RAK

WisCore

USER GUIDE

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ETDX16100930

Directory

1 Product Introduction

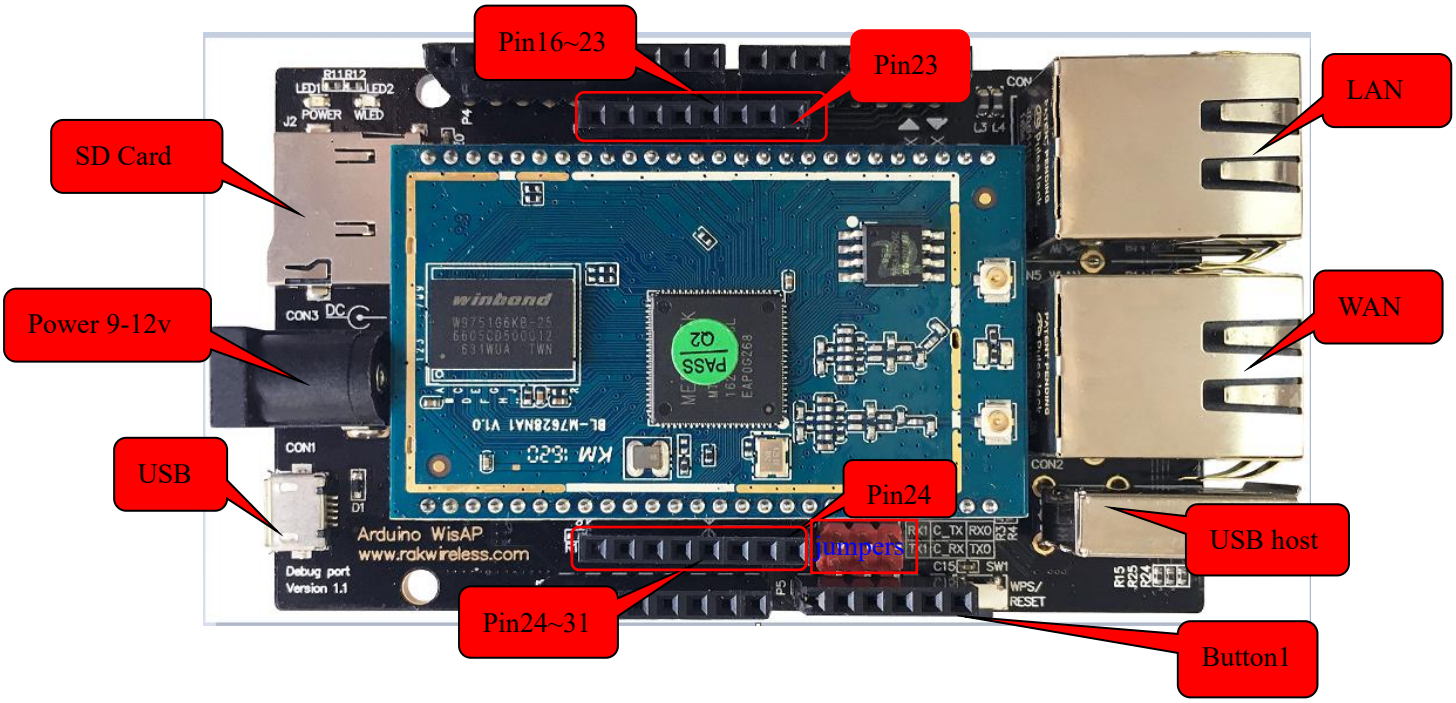
WisAP-MT7628 includes a high performance cpu and high speed USB2.0 interface,it support IEEE 802.11n protocol .And you can use it as a simple router after burn openwrt.The module can compatible Arduino development board， so it’s very suitable for developers.Join the IOT family and enjoy it !

And you will see the product in the box, it includes WisAP board、power adapter（12v）、jumpers、Micro-usb、antenna、cable.

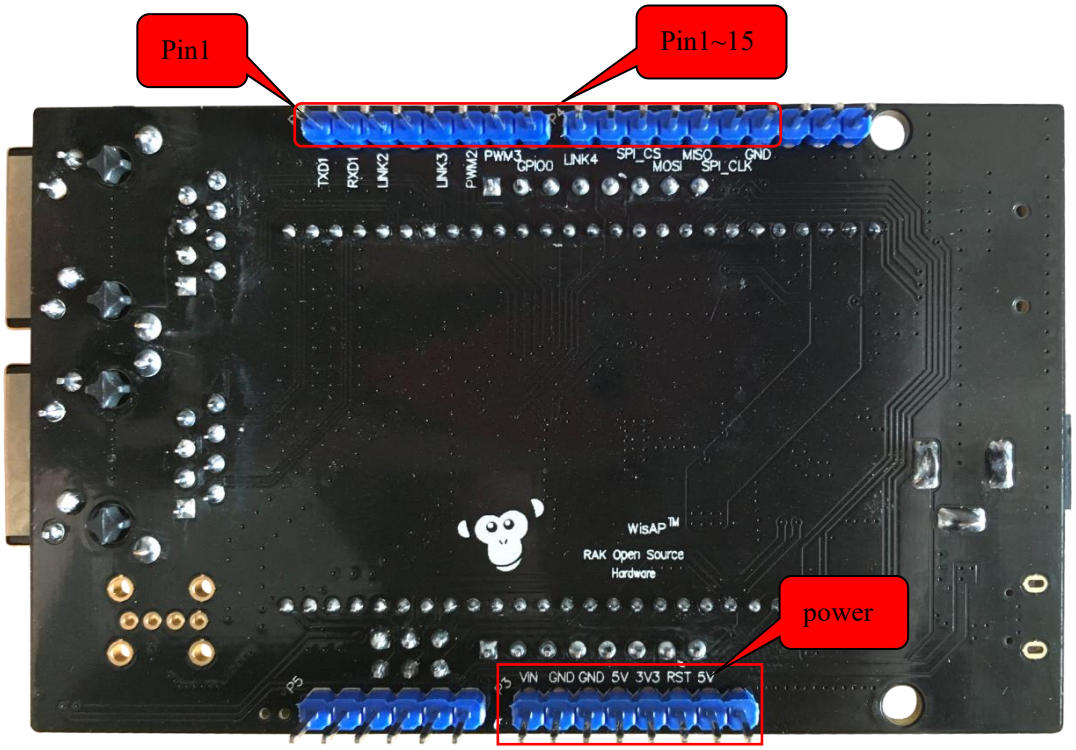
2 Hardware Introduction

The following figure is the RAK WisNode series SPI development board, with 8M flash and 64M DDR2,and compatible Arduino development board

Please plugin correct and ensure mt7628 board isn't reversed



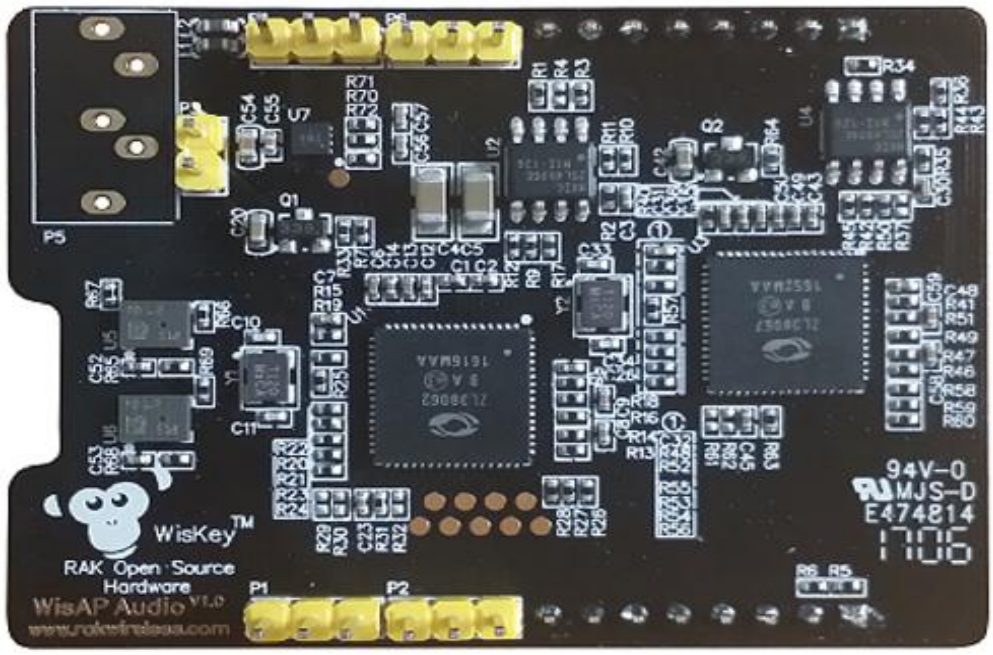
Name	Silk printing	Description
MT7628 Development Board	\	Integrated hardware and software
Micro-USB	CON1	Debug(URT0)
Button1	SW1	GPIO38(recover)
WAN	CON5	Wide Area Network Interface（RJ45）
LAN	CON4	Local Area Network Interface（RJ45）
Power	CON3	9V-12 V
SD Card	J2	External Storage card
USB Host	CON2	USB Disk
WIFI	\	WIFI Antenna



Pin No	NAME	Description
1	TXD1	UART1
2	RXD1	
3	LINK2	10/100M PHY Port#2 activity LED,JTAG_TMS
4	\	\
5	LINK3	10/100M PHY Port#2 activity LED,JTAG_CLK
6	PWM2	PWM
7	PWM3	PWM
8	GPIO0	GPIO
9	LINK4	10/100M PHY Port#2 activity LED,JTAG_TRST_N
10	\	\
11	SPI_CS	SPI chip select 1
12	MOSI	SPI master input/slave output
13	MISO	SPI master output/slave input
14	SPI_CLK	SPI clock

15	GND	GND
16	GND	GND
17	GND	GND
18	GND	GND
19	2_RST	CIe device reset
20	7_GPIO7	Reference clock output
21	7_RST	10/100 PHY Port#3 TXOP3
22	7_NINT	10/100 PHY Port#2 RXIP2
23	2_NINT	10/100 PHY Port#1 RXIN1
24	I2C_SDA	I2C data
25	I2C_CLK	I2C clock
26	I2S_CLK	I2S clock
27	I2S_WS	I2S word select
28	I2S_SDO	I2S data output
29	I2S_SDI	I2S data input
30	3v3	VDD33
31	3v3	VDD33

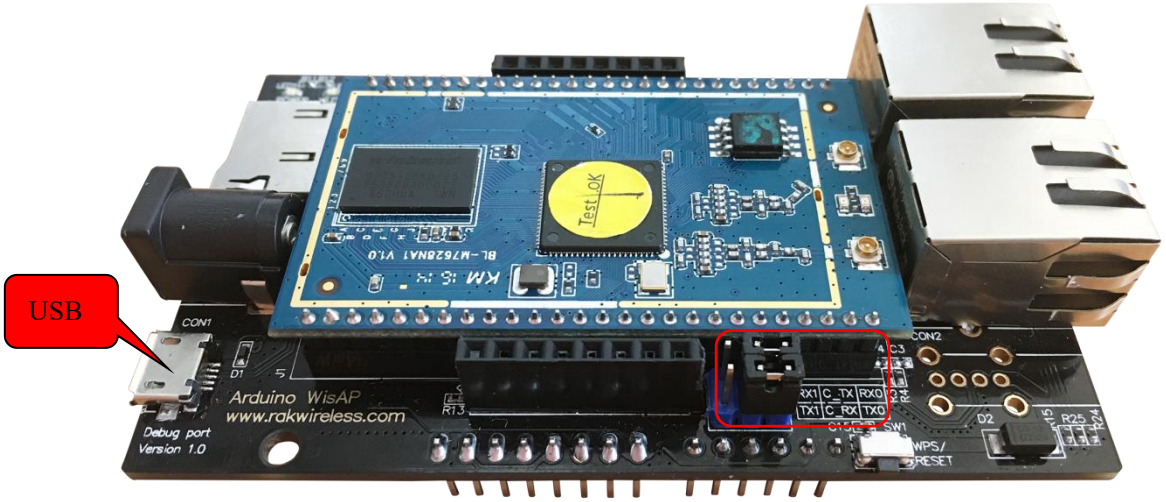
Audio Sub Board



3 Jumper Setting

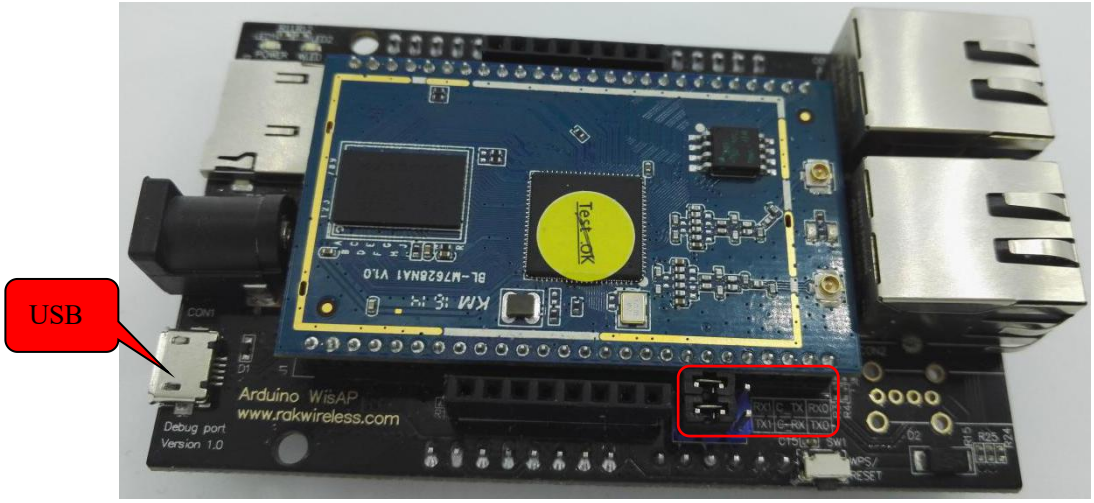
Set jumper can change USB functions

(1) Short (C_RX---TX0 , C_TX---RX0), USB <--->(RX0 TX0), debug function



This way usb is debug function

(2) Short (RX1---C_TX , TX1---C_RX), USB <--->(RX1 TX1), uart function（TXD1，RXD1）



This way usb is uart function

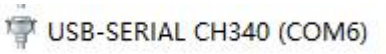
4 Burn Firmware

it's burned our own firmware by default ,and you can burn your own firmware as follow steps，if not you can jump this section .

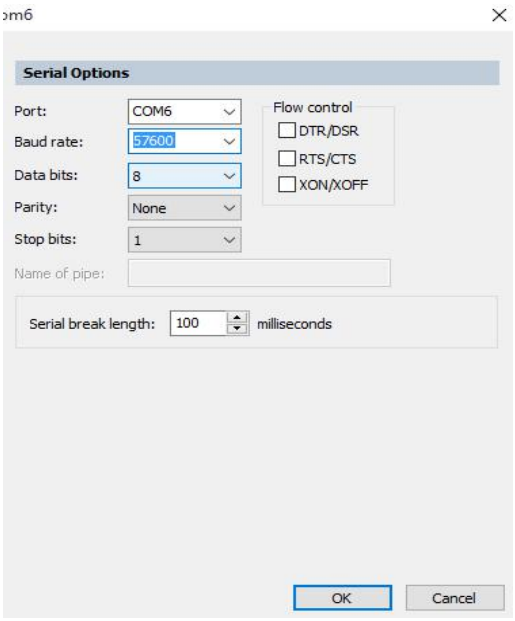
1 Download tftpd tool and terminal(such as SecureCRT,putty,)

2 setting jumpers short (C_RX---TX0 , C_TX---RX0) (debug function)

When plugin usb line ,you need install driver,it will remind you ,after installed you will find Computer-->device manager-->COM

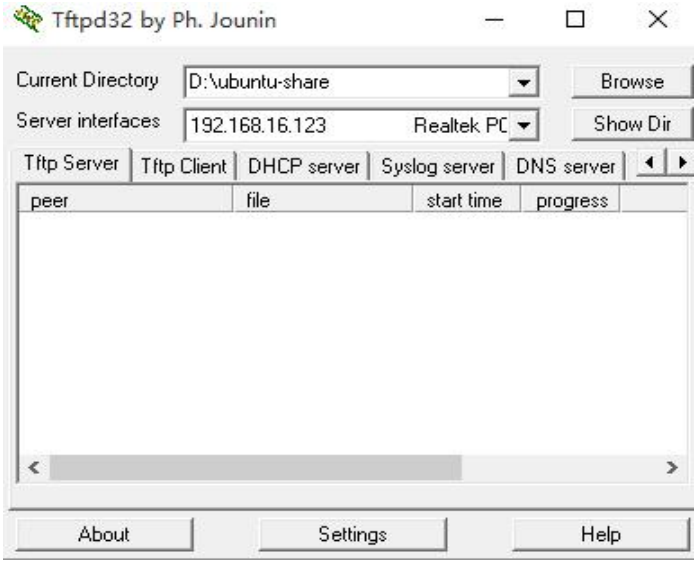


Connect CRT to your computer with usb line:Baud rate **57600**



3 connect lan port to your computer with cable

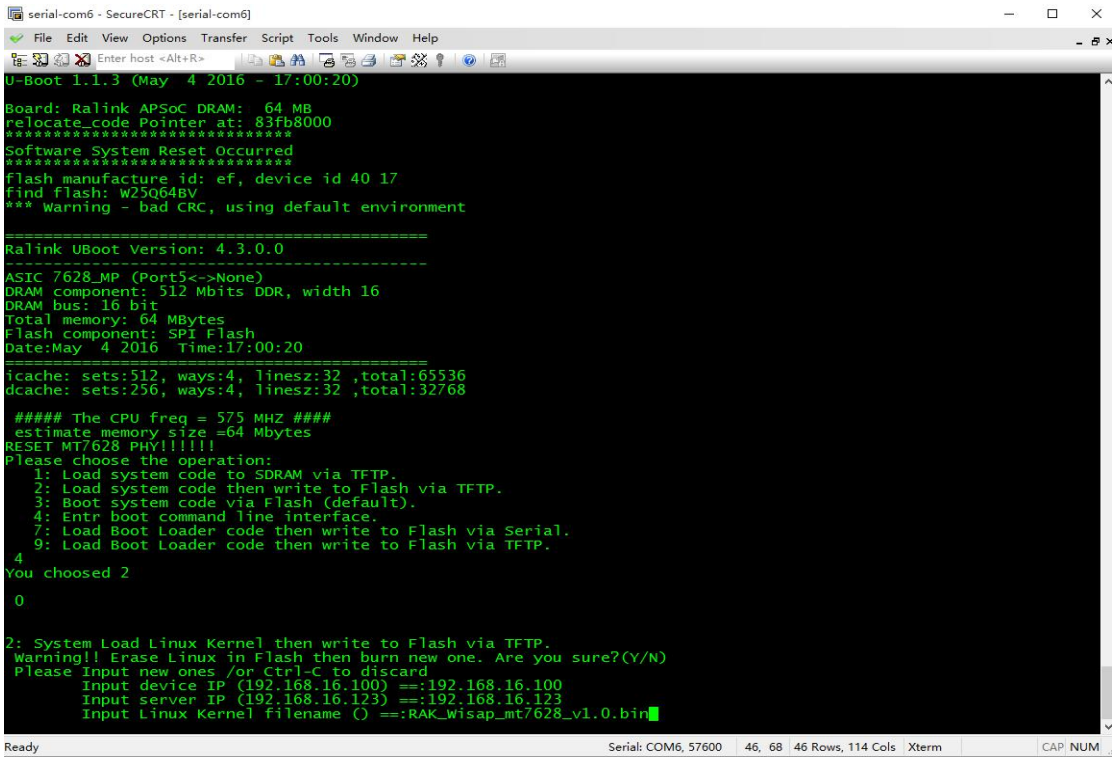
4 Copy firmware to your tftpd directory(such as D:\ubuntu-share), and start the tftpd as Tftp Server . The Server interfaces(192.168.16.123) is your computer's ip



5 Power on ， then select 2 --> y --> ip --> firmware name

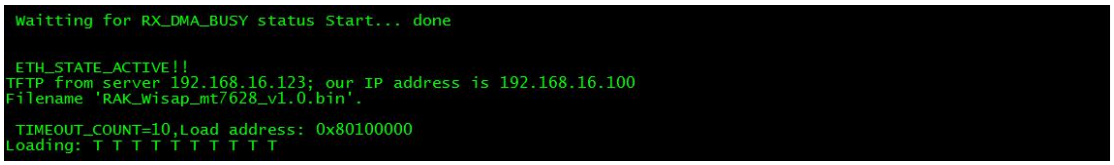
Each step only input once

The device ip is board's ip and server ip is your computer's ip

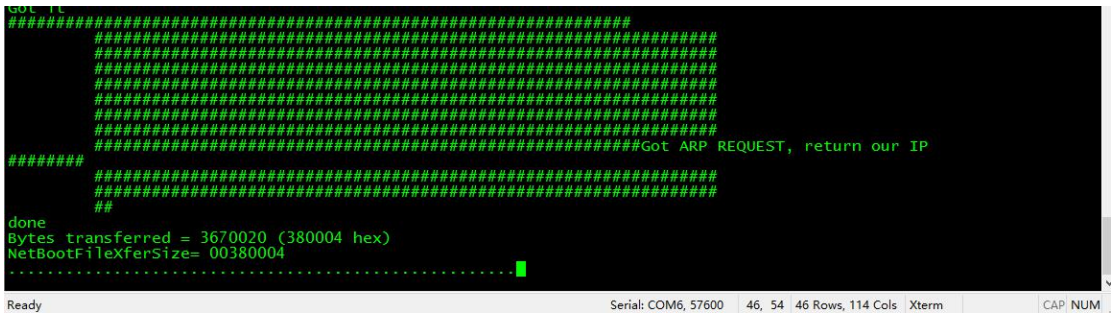


Then press Enter

If it display:T T T T T T T, the network is poor



If it display #####,it's right .please keep this status and it will enter system



Finally wait some seconds you will see the wireless ssid "WisCore_ + mac address".

5 Source Introduction

There are two sources : wisAP and wisAvs

(1) wisAp: based on openwrt official website ,only has basic function as router

(2) wisAvs: based on openwrt and Amazon alexa interface

get open source

1 download : https://github.com/sevencheng798/wiscore

2 use command in linux : git clone https://github.com/sevencheng798/wiscore

6 Compile

(1)choose type(wisAP , wisAvs)

./build/envsetup.sh wisAvs hgw

(2)Compile

make

(3)after compile ,you can get firmware

In out/target/bin/

(4)if you want to compile other source

./build/envsetup.sh wisAvs hgw clean

Then rebuild :step (1) (2)

7 Application Introduction

There are some application programs:

msload_go.sh: script to execute program

alexa_run_demo: alexa program ,invoke alexa API

luci_service: http interface ,provide command for wireless

gpio_ctrl: gpio control button and wled

unabto_tunnel: scan wireless list for mobile phone app

recoverboard.sh:

8 Quick Start

Get app：Android：https://www.pgyer.com/wiscore

IOS：app store

The function is sign in Amazon's Alexa Voice Service .you can sign in Ap mode or station mode

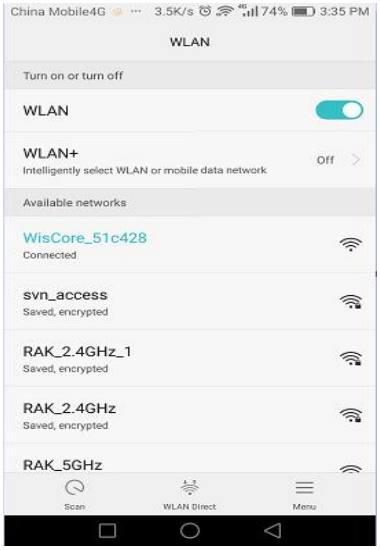
Ap Mode :the module as a router ,plug in net-cable and connect "WisCore", led quick flash

Station Mode:the module as station ,connect to another router through app, led always on

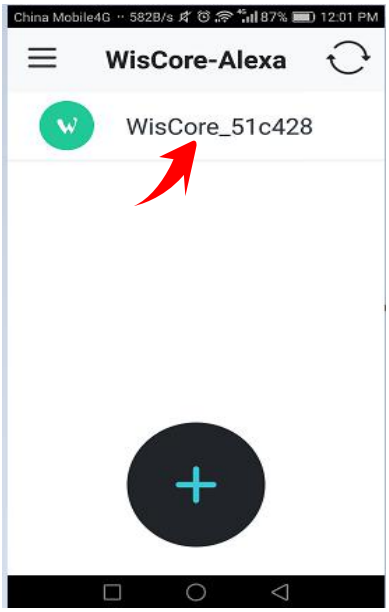
8.1 Ap Mode

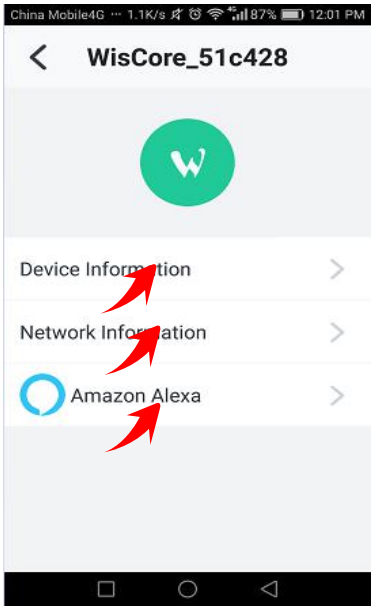
1 Power on, wait some times, then you will see the led quick flash and search wireless id "WisCore_mac address", this is ap mode.

2 Plug in the network line in the module "wan" port, and connect to the wireless "WisCore_mac address"

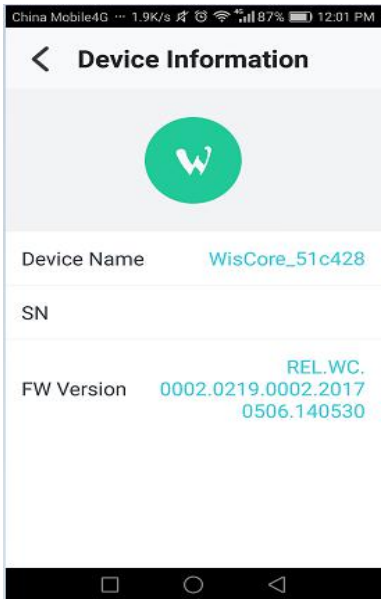


3 Open the app “WisCore”, click “WisCore_51c428”,you can see the information



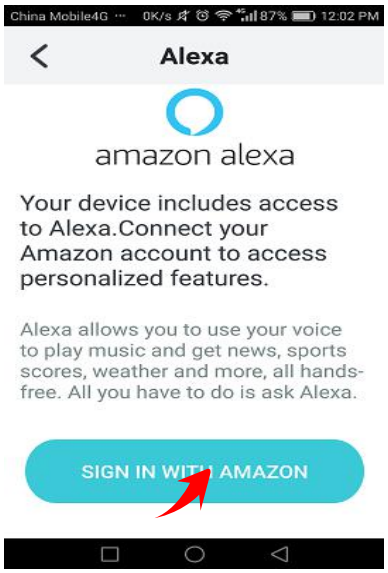


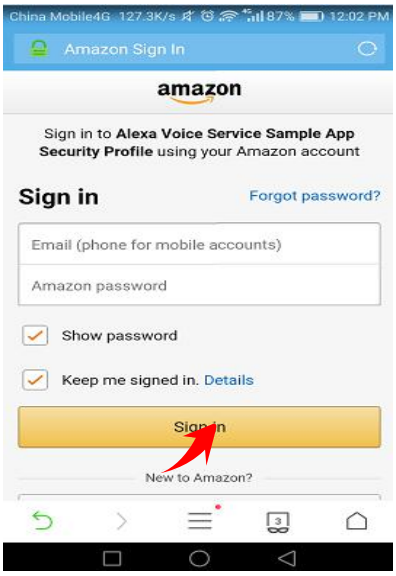
4 click “Device Information” you can see the device version, and click “Network Information” you can see the “ip”, “mac address”, ”Gateway” and so on.



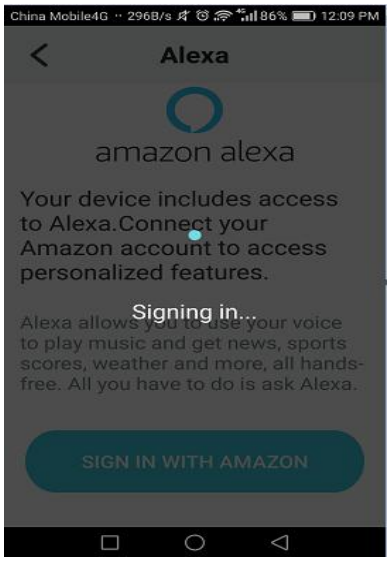
5 log in Alexa

click “Amazon Alexa”, then input your amazon account and password





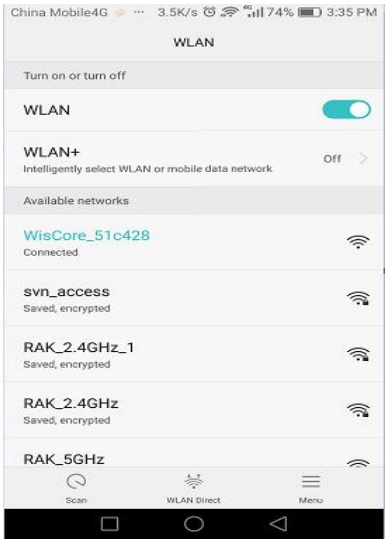
“Sign in” and then wait a few seconds, you will log in Alexa. Finally you can communicate with Alexa as follows



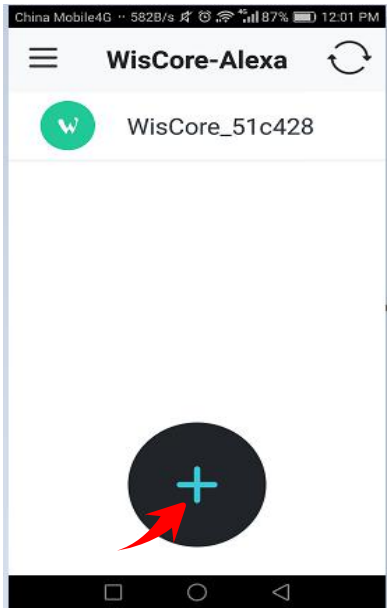
8.2 Station Mode

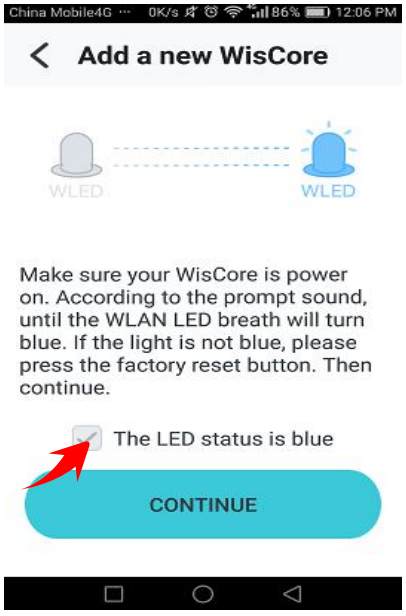
1 Power on, wait some times, then you will see the led quick flash and search wireless id "WisCore_mac address", this is ap mode.

2 Connect to the wireless "WisCore_mac address"



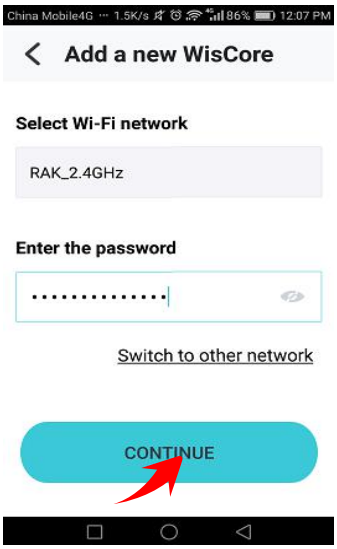
3 open the app "WisCore", click "+" to add network, if the led flashed quickly select the "LED status" ,then "CONTINUE"

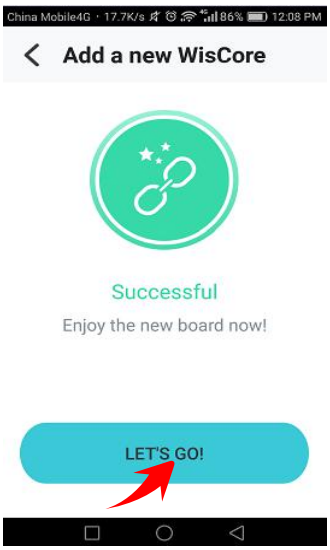




4 input your router's id and password ,then "CONTINUE" you will see a progress bar, wait a few seconds it will access ,and led flash seconds slowly, finally the led always on

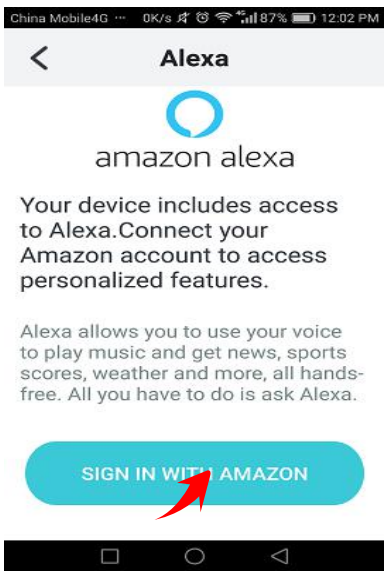
Ensure your phone and module connect to the same router, if not ,"Switch to other network" to choose

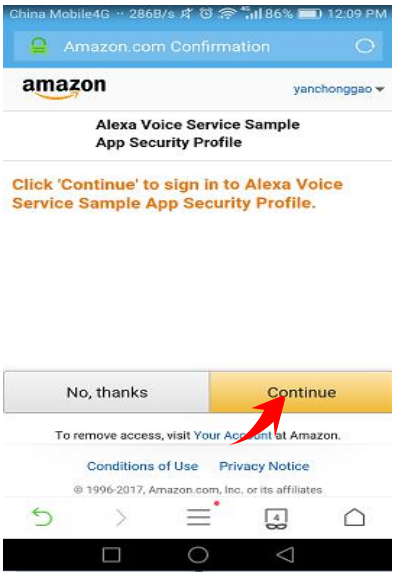




5 click "LET'S GO!", it will skip main page ,then you can log in Alexa ,it's the same to "Ap Mode"

click "Amazon Alexa", then input your amazon account and password, if you have signed in last time ,it's will remember you account ,you should click "Continue" to log in.





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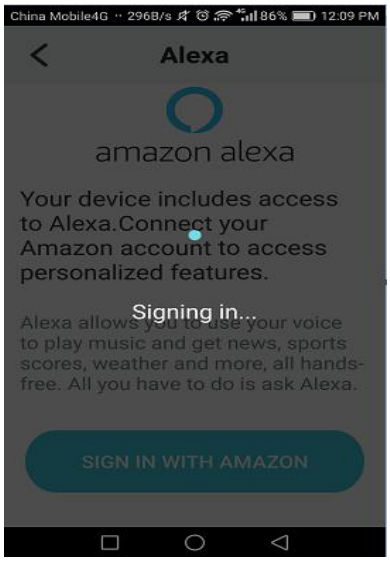

9 Button

Button1: on Mother Board , press it about 5 seconds, it will reset the factory
Button2:on Audio Sub Board , press it to enter mute mode

10 Modification Record

Version	Author	Time	Modify The Content
V1.0	Wentao.Sun	2017/4/18	Create the Document