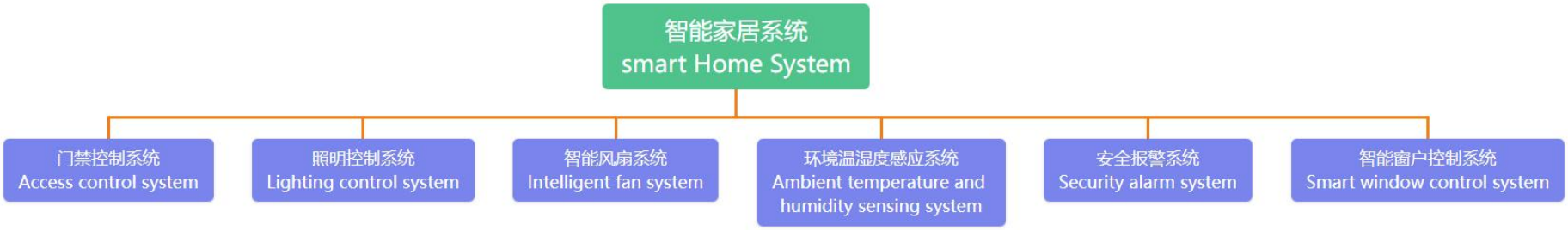
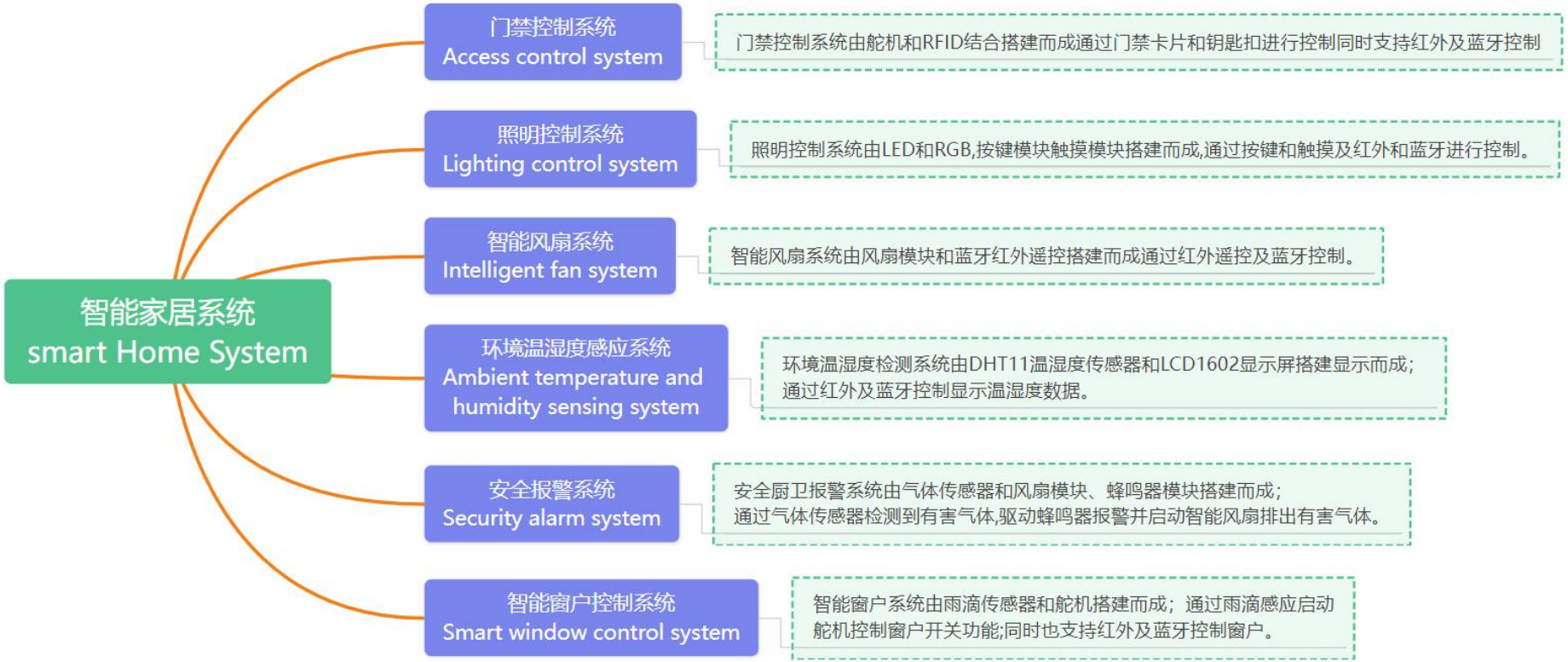
Project 32-Integrated smart home control system

1. project description

After studying the previous projects, I have mastered the use of each device and the two different control methods of infrared and Bluetooth. This project creates a comprehensive smart home control system by combining infrared receivers, Bluetooth modules and corresponding devices. Program function realization: control various smart home systems through Bluetooth APP connection, and also supports infrared remote control control.

2. Features





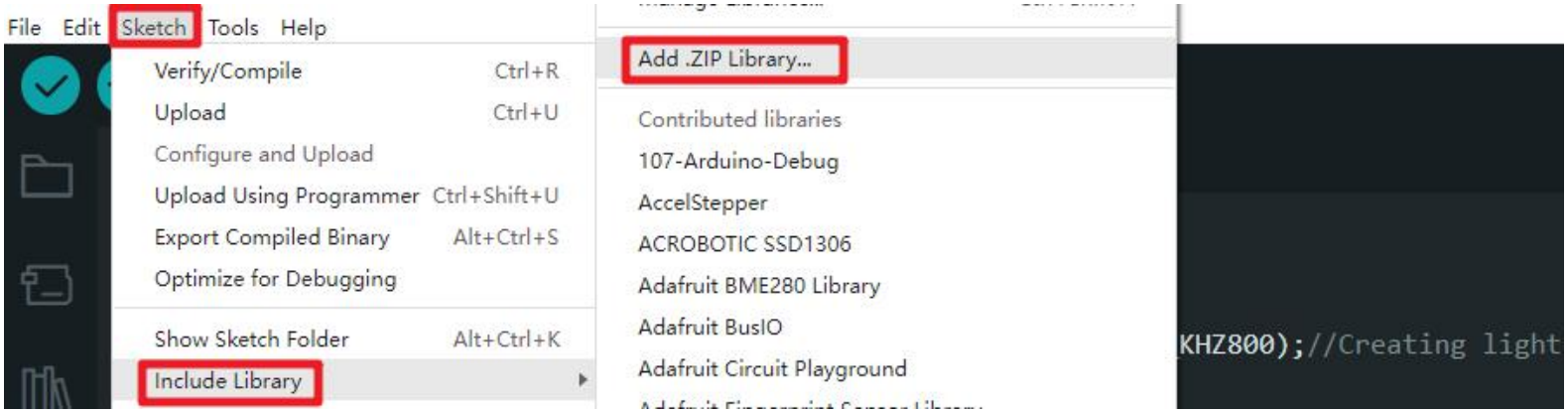
3. Project wiring diagram

This project is a comprehensive control project, and the wiring diagram is consistent with the attached paper assembly manual.

4. Download Arduino code

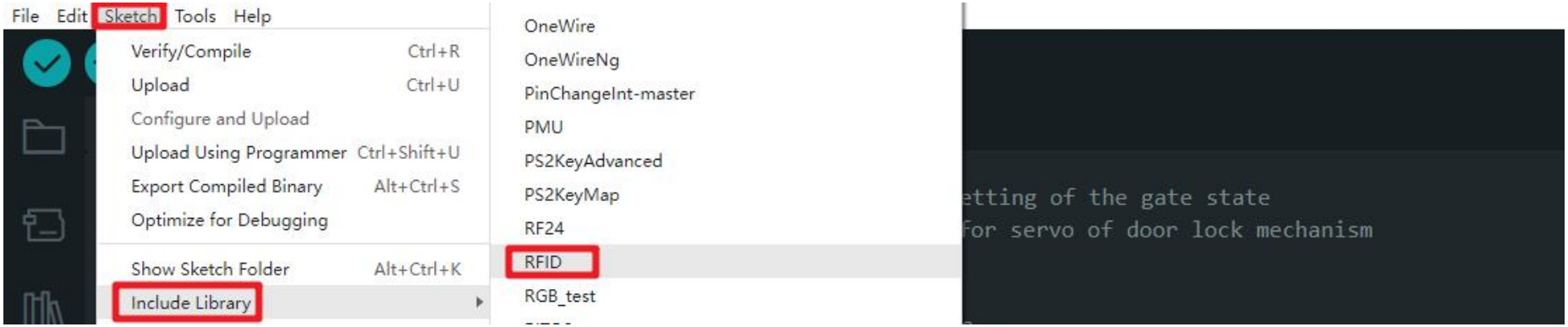
Make sure that all library files have been added, otherwise the program will fail to compile. If the corresponding library has been added in the previous project, there is no need to add it here.
When an error occurs and a library file is missing, please follow the steps below to add the corresponding library.

In the Arduino IDE, navigate to Sketch > Include Library > Add .ZIP Library and at the top of the drop-down list, select the "Add .ZIP Library" option.



The system will prompt you to select the library you want to add . Navigate to the path where the library file is saved on your computer as shown below (here, we take the installation of the *RFID* .zip library as an example, the same applies to other library installations), select and open it to add.

After the addition is completed, you can see the library in the library list.



Add all libraries in the same way, and then download the project program. (Sometimes because there are many sensors, using only USB power supply will cause insufficient power supply to the control board and cause burning failure. In this case, please keep the battery box powered before downloading. At the same time, you should unplug Bluetooth to download successfully. After downloading is complete, turn on Bluetooth again. Plug it back in)

Then open the project Arduino code file (path: Project 32 Integrated Smart Home Control System\project32\project32.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.

(The serial number corresponding to the access card obtained by each person in the code will be different. Please refer to "Project 21" to modify the serial number)

```
11  unsigned char str[MAX_LEN];     //MAX_LEN is 16: size of the array
12
13  String accessGranted [2] = {"210101368113", "96111131033"};  //Rfid serial number authorized access
14  int accessGrantedSize = 2;                                    //Number of serial numbers
15  Servo lockServo;                //Locking mechanism servo
16  int lockPos = 10;                //Lock position limitation
17  int unlockPos =90;              //Limit of unlock position
18  boolean locked = true;
```

Infrared remote control operation:

①打开LCD屏/Open the LCD screen

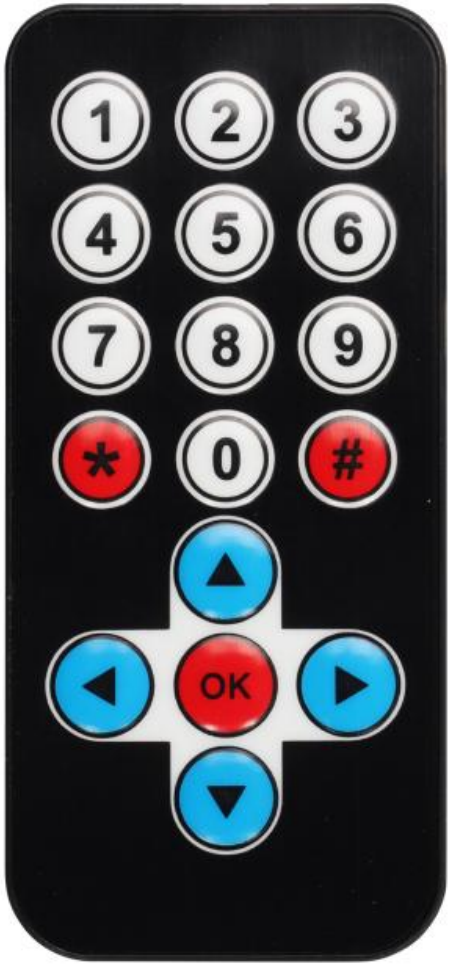
②关闭LCD屏/Turn off the LCD screen

⑦打开门锁/Open the door

⑧锁门/Turn off the door

0 : 自动窗户开关
Automatic window switch

OK : 关闭RGB灯
Turn off RGB lights



③打开风扇/Open the window

④关闭风扇/Close the window

⑤打开窗户/Open the window

⑥关闭窗户/Close the window

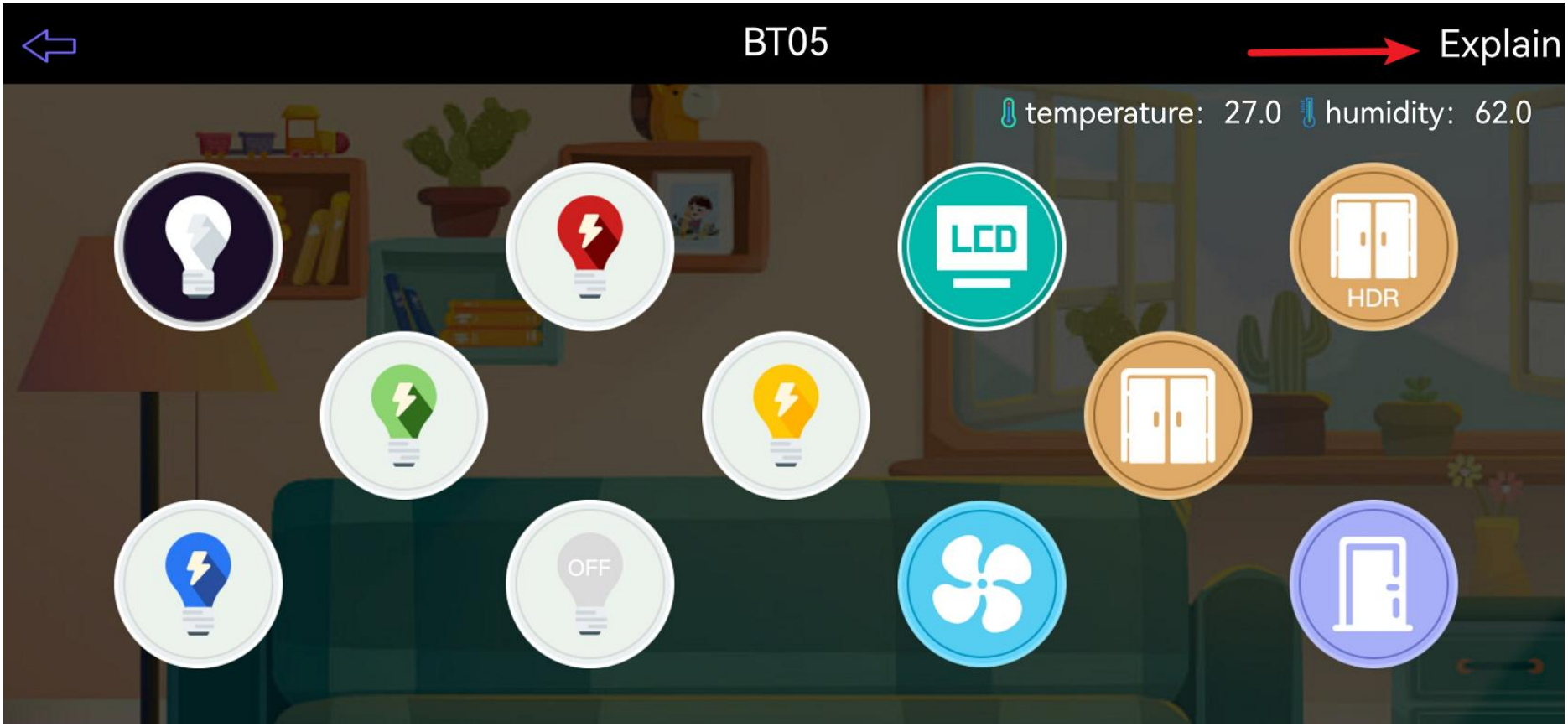
白色灯/White light

红色灯/Red light

绿色灯/Green light

蓝色灯/Blue light

Bluetooth remote control operation: (Click "Explain" in the upper right corner to see more introduction to the relevant buttons)



5. Download Mind+ graphical code

Open the project Mind+ code file (path: Project 32 Integrated smart home control system\Integrated smart home system.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.

(Again, you should unplug Bluetooth for successful downloads.)

Programming analysis:

Similarly, the attached code of this project has integrated the required library files and can be used directly after burning. If you want to create a new file by yourself, program it from scratch and then burn it, you need to re-add the necessary library files. For example, this comprehensive project still uses the access control card reader RFID.zip library (please refer to Project 21 for how to add this library). At the same time, click "Expand" and select various major libraries to add the required libraries.

When the library is successfully added, you can see all building block module categories displayed on the left:

The code contains a total of 9 functions, which perform different functions according to the Bluetooth remote control signal.