

Self-Introduction and My Researchs

- Research student : Zhou Xihong
- Research Lab : 503

LOGO

Self-Introduction

Name: Zhou Xihong(Syuu Sai Kou)

Birthday: October 2nd

Hometown: Meitan, Zunyi, Guizhou, China

Education: Graduated from Beihua University in July 1, 2016

Major: Communication Engineering

Skilled: I am skilled at the application of C programming language in commonly-used microcontrollers.

Familiarizing with Wireless Communication technology include ZigBee, GPRS, WiFi ,Blooteeth and other commonly used communication technologies.

Next I will introduce my graduation project

My graduation project

1.Design background—" wireless smart home control system"

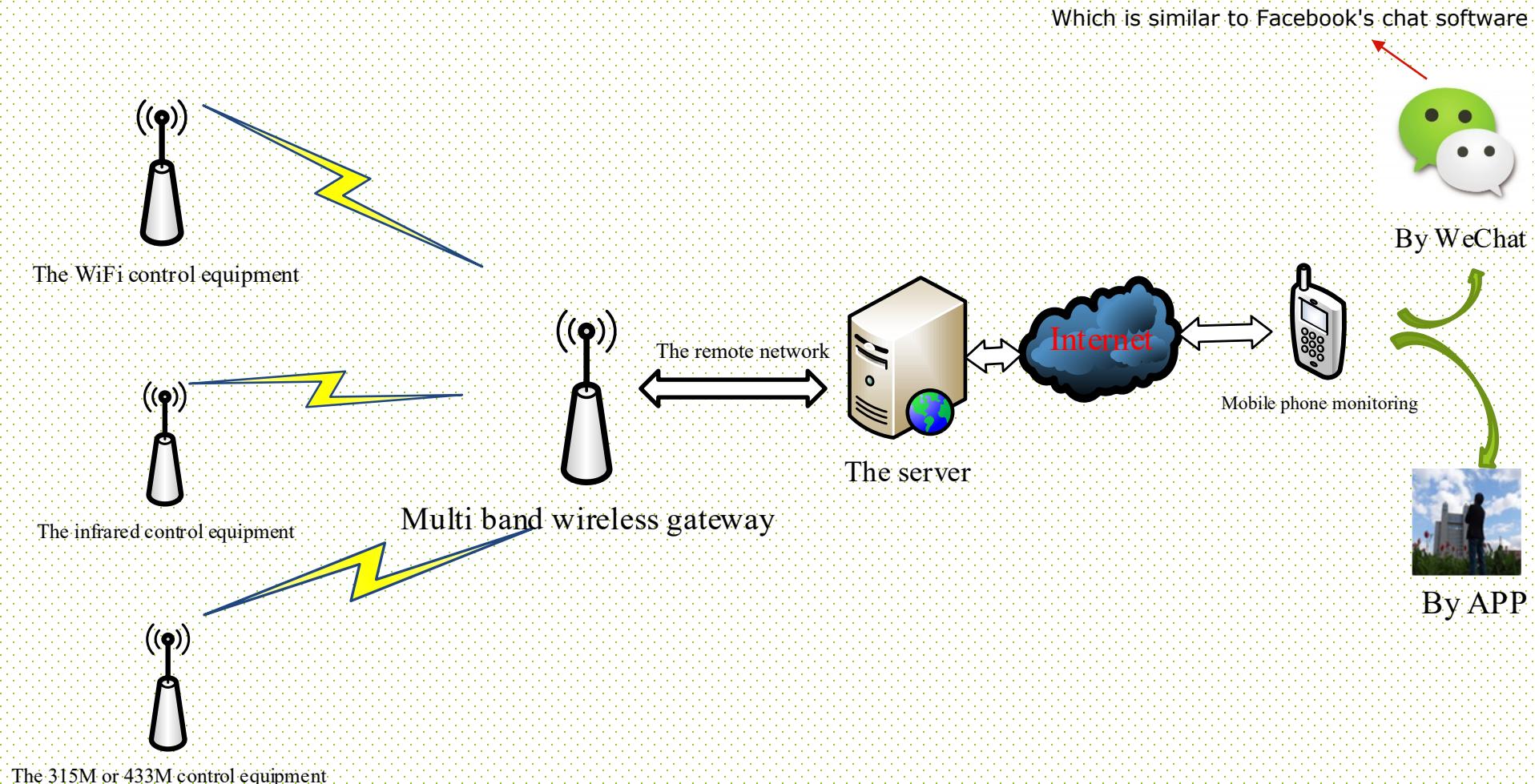


My graduation project

So in my research, I have designed a smart home system using a gateway with multi-band wireless functional, and developed the application software to control the system by smart phone.

My graduation project

2. the contents of this research



My graduation project

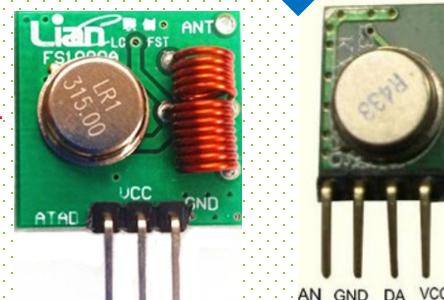
3.The design of the multi band wireless gateway

Parameters of The HLK-RM04 module	
Operating voltage	DC5V
Operating temperatures	-20-70°C
Wireless standard	IEEE 802.11b/g/n
Transmission rate	11n:up to 150Mbps 11g:up to 54Mbps 11b:up to 11Mbps
Channel number	1-14
Frequency range	2.4-2.4835G
Transmit power	12-15dBm
Receive sensitivity	-70dBm

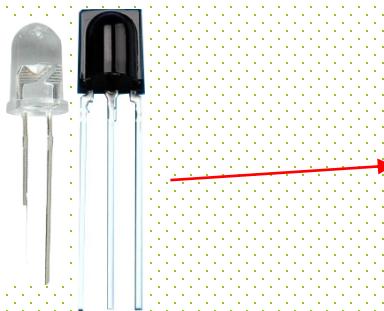


The WiFi module

Parameters of The 315/433M module	
Operating voltage	DC5V
Operating temperatures	-20-70°C
Transmission rate	4kb/s
frequency range	315M/433M
Receive sensitivity	-105dBm
Transmission distance	Up to 200 metre



315M or 433M transceiver module



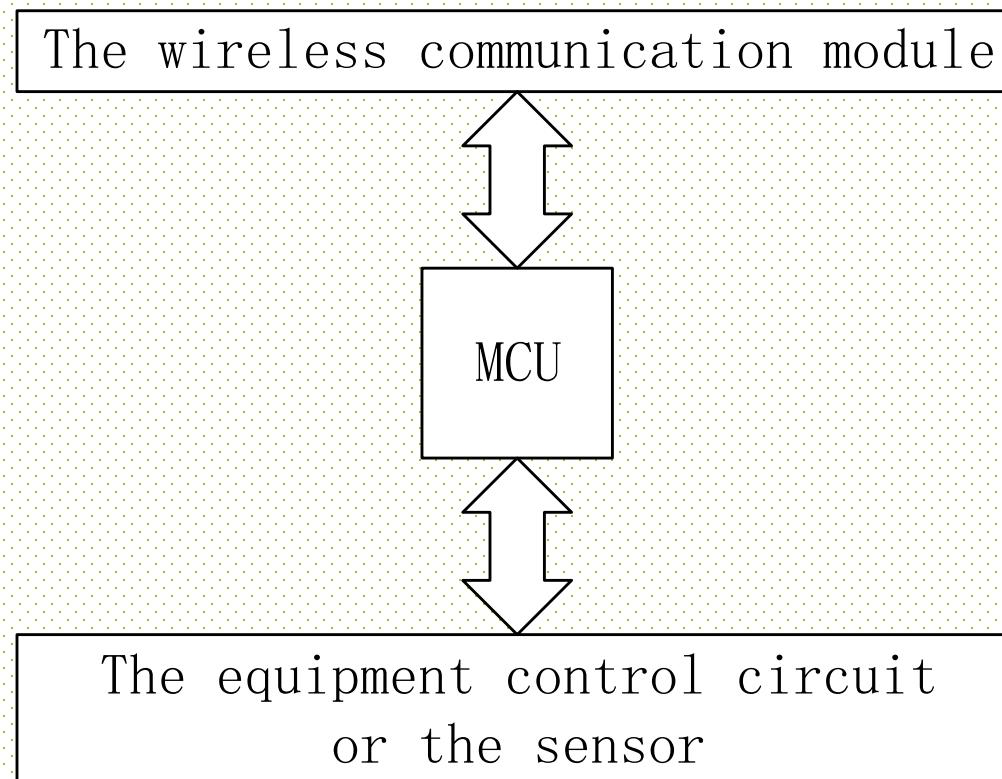
The infrared transceiver module

Parameters of The 315/433M module	
Operating voltage	DC2.7-5.5V
Operating temperatures	-20-70°C
Transmission rate	100b/s
frequency range	38K
Transmission distance	Up to15 metre

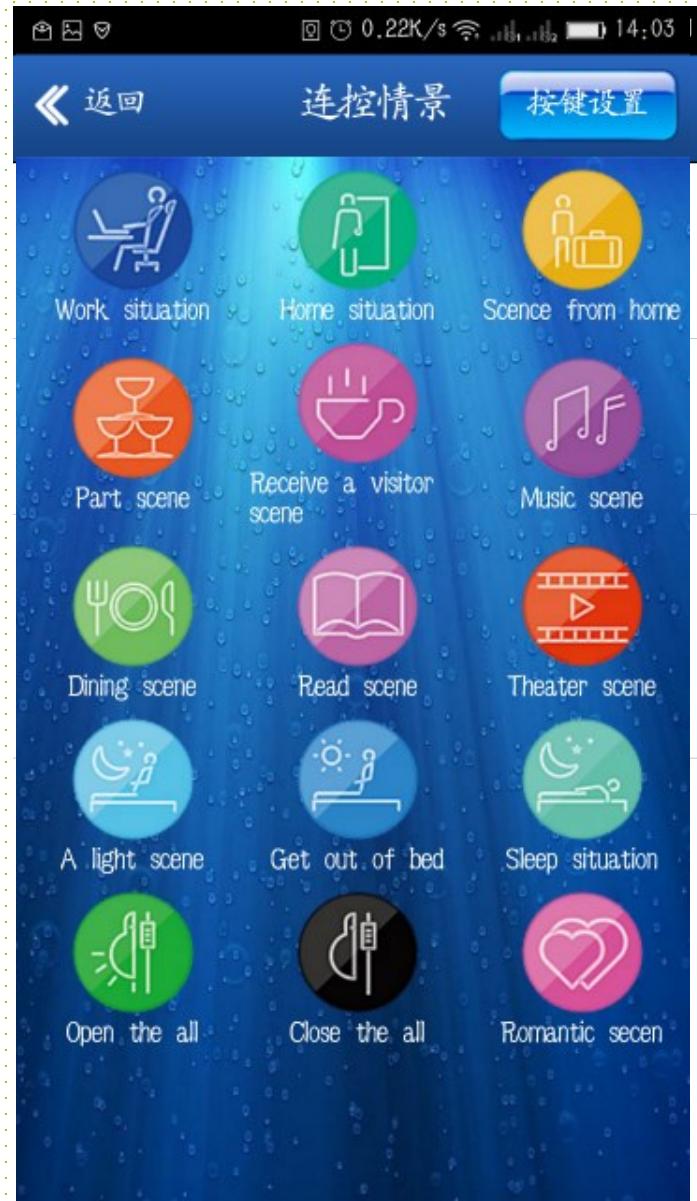
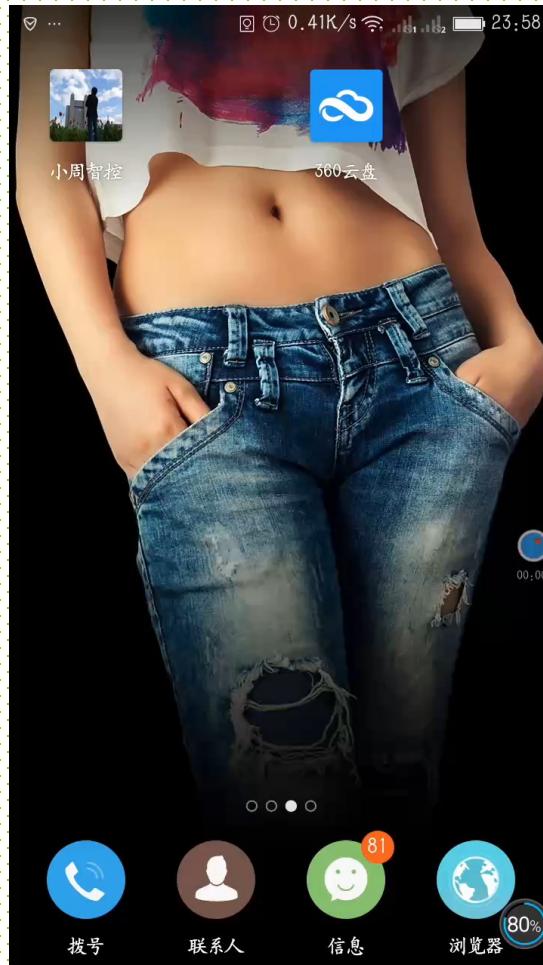
The high-performance ARM Cortex-M3 32-bit RISC core	
Flash memory	512K bytes
SRAM	64 bytes
Timers	4 General-purpose,2 Advanced-control,2 Basic
comm	13 communication interfaces
GPIOs	112
12-bit ADC	3 ADC (21 channels)
12-bit DAC	2 ADC (2 channels)
CPU frequency	72 MHz maximum frequency
Operating voltage	DC2.0 to 3.6 V

Operating temperatures	-40 to +105°C
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4.The design framework of wireless terminal control equipment



5. The design of software

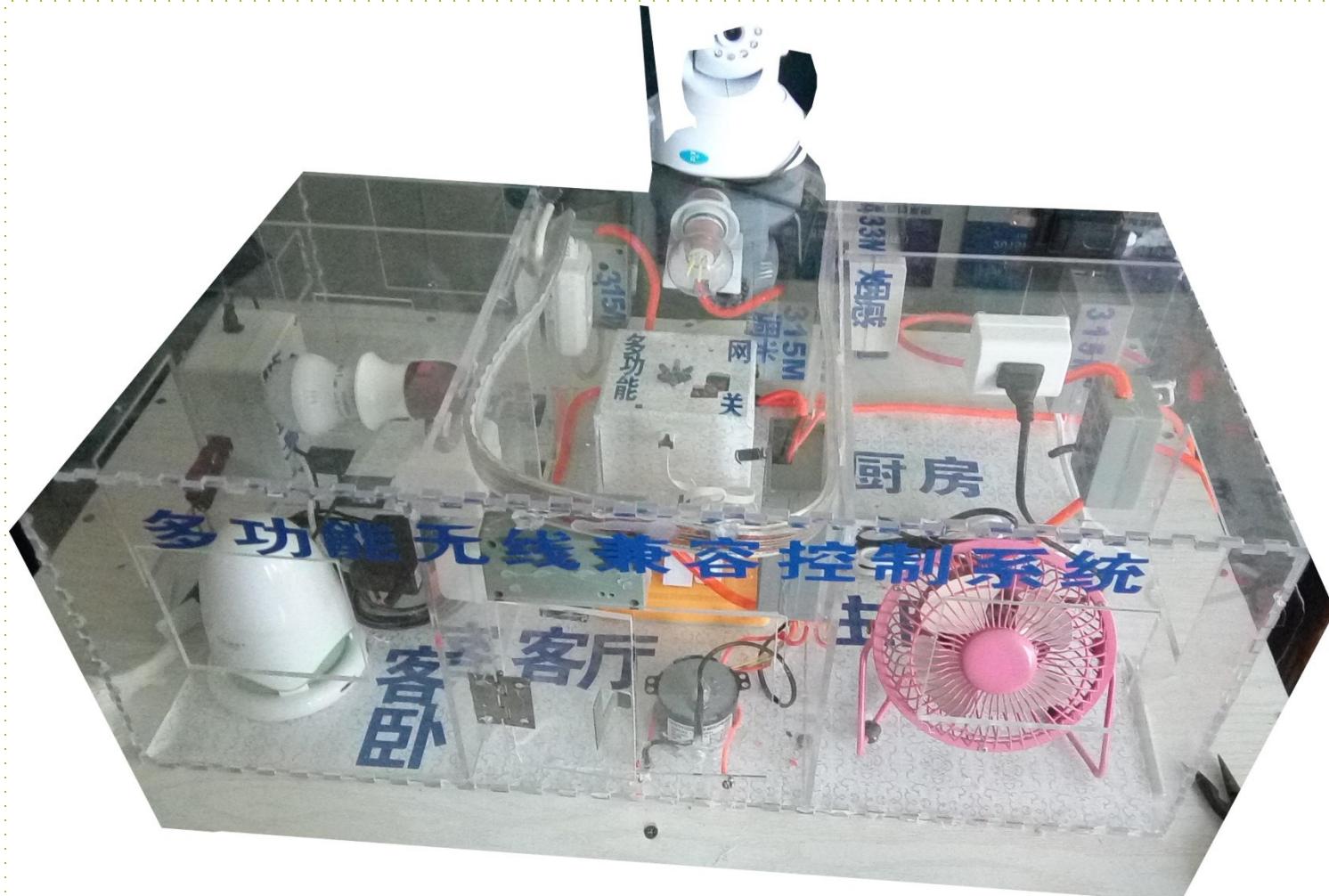


6.The WeChat chat control



7. Presentation of system

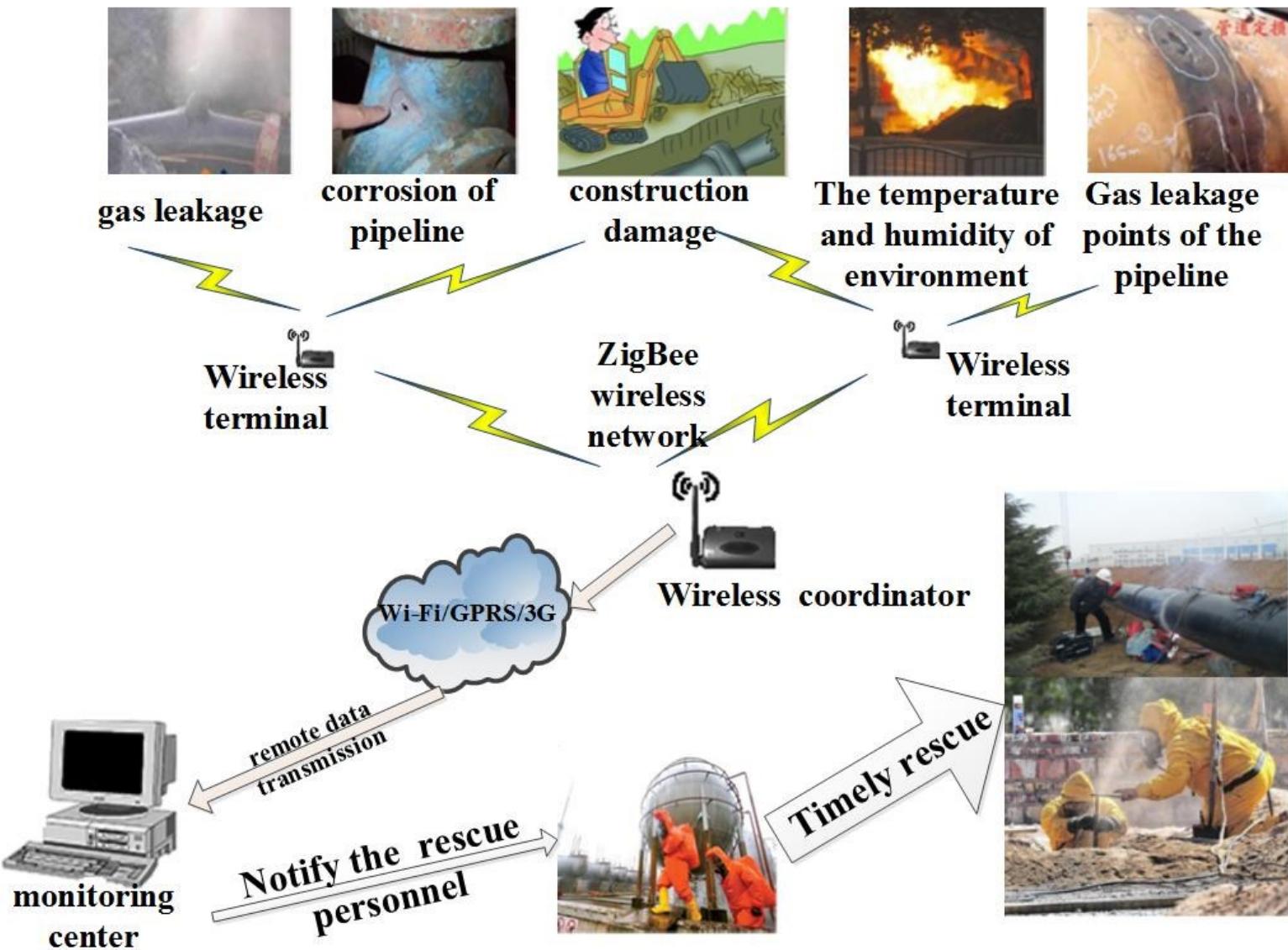
I took about three months to design the whole system.

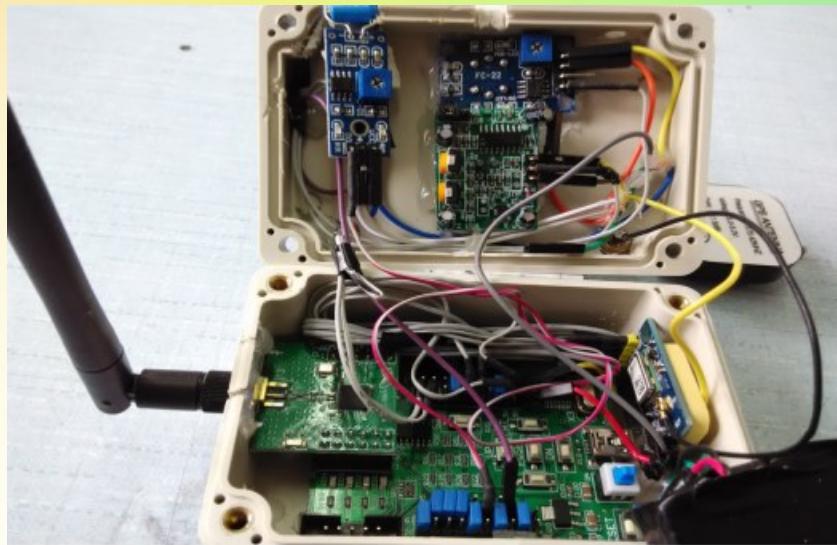
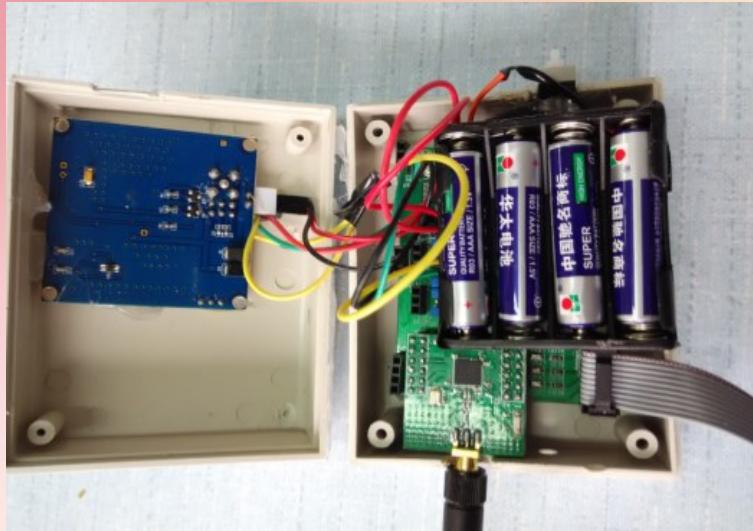


Next is the part about the projects I have done

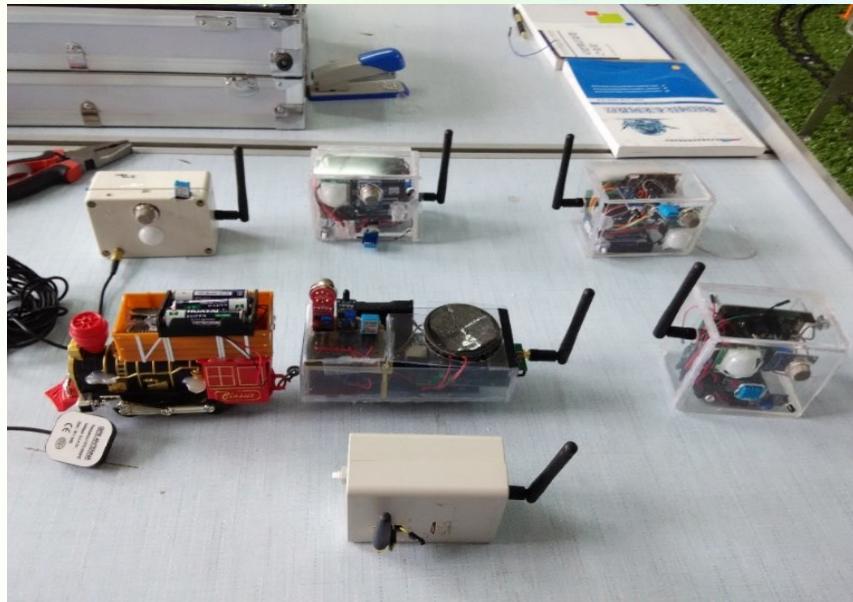
Project (1)

A Real-time Monitoring System For Natural Gas Pipeline Based on ZigBee Technology





The wireless coordinator



The wireless terminal nodes

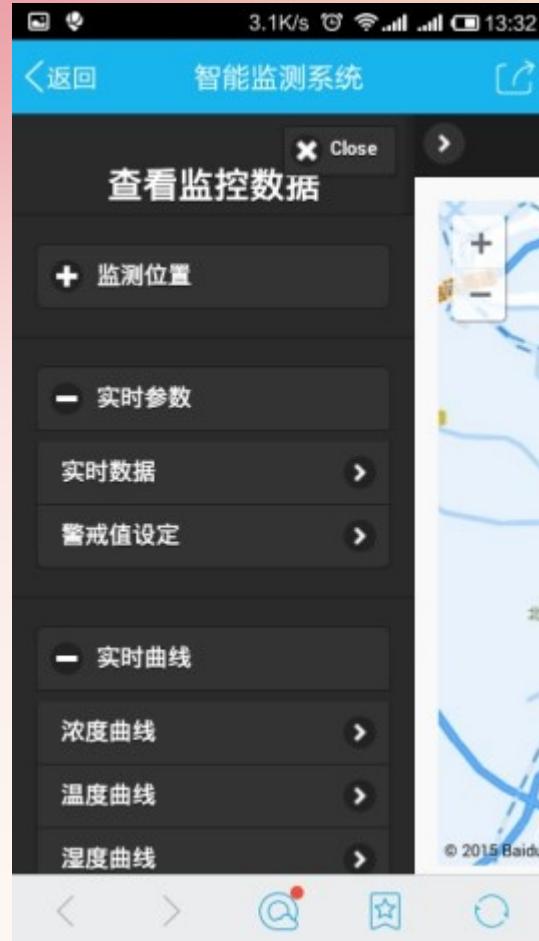
PC monitoring software

基于ZigBee技术的天然气管道监控系统 (吉林市北华大学通信实验室研发)



The PC monitoring software of the real-time monitoring system for natural gas pipeline

APP software



The main interface



Concentration curves

On-site test



This project is given a 15-day field test in the China Kunlun Gas Company.

Presentation of the system



The development cycle of the entire system is 6 months.

Project (2)

An agricultural management system



Project (3)

An intelligent dormitory control system

智能宿舍

请选择串口：

灯光调节

学习模式

温馨模式

娱乐模式

室内空气质量

PM2.5: 0.25

空气净化

空气更换

室内安全

数据检测

火焰: 烟雾:

温度: 湿度:

光照:

安全控制

Project (4)

a vibration recording system for objects transported vehicles

串口配置
串 口: COM1 波特率: 2400

开始 关闭震动曲线

清除物品位置标

震动曲线
物品1 物品2 物品3

物品1实时曲线图

震动强度(g)

时间(s)

时间(s)	X	Y	Z
0	0	0	0
5	98	48	15
10	80	45	55
15	95	48	75
20	70	55	55
25	65	25	45
30	85	35	45

震动数据

物品	编号	X	Y	Z
物品1	11100003	79	5	6
物品2	10000003	48	72	22
物品3	11110003	58	20	36

物品位置

地图 卫星 三维

物品位置

1号物品

500米

吉林重联商务酒店 泡子沿街道 爱大线 吉林省工业技师学院 新地山沟 北甸子村 胜利桥 河北区职业技术学校 富华小区 沟北小区 中国移动 新吉林实验学校 新吉林综合市场 吉林北站 新吉林基督教堂 市粮油批发市场 汇丰网络广场 江机汉阳小区 龙潭区政府 江机集团大学生公寓 万兴·家和 江机中学 丽居花园 龙新家园 天成文具坊 龙潭区江机第二小学 吉化第六小学校 江北国际广场 龙潭区江机第一小学 养老 雅居 龙潭区政府

物品位置信息

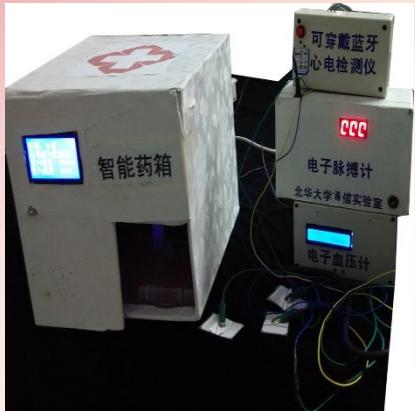
物品1经纬度 物品2经纬度 物品3经纬度

经度: 126.574394

经度: 43.930941

查看物品1节点位置

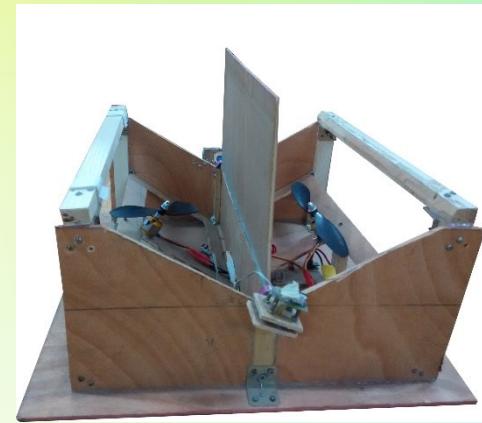
other projects



Intelligent medical system



Intelligent bus station system



Wind Pendulum Based on PID Algorithm



Community environmental testing system



Tap water leak detector



Short - range wireless analog video transmission system

THE END

Thank you very much !