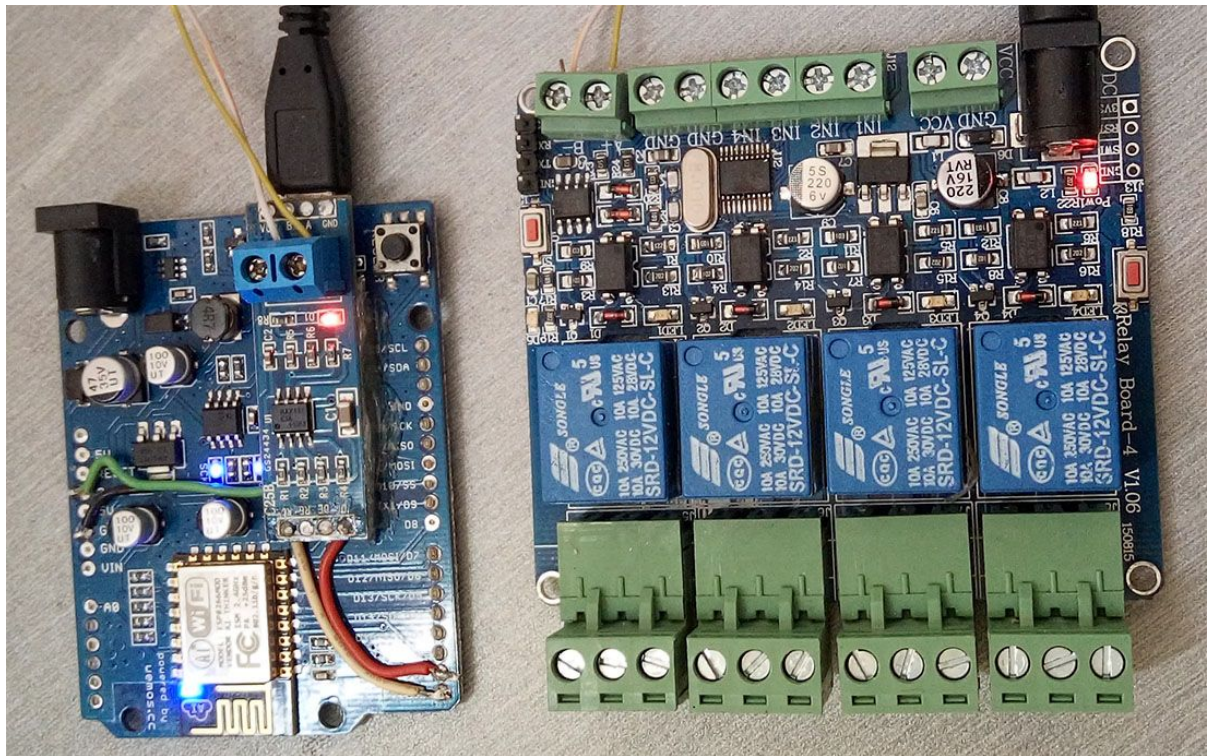


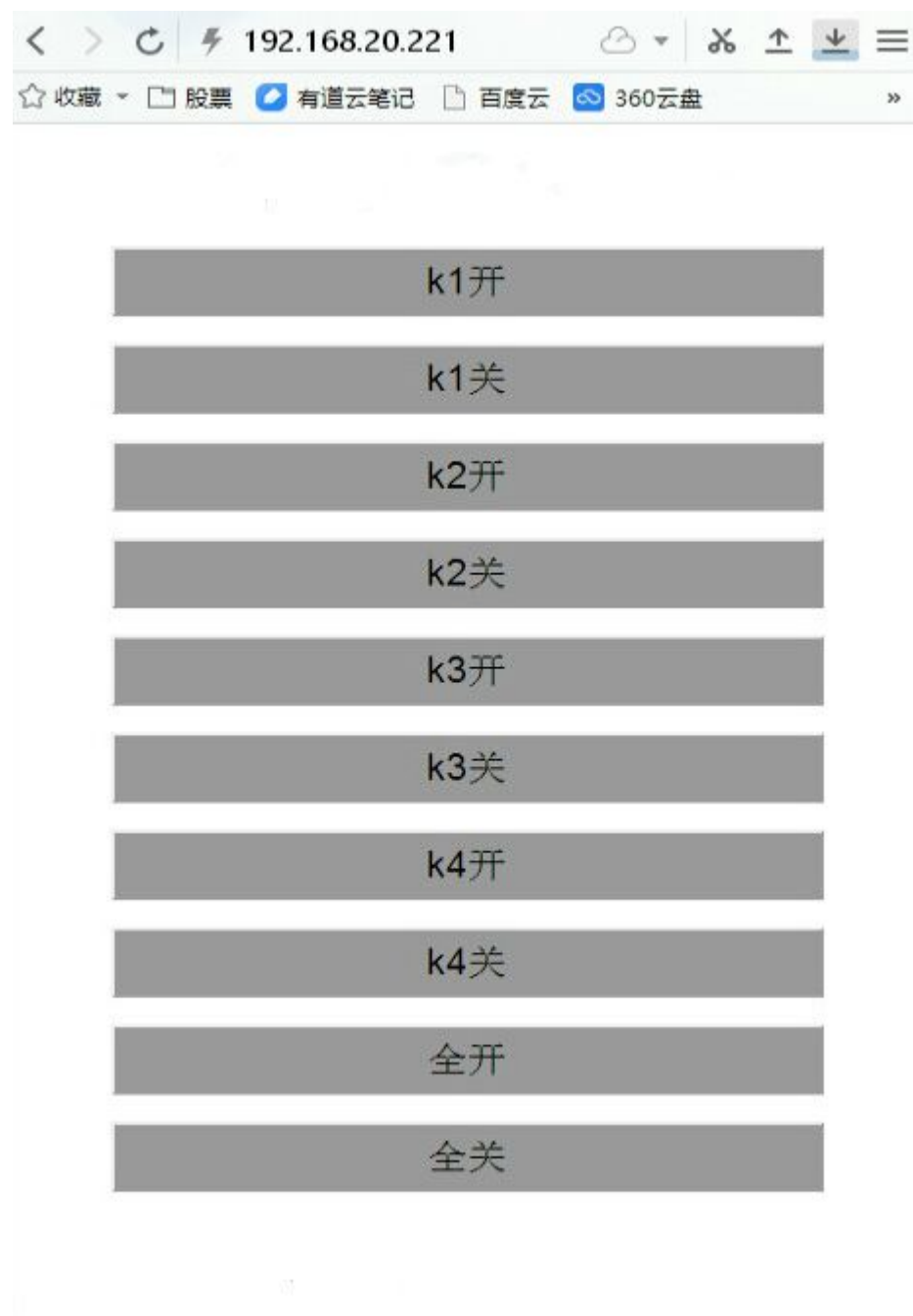
这是一个十分廉价的无线智能家居实例，采用 Arduino 编程，十分便捷的实现了无线网关，采用 TTL 转 RS-485 模块连接 4 路 485 接口的继电器模块，成功组成了一套简易的智能家居控制系统：



D1 WiFi 开发板具有 11 个 I/O 引脚及 1 个 x ADC 引脚，而且具有 4MB Flash 32KB SRAM 80KB DRAM，可扩充的潜力非常大。

本实例将 D1 WiFi 开发板设计成 WebServer 模式，让其充当无线网关的角色，控制模块采用了成品 485 接口的继电器，确保了其安全性及可靠性。控制界面是直接 在 安卓、PC、苹果等手机、平板或智能终端的浏览器上输入该开

发板的 IP 地址，经测试，各终端的显示效果具有高度的一致性：



源代码：

```
#include <ESP8266WiFi.h>
#include <ESP8266WebServer.h>
#include <EEPROM.h>
#include <Ticker.h>
```

```
Ticker tickerflash;
```

```

#define EEPROM_write(address, p) {int i = 0; byte *pp = (byte*)&(p);for(;
i<sizeof(p); i++) EEPROM.write(address+i,pp);}
#define EEPROM_read(address, p) {int i = 0; byte *pp =
(byte*)&(p);for(; i<sizeof(p); i++) pp=EEPROM.read(address+i);}

/* Set these to your desired credentials. */
static char Apid[9] = "NETGEAR";//根据你的路由器设置
static char softAPID[] = "KYSMART";
static char ApPass[10] = "zjky61448";//根据你的路由器设置
byte APip[] = { 192, 168, 20, 221 };//根据你的路由器设置
byte APGateWay[] = { 192, 168, 20, 254 };//根据你的路由器设置
byte APSubNet[] = { 255, 255, 255, 0 };

unsigned char openc[5][8] = {
    { 0x01, 0x06, 0x00, 0x01, 0x01, 0x01, 0x18, 0x5a},//1 号继电器开启
    { 0x01, 0x06, 0x00, 0x01, 0x02, 0x01, 0x18, 0xaa},//2 号继电器开启
    { 0x01, 0x06, 0x00, 0x01, 0x03, 0x01, 0x19, 0x3a},//3 号继电器开启
    { 0x01, 0x06, 0x00, 0x01, 0x04, 0x01, 0x1b, 0x0a},//4 号继电器开启
    { 0x01, 0x06, 0x00, 0x01, 0xff, 0xff, 0xd9, 0xba} //全亮
};

unsigned char closec[5][8] = {
    { 0x01, 0x06, 0x00, 0x01, 0x01, 0x00, 0xd9, 0x9a},//1 号继电器关闭
    { 0x01, 0x06, 0x00, 0x01, 0x02, 0x00, 0xd9, 0x6a},//2 号继电器关闭
    { 0x01, 0x06, 0x00, 0x01, 0x03, 0x00, 0xd8, 0xfa},//3 号继电器关闭
    { 0x01, 0x06, 0x00, 0x01, 0x04, 0x00, 0xda, 0xca},//4 号继电器关闭
    { 0x01, 0x06, 0x00, 0x01, 0x00, 0x00, 0xd8, 0x0a} //全灭
};

byte TSwitch[] = {
    0, 0, 0, 0
};

byte StatSave[] = {
    0xff, 0xff, 0xff, 0xff
}; //掉电保护
byte Switchnum = 10; //13
const byte SwitchIO[] = {
    D2, D3, D4, D5, D6, D7, D8, D9, D10, D11, D12, D14, D15
}; //开关列表
byte flashLed = D13; // 呼吸灯
int ledState = LOW;
char funcstr[800];
byte aptype = 0; // 模式: 1 AP 0 CLIENT

```

```

const char pageS[] PROGMEM = "<meta name=|\"viewport|\"
content=|\"width=device-width, initial-scale=1.0|\">|r|n<meta
http-equiv=|\"Content-Type|\" content=|\"text/html; charset=utf-8|\">|r|n\"
                                \"<style
type=|\"text/css|\">\"
                                \"*
{margin:3;padding:3;}\"
                                \"input {width:90%;hei
ght:40px;font-size:20px;background:#999;}\"
                                \"</style>\"
                                \"<center><h2>欢迎使
用科友智能家居<br></h2><h3>\"
                                \"%s\"
                                \"<br><a
href=|\"http://www.it15168.com|\">ZJKEYOU SMART HOME</a></center></h3>\";
const char LineS[] PROGMEM = \"%s<br><br><a href=|\"/|\">返回</a><br>\";
// Create an instance of the server
ESP8266WebServer server(80);

int RevB(int v, byte b) //设置第B位的值取反
{
    return (v ^ 1 << b); //把Number的POS位取反
}

void SaveSta()
{
    EEPROM.begin(512);
    EEPROM_write(30, StatSave);
    EEPROM.commit();
    EEPROM.end();
}

void setSta(byte Aswitch, byte Sta )
{
    byte i = Aswitch / 8;
    byte j = Aswitch % 8;
    bitWrite(TSwitch[3 - i], j, Sta);
}

void flash() {
    digitalWrite(flashLed, ledState);
    ledState = !ledState ;
}

```

```

void handleRoot() {
    sprintf_P(funcstr, pageS, "<form action=/op1><input type=submit
value=k1 开></form>"
                                "<form action=/op2><input type=submit value=k1
关></form>"
                                "<form action=/op3><input type=submit value=k2
开></form>"
                                "<form action=/op4><input type=submit value=k2
关></form>"
                                "<form action=/op5><input type=submit value=k3
开></form>"
                                "<form action=/op6><input type=submit value=k3
关></form>"
                                "<form action=/op7><input type=submit value=k4
开></form>"
                                "<form action=/op8><input type=submit value=k4
关></form>"
                                "<form action=/op9><input type=submit value=全
开></form>"
                                "<form action=/op10><input type=submit value=全
关></form>");
    server.send(200, "text/html", funcstr);
}

void op1() {
    opoper(0, 1, "k1 已开");
}

void op2() {
    opoper(0, 0, "k1 已关");
}

void op3() {
    opoper(1, 1, "k2 已开");
}

void op4() {
    opoper(1, 0, "k2 已关");
}

void op5() {
    opoper(2, 1, "k3 已开");
}

```

```

void op6() {
    opoper(2, 0, "k3 已关");
}

void op7() {
    opoper(3, 1, "k4 已开");
}

void op8() {
    opoper(3, 0, "k4 已关");
}

void op9() {
    opoper(4, 1, "全已开");
}

void op10() {
    opoper(4, 0, "全已关");
}

void opoper(byte port, byte oper, char *str)
{
    char funcstr1[100];
    if (oper == 1) {
        Serial.write(openc[port], 8);
    }
    else
    {
        Serial.write(closec[port], 8);
    }
    if (port < 4) {
        digitalWrite(SwitchIO[port], oper);
        setSta(port, oper);
    }
    funcstr[0] = 0;
    sprintf_P(funcstr1, LineS, str);
    sprintf_P(funcstr, pageS, funcstr1);
    server.send(200, "text/html", funcstr);
}

void handleNotFound() {
    String message = "File Not Found\n\n";
    message += "URI: ";
    message += server.uri();

```

```

message += "\nMethod: ";
message += (server.method() == HTTP_GET) ? "GET" : "POST";
message += "\nArguments: ";
message += server.args();
message += "\n";
for (uint8_t i = 0; i < server.args(); i++) {
    message += " " + server.argName(i) + ": " + server.arg(i) + "\n";
}
server.send(404, "text/plain", message);
}

```

```

void setup(void) {
    Serial.begin(9600);
    pinMode(flashLed, OUTPUT);
    for (int i = 0; i < Switchnum / 8; i++)
        for (int j = 0; j < 8; j++) {
            pinMode(SwitchIO[i * 8 + j], OUTPUT);
            digitalWrite(SwitchIO[i * 8 + j], (bitRead(TSwitch[3 - i], j) >
0) && (bitRead(StatSave[3 - i], j) > 0));
        }
}

```

```

Serial.print("Conn to:");
Serial.println(Apid);
if (aptype == 1) {
    WiFi.softAP(softAPIP, ApPass);
    IPAddress myIP = WiFi.softAPIP();
    Serial.print("AP IP address:");
    Serial.println(myIP);
}
else
{
    WiFi.config(APIP, APGateWay, APSubNet);
    WiFi.begin(Apid, ApPass);
    while (WiFi.status() != WL_CONNECTED) {
        delay(500);
        Serial.print(".");
    }
    Serial.println("server started:");
    Serial.println(WiFi.localIP());
}
server.on("/", handleRoot);
server.on("/op1", op1);
server.on("/op2", op2);
server.on("/op3", op3);

```

```
server.on("/op4", op4);
server.on("/op5", op5);
server.on("/op6", op6);
server.on("/op7", op7);
server.on("/op8", op8);
server.on("/op9", op9);
server.on("/op10", op10);
server.onNotFound(handleNotFound);
server.begin();
tickerflash.attach_ms(800, flash);
}

void loop(void) {
    server.handleClient();
    WiFiClient client = server.client();
    client.flush();
}
```