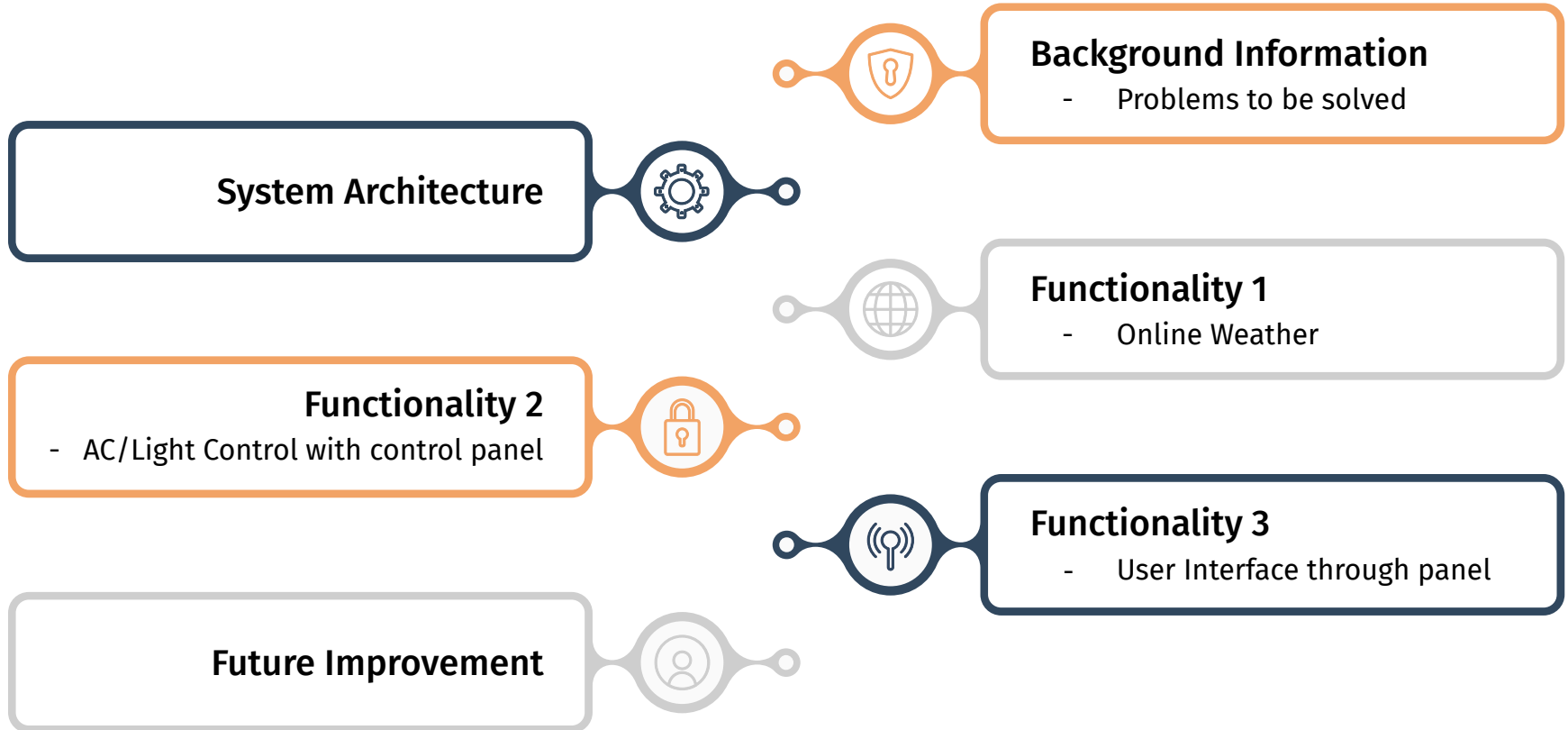# Smart Dorm

He Yichen
Zeng Zhuo
Yin Jianing

Table of Content

Background Information - Problems

UG HALL

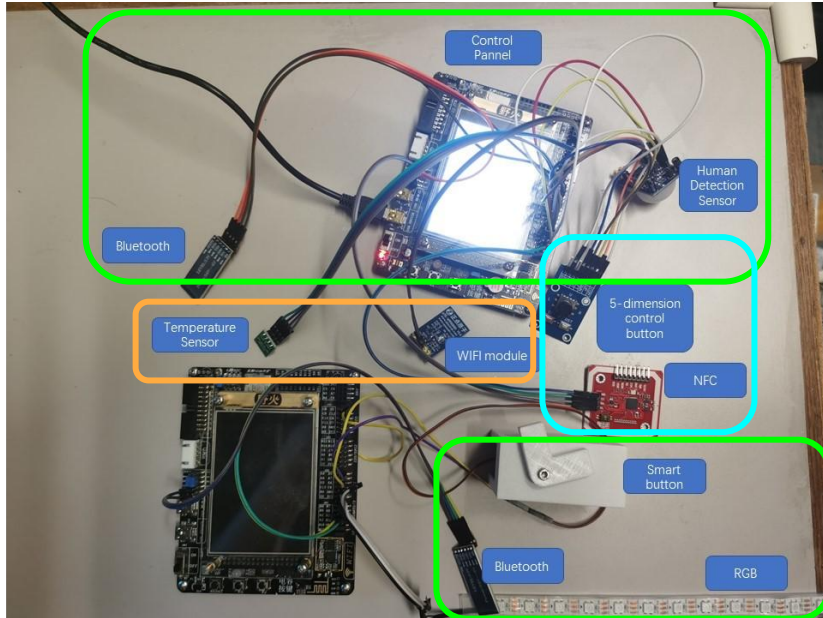Buttons are widely separated across the rooms.

The button for the reading light is far away from the table.

We need to take a long walk to turn on and off the AC.

The air conditioner is controlled by time instead of the temperature.

It cannot track whether there is anyone in the room.

System Architecture

1 — **Online Weather**
- WIFI module
- Temperature & humidity sensor
- Buzzer

2 — **AC/Light Control**
- Control panel
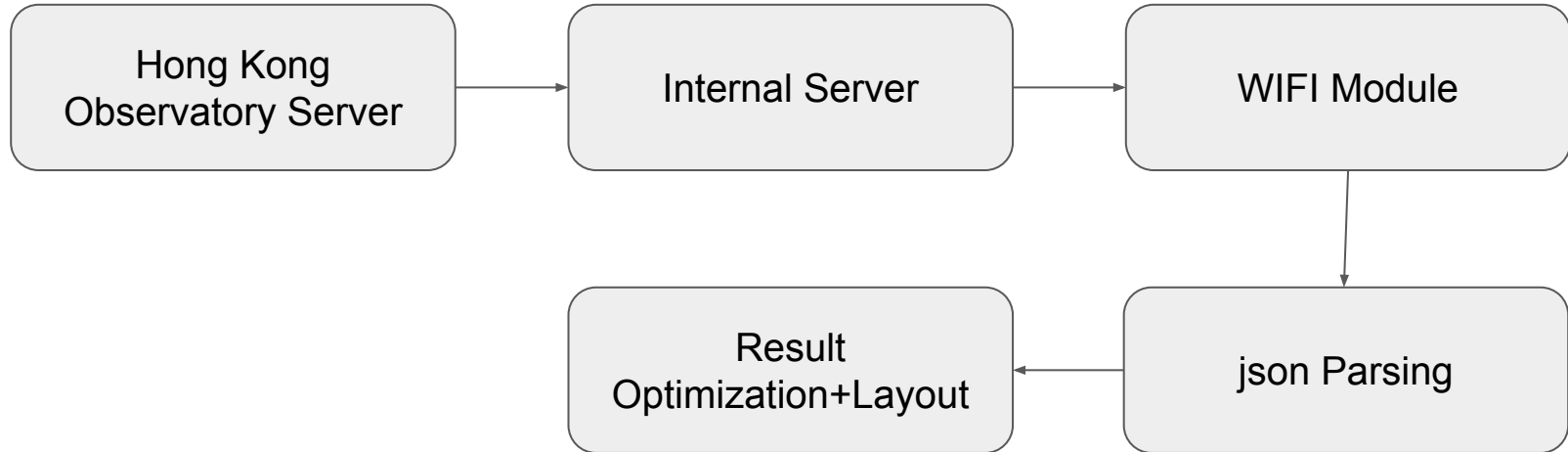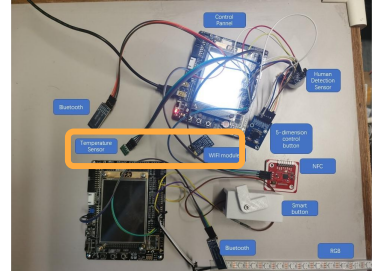- Bluetooth
- Human detection sensor
- Smart button
- RGB Strip

3 — **User Interface**
- 5-dimension control button
- LCD panel

Functionality 1 - Online Weather

Hardware used
- WIFI module

```
┌─────────────────────┐      ┌─────────────────────┐      ┌─────────────────────┐
│    Hong Kong        │ ───> │   Internal Server   │ ───> │    WIFI Module      │
│ Observatory Server  │      │                     │      │                     │
└─────────────────────┘      └─────────────────────┘      └─────────────────────┘
                                                                      │
                                                                      v
┌─────────────────────┐      ┌─────────────────────┐
│      Result         │ <─── │    json Parsing     │
│ Optimization+Layout │      │                     │
└─────────────────────┘      └─────────────────────┘
```
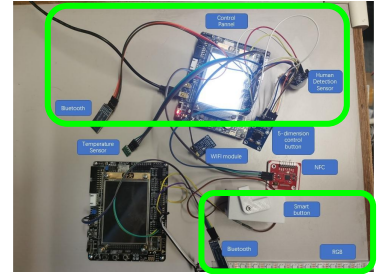
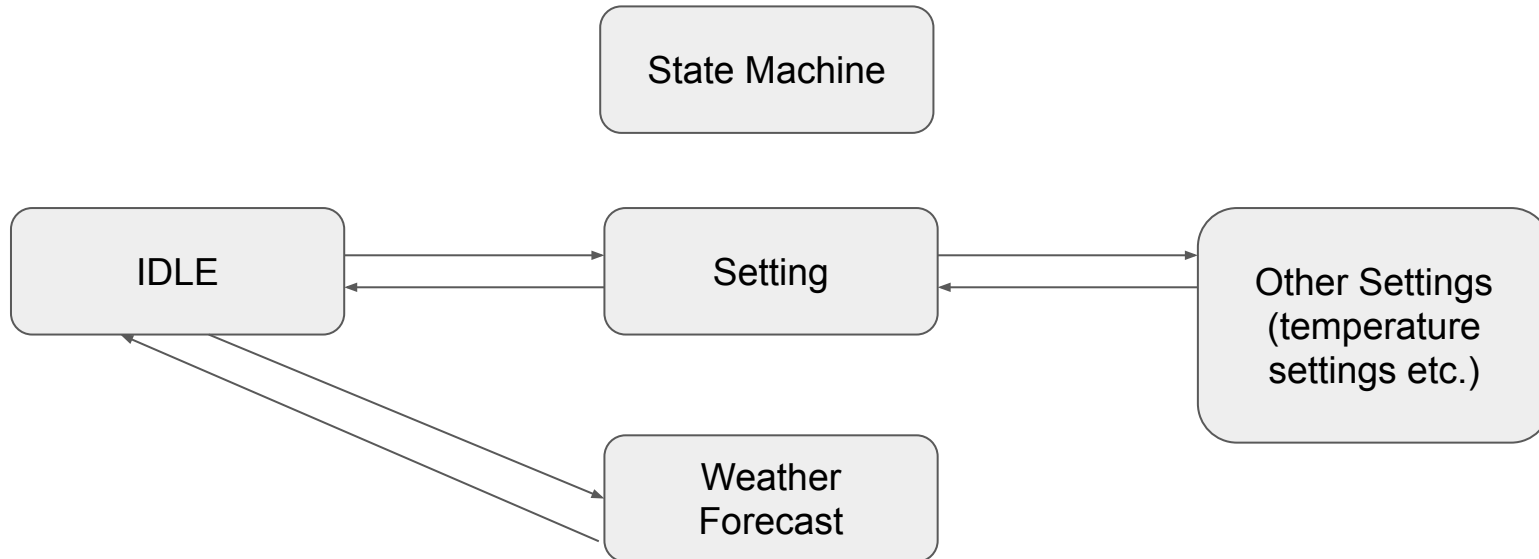# Functionality 2 - AC/Light Control
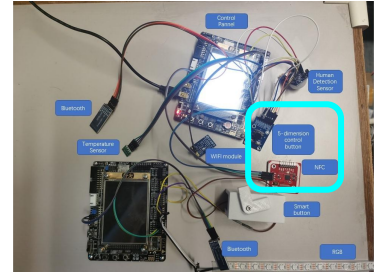

Hardware used
- Control panel (FSMC)
- Bluetooth (UART)
- Human detection sensor (GPIO)
- Smart button (bluetooth)

Functionality 3 - User Interface

Hardware used
- 5-dimension control button
- LCD panel

State Machine

IDLE → Setting → Other Settings (temperature settings etc.)

Setting → Weather Forecast → IDLE

Future Improvement

Curtain Switch Control

and close the curtain by pressing a switch button

NFC Module

update the schedule with NFC scanning

Hollow Magnetic Clock

show the remaining ac time, at the same time it looks very cool to decorate our desk

Thank you
for listening