Android devices

Open the directory folder "Project 23 Bluetooth Control LED", send "TSCINBUNY.apk" to the phone and install it. When you see this tutorial, there may be a newer version of the software. When prompted to upgrade, please allow the upgrade and keep the phone connected to the network. .

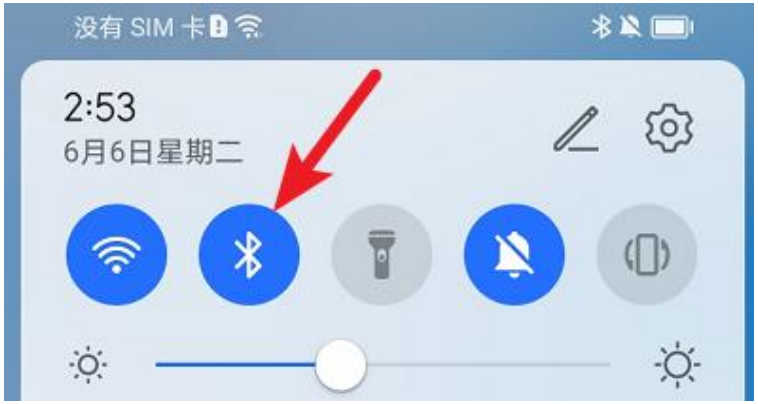
2.2 iOS devices

Open the App Store, search and install TSCINBUNY

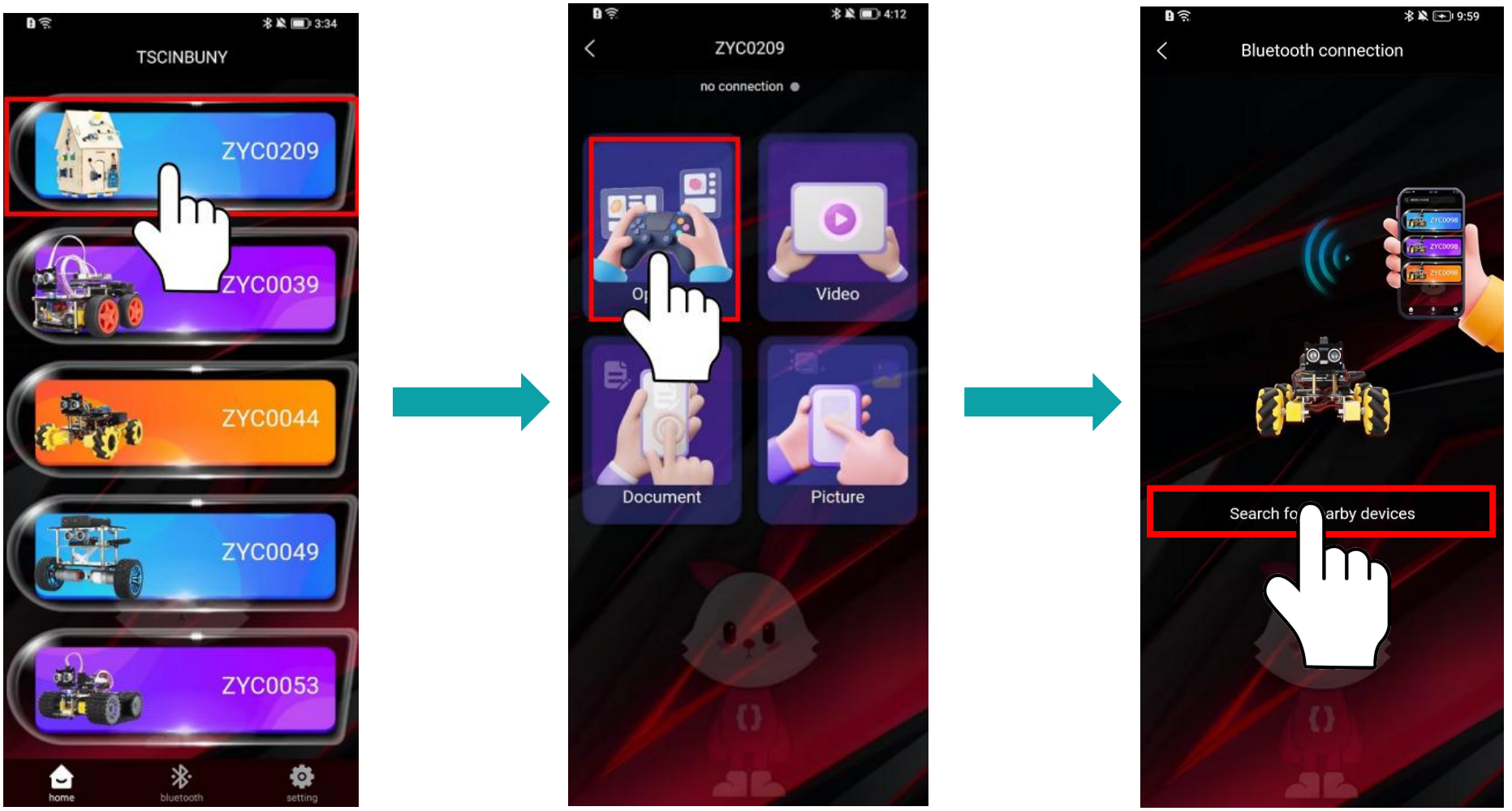
2.3 TSCINBUNY remote control APP connection device

Next , we take an Android phone as an example to demonstrate how to implement project functions through this application :

①Turn on the Bluetooth switch and GPS switch of the mobile phone



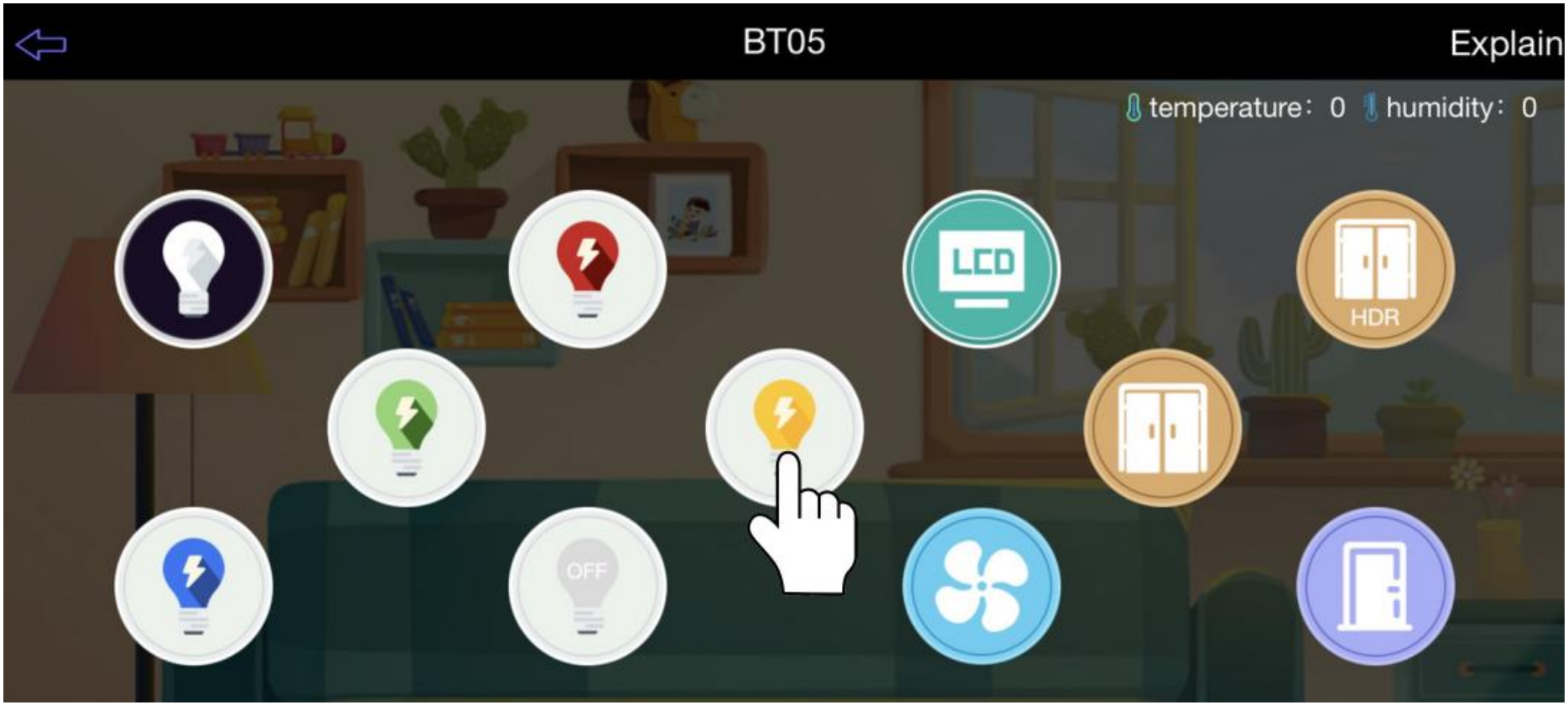
Then open the newly installed TSCIBUNY remote control APP, select the purchased product SKU > Enter the main interface > Search for the device with the Bluetooth name BT05



Select the Bluetooth device named "BT05" and connect

This project is 23, so choose the third column option. When you are project 24, please choose the first column. Similarly, if

it is item 28, please select the second column.



Project Effect: After clicking the LED light control button, the LED light turns on, and when clicked again, it turns off.

Click " Explain " in the upper right corner to view more instructions.