Gateway

Specification V1.0

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written consent of the ant hero. After the update the new version, this document without prior notice.

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1. Product introduction

1.1 Production description:

WiFi to bluetooth gateway is a gateway developed by our company for Amazon's voice assistant Echo, which can receive voice commands through the WiFi module of the gateway, The Bluetooth module is converted into bluetooth signal and sent to the corresponding bluetooth device, so as to achieve the effect of controlling the bluetooth device. The gateway integrates the WiFi module of ESP8266 and the bluetooth module of BLE1046, with features of low power consumption, strong stability and Bluetooth Mesh networking.

1.2 Product features

◆Using WiFi to connect to the Internet, the network communication stability is high.

◆With the function of bluetooth Mesh networking, bluetooth one-to-many communication can be realized

◆The bluetooth communication distance of Mesh is far, and it can even cover the whole house, far exceeding the 20-meter limit of bluetooth communication in the market.

◆Voice control can be realized with Amazon's voice assistant

1.3 Product usage:

This gateway can be applied to the scheme of smart home. It can be matched with corresponding bluetooth devices and voice control through Echo.

2. Technical specification

2.1Behaviour of electricity

Product model	Gateway
Input voltage	DC 5V
Working power	<130mA
Standby power consumption	<90mA
Bluetooth communication distance	20m

2.2WiFi Module

ESP8266 is a wi-fi module that fully complies with 802.11b/g/n wireless protocol. It integrates a complete TCP/IP protocol stack internally, including an arm-cm3 MCU, WLAN MAC and a single-stream WLAN baseband。The module includes onboard antenna, external antenna interface and rf output pin. ESP8266 Integrated TCP/IP protocol stack, support ARP, IP, ICMP, TCP, UDP, DHCP CLIENT, DHCP SERVER, DNS and other protocols. Support AP, Station, AP+Station modes. ESP8266 provides a wealth of AT commands for various applications, enabling users to easily and quickly use modules to network and send and receive data. The ESP8266 module also supports transparent transmission, enabling individual or batch configuration parameters through the use of PC tools, mobile apps and other tools, and then the module can connect the serial port and network to be used normally. The serial port baud rate of ESP8266 module can support up to 921600bps, which fully satisfies low speed applications.

Features below：

◆Supports command and transparent transport modes.

◆Support multiple baud rates with a maximum baud rate of 921600.

◆ Support wireless configuration and OTA firmware upgrades.

◆ Support UART interface, OTW upgrade function.

◆ Easyconfig supports one-click networking.

◆ Support AP, STA, AP+STA modes.

- 2.3Bluetooth communication module
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Bluetooth module can build strong network nodes with very low material cost. In accordance with bluetooth specification, it can be applied to wireless sensor, control and data acquisition. At the same time, special firmware is developed for LED lighting application, which supports switch, timing, grouping, scenario mode, firmware wireless upgrade, parameter setting and other functions.

The bluetooth module is integrated on the sensor to allow the sensor and the corresponding bluetooth lamps to form a network to achieve wireless control of the lighting device. At the same time, the sensor height can also be customized through the supporting APP, such as the timing switch of the sensor, the length of switching time, etc.

Features below:

◆ Supports Bluetooth Mesh.

◆ Support 5-channel PWM output, I2C, UART external communication interface.

◆ Support point-to-point and point-to-point communication.

◆ For LED lighting, firmware wireless upgrade, parameter setting and other functions.

◆ 1Mbps wireless communication rate.

◆ 512KB Flash chip on board, can save user data when power off.

◆ Small size, low cost, low power consumption, high sensitivity to sending and receiving.

◆ According to bluetooth specification, it can be used for wireless sensor, control and data acquisition

.◆ Adaptive frequency hopping technology, high performance wireless transceiver system.

◆ The communication distance of open ground is about 150 meters, and the indoor communication distance is about 50 meters.

2.4 Circuit design
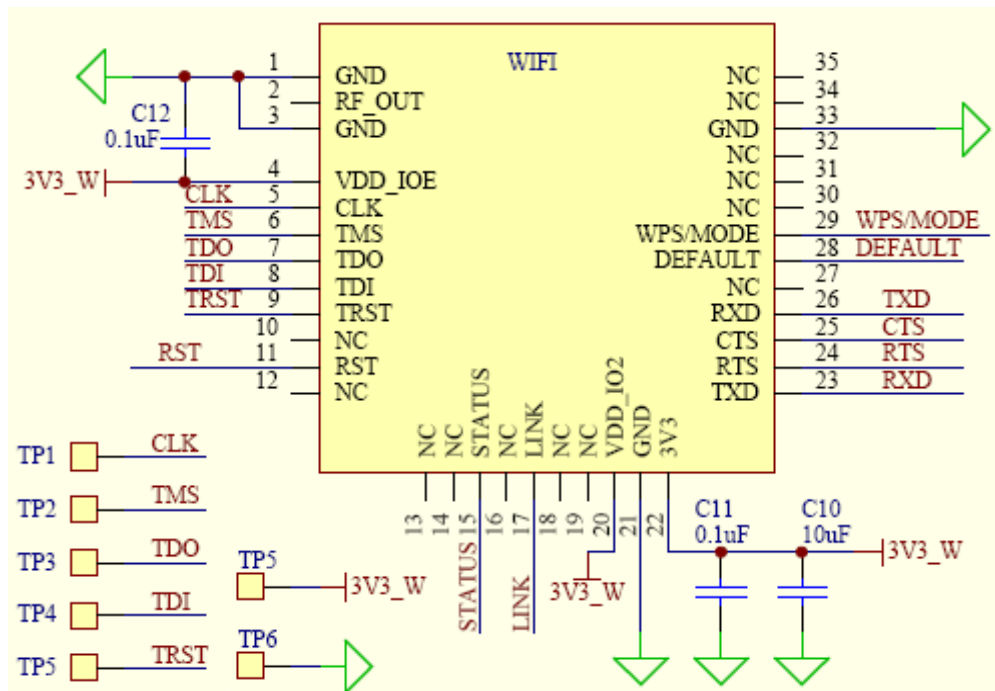
WiFi Module Circuit design
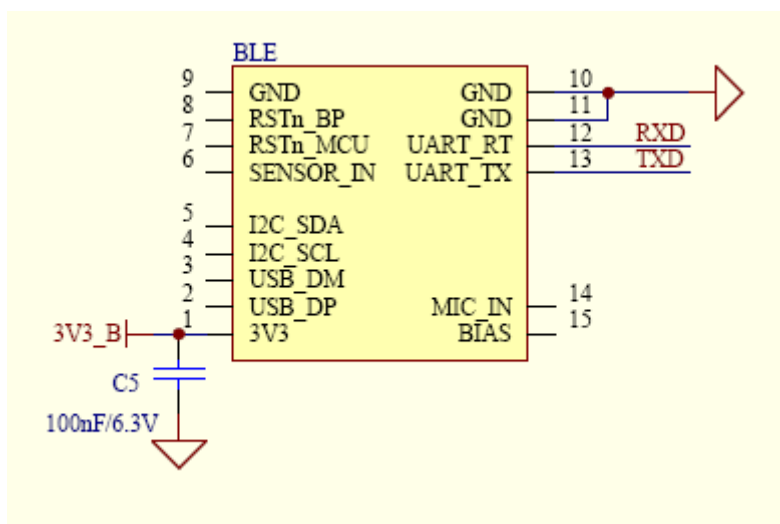
**Application circuit of bluetooth module**

3. Instruction manual

3.1 Usage condition:

The gateway needs to connect to the network and receive commands sent from the server side

The gateway needs to connect to the network and receive commands sent from the server side。The gateway is connected to the network through wifi, so the gateway should be deployed where it can receive stable WIFI signals. At the same time, The gateway communicates with other terminal devices through bluetooth signals, so the gateway should not be too far away from the terminal device. It is recommended not to exceed 20 meters. If the distance between the terminal device and the gateway is completely isolated, Then the communication distance will be shortened accordingly。 But this gateway USES bluetooth support Mesh, so only ask the latest bluetooth devices within the effective communication, and the distance between the other bluetooth devices in effective communication range.

3.2 Deployment diagram
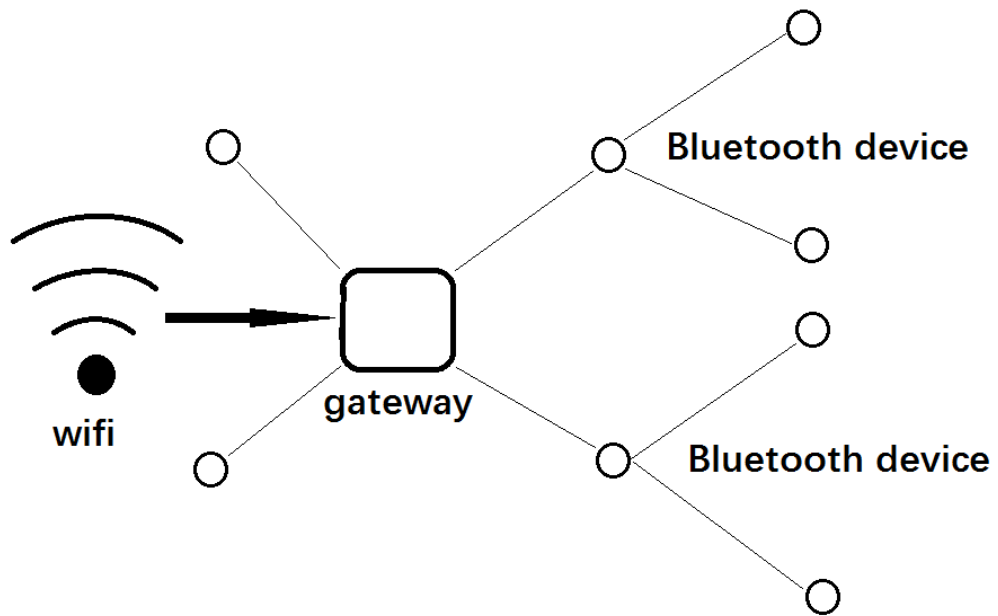
3.3 Cautions:

（1）WIFI module antenna of this gateway is onboard, so the wifi reception capacity will be lower than laptops, is likely to be less than a small number of mobile phone, so please set the gateway deployment where wifi signal is stable and strong enough

（2）The bluetooth module of this gateway and other bluetooth terminals communicate through Mesh, so the gateway and other devices must be in the same Mesh network before they can be used normally.

FCC WARNING

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different

  from that to which the receiver is connected.

-- Consult the dealer or an experienced radio/TV technician for help.

To maintain compliance with FCC's RF Exposure guidelines, This equipment should be installed and operated with minimum 20cm distance between the radiator and your body: Use only the supplied antenna.