

## 第一章 天猫精灵控制 ESP32(wifi+tcp+json)

### 1. 综合演练目标

- 掌握天猫精灵控制 ESP32 开发板上的 RGB 灯
- Tcp 和 Json 之前已经讲过，此处以实现目的为主

### 2. 项目简介

#### 2.1. 开发平台及环境

- Windows+VScode+乐鑫编译工具链+C 语言

#### 2.2. 服务器选择

- 贝壳物联

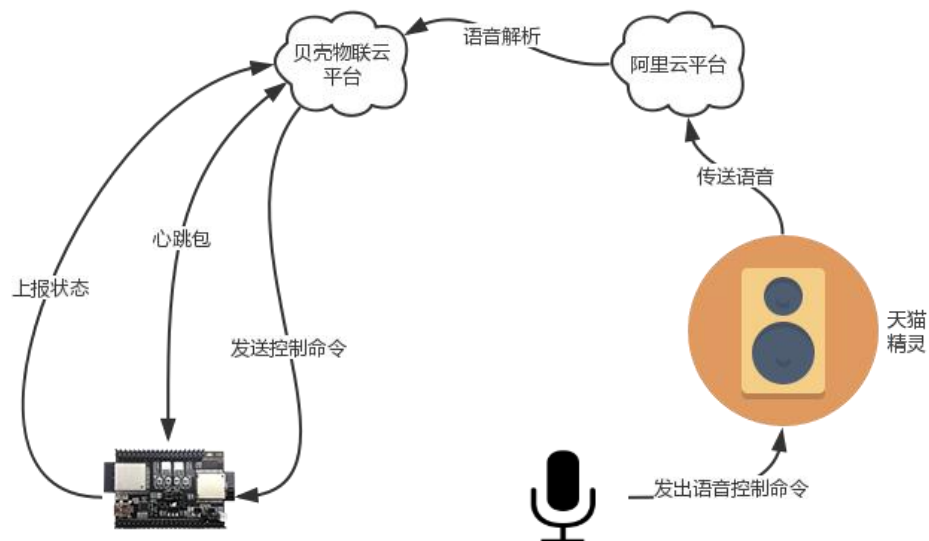
#### 2.3. 通讯加密

- mbedtls 第三方开源库

#### 2.4. 语音识别选择

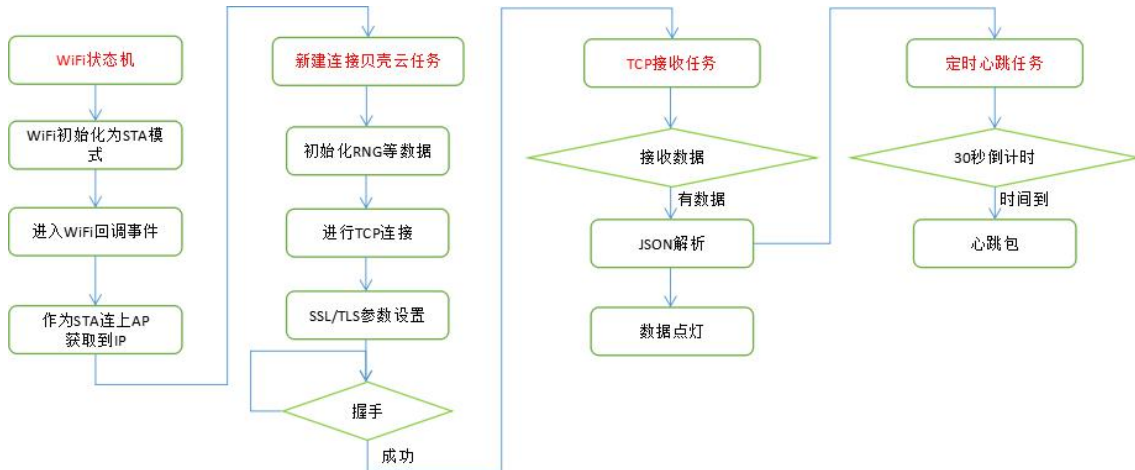
- 天猫精灵

### 3. 天猫精灵控制开发板对接流程



### 4. 软件设计

#### 4. 1. ESP32 TCP 连接贝壳云



#### 4. 2. 源码编写

项目源码比较复杂，请下载查看，内部全部中文注释，对照流程，分分钟搞定。

### 5. 效果展示

#### 5. 1. 测试流程

```

esp_wifi_init is 0
I (315) user_wifi_init:
esp_wifi_set_mode is 0

I (375) user_wifi_init:
esp_wifi_set_config is 0

W (375) phy_init: failed to load RF calibration data (0xffffffff), falling back to full calibration
I (545) phy: phy_version: 4000, b6198fa, Sep  3 2018, 15:11:06, 0, 2
I (555) wifi: mode : sta (30:ae:a4:25:0c:5c)
I (565) user_wifi_init:
esp_wifi_start is 0

I (565) user_wifi_init:
esp_wifi_connect is 0

I (1165) wifi: n:6 2, o:1 0, ap:255 255, sta:6 2, prof:1
I (2145) wifi: state: init -> auth (b0)
I (2155) wifi: state: auth -> assoc (0)
I (2165) wifi: state: assoc -> run (10)
I (2185) wifi: connected with Helon, channel 6
I (2225) wifi: pm start, type: 1

I (2235) event_handler:
SYSTEM_EVENT_STA_CONNECTED
  
```

连上路由器

```

I (3755) event: sta ip: 192.168.1.104, mask: 255.255.255.0, gw: 192.168.1.1
I (3755) event_handler:
SYSTEM_EVENT_STA_GOT_IP

I (3755) big_iot_cloud_connect:
. Seeding the random number generator...
I (3765) big_iot_cloud_connect: ok

I (3765) big_iot_cloud_connect: . Connecting to tcp/www.bigiot.net/8585...
I (4115) big_iot_cloud_connect: ok

I (4115) big_iot_cloud_connect: . Setting up the SSL/TLS structure...
I (4125) big_iot_cloud_connect: ok 230592

I (4125) big_iot_cloud_connect: . Performing the SSL/TLS handshake...
I (6225) big_iot_cloud_connect: ok

I (6225) big_iot_cloud_connect: 26 bytes read
{"M":"WELCOME TO BIGIOT"}

I (6225) json_parse: big_iot_connect success
  
```

连贝壳云

握手

连接成功

```
I (6285) token_user_api_key_md5_encrypted: token_user_api_key is [fc4b683ad2afa22c0b09e6ec28bd5cec6dc19ba6a5] [42]
I (6295) token_user_api_key_md5_encrypted: md5_encrypted_token_user_api_key is [4f536ec8661d6320d08f0a945e7402e9] [32]
I (6315) device_encrypted_sign_in: json_token_user_api_key_md5 is [{"M":"checkin","ID":"7130","K":"4f536ec8661d6320d08f0a945e7402e9"}] [67]
I (6325) tcp_ssl_write: 67 bytes written
{"M":"checkin","ID":"7130","K":"4f536ec8661d6320d08f0a945e7402e9"}
I (6545) big_iot_cloud_connect: 64 bytes read
{"M":"checkinok","ID":"D7130","NAME":"outlet","T":"1547049793"}
I (6545) json_parse: sign success
I (6555) tcp_ssl_write: 19 bytes written
{"M":"heart beat"}
I (36555) tcp_ssl_write: 19 bytes written
{"M":"heart beat"}

{"M":"say","ID":"U5081","C":"play","SIGN":"Aligenie","T":"1547050680"}
I (51365) cloud_cmd_data_handler: Switch ON
I (62965) tcp_ssl_write: 19 bytes written
{"M":"heart beat"}
I (63535) big_iot_cloud_connect: 71 bytes read
{"M":"say","ID":"U5081","C":"stop","SIGN":"Aligenie","T":"1547050692"}
I (63535) cloud_cmd_data_handler: Switch OFF
```

加密信息

登录成功

心跳

开灯

关灯

## 5.2. 测试效果

看 QQ 群演示视频。

## 6. 天猫控制 ESP32 开发板总结

- 此处使用 mbedtls 实现网络过程，可参看官方的 mbedtls 例子，着重学习。
- 使用第三方免费的服务器：贝壳
- 天猫控制 ESP32 开发板主要目的是学习，项目意义不大
- 源码地址：<https://github.com/xiaolongba/wireless-tech>