FDV6-W Wi-Fi Provisioning And Voice Guide (2.4 GHz Wi-Fi)

1. Overview

The FDV6-W Human Fall Detection Sensor is a 60 GHz mmWave radar-based device designed to detect human motion and posture. By combining advanced radar signal processing algorithms with intelligent application logic, it accurately detects falls and prolonged stationary presence within the monitoring area. The sensor offers high reliability, strong resistance to interference, and privacy protection, making it ideal for applications such as elderly care and security monitoring. Event information and device status are transmitted via a 2.4 GHz Wi-Fi connection.

The initial development process for integrating the radar device with a customer platform mainly consists of two steps:

1. **Configure the customer server address information.**
2. **Configure the product network connection to connect to the server.**

- **Support for factory pre-configuration of server address information:**
  During mass production, the factory can complete the customer server configuration in advance. During on-site deployment, users only need to complete the network connection to start using the product.
- **Sample devices do not include customer server configuration by default:**
  Before testing, the sample device must be manually configured according to the server address and related parameters provided by the customer.

1.1 Tool

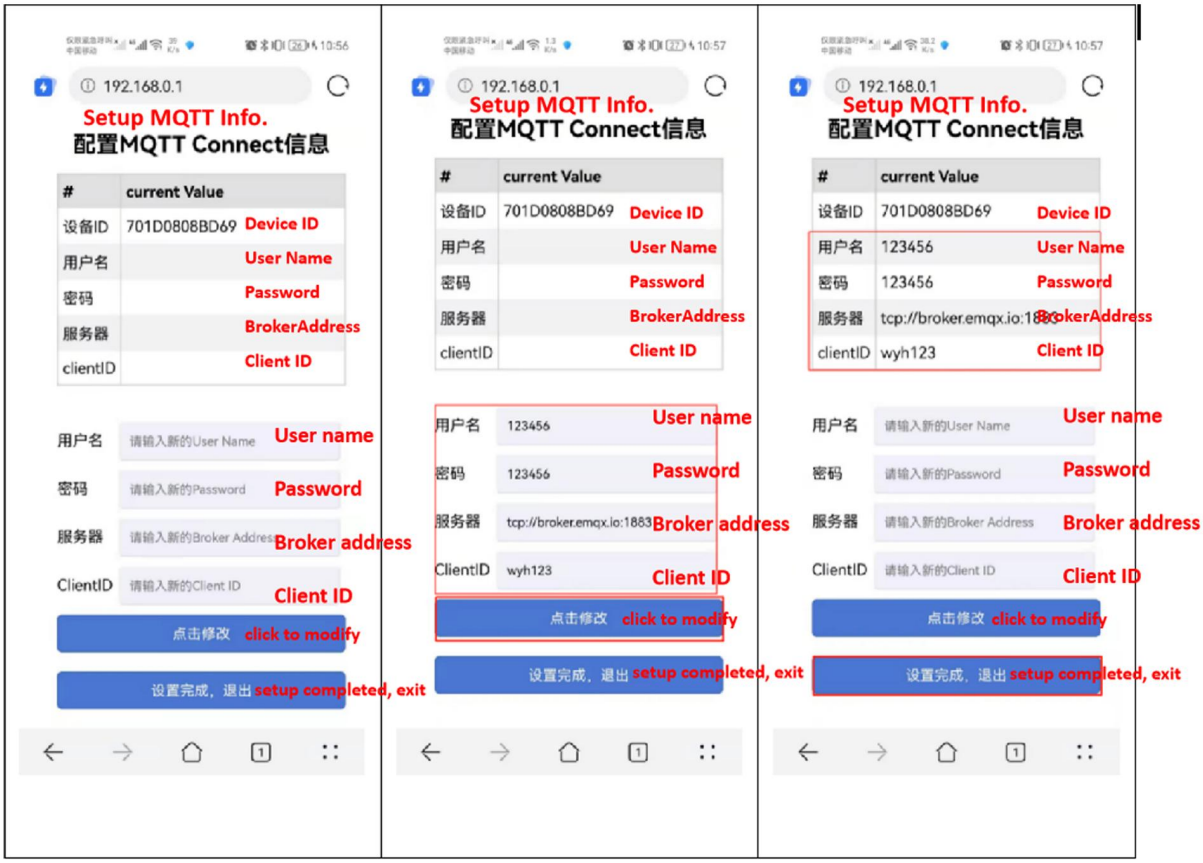
1. Device
2. Android phone
3. APK file: BK_BLE
4. User Guide for the corresponding device model

If you encounter any issues during the network configuration process, please feel free to contact the Micradar team.

2. Product Network Provisioning Guide

Before configuring the radar sensor for the first time, the built-in Wi-Fi module must be configured with the MQTT connection parameters, including the MQTT broker address, Client ID, username, and password. This configuration is required only once, as the settings will be stored in the module. The configuration procedure is as follows:

1) Press and hold the **Reset** button on the radar sensor for more than 10 seconds. The built-in Wi-Fi module will enter configuration mode and create a Wi-Fi access point (AP) named **RadarConfig-xxxxxxxxxxxx**. Connect to this AP using a smartphone or computer, then open a web browser and navigate to **http://192.168.0.1**
2) Configure the MQTT connection parameters according to your MQTT broker settings. After completing the configuration, click **Save Changes**.
   Note: The MQTT broker address must be specified in the following format:
   tcp://broker.emqx.io:1883
3) After the configuration is submitted, the webpage will refresh automatically, and the updated information will be displayed in the parameter table. Click **"Finish Configuration and Exit"** to exit the configuration process. The module will exit configuration mode and reboot automatically.



3. Radar Sensor Network Configuration Procedure

Note: All the following network configuration operations must be performed while the device indicator LED is flashing. If the LED is not flashing, the configuration process has failed, and the network configuration procedure must be restarted. The following figure shows the LED flashing status during the network configuration process:

Entering Wi-Fi provisioning mode	Red LED flashes every **500 ms** (**90 s timeout**)
Reset button pressed	Red LED remains **ON**
MQTT server connection successful	Red LED turns **ON** for 1 second and then turns OFF
Device connected to the network and operating normally	Red LED remains OFF
Network configured successfully, but disconnected from the server or network	Red LED remains **ON**

The device network configuration must be performed using the Android APP provided by the manufacturer.

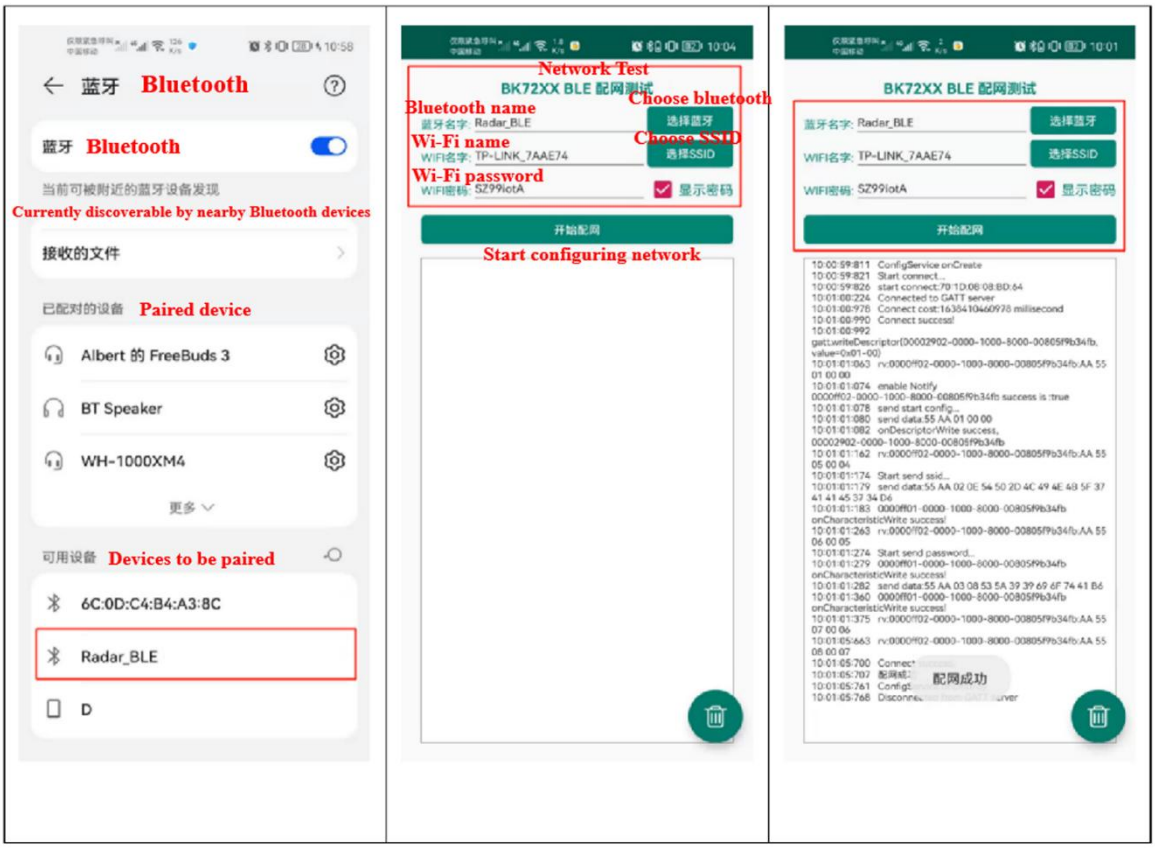
1) Press and hold the **Reset** button for 5 seconds until the LED indicator turns off, then release the button. The LED will start flashing, indicating that the radar sensor has entered Wi-Fi provisioning mode. At this time, the radar sensor will broadcast a Bluetooth device named "**Radar_BLE**". Open the App *"BK_BLE"* and start the network configuration process.

Note: The maximum provisioning time is 90 seconds. If the radar sensor is not successfully configured within 90 seconds after entering provisioning mode, a provisioning timeout command will be sent to the App.

2) Open the network provisioning App*"BK_BLE"*, select the Bluetooth device and Wi-Fi network (SSID), then enter the Wi-Fi password. Please use a 2.4 GHz Wi-Fi network, as 5 GHz Wi-Fi is not supported.

3) Click "Start Configuring network"

For detailed operating steps, please refer to the figure next page.



This figure only demonstrates that the Bluetooth signal from the radar sensor can be detected. Do not click any buttons on this page.	Please use a 2.4 GHz Wi-Fi network, as 5 GHz Wi-Fi is not supported.	When the Wi-Fi provisioning is successful, a message indicating "Provisioning Successful" will be displayed.

4. Subscribe to device data after successful provisioning

Note: The following operations assume that the device has successfully connected to the public server. After the connection is established, the Network Configuration LED should be off. If the Network Configuration LED still indicates any network configuration status, troubleshoot the issue according to the network configuration procedure and LED indications, then perform the network configuration again until the device successfully connects to the public server.After the Wi-Fi provisioning is completed successfully, the device information can be subscribed to using a PC-based MQTT client or other MQTT client tools.

- After the Wi-Fi provisioning is completed successfully, the device information can be subscribed to using a PC-based MQTT client or other MQTT client tools.
- Use the PC-based MQTT client (MQTT X) to connect to the MQTT Server, subscribe to the corresponding device topic, and receive the device reported data.



5. Voice Interaction Module

Note: Due to the current voice chip configuration, only Chinese voice prompts are available. English voice support will be provided in a future version.

By default, the voice function is enabled based on the radar sensor's human presence detection status. Voice commands can be triggered normally when a person is detected. When no person is detected, voice commands will not be triggered.

When human presence is detected, voice commands are divided into two categories:

5.1 Commands Requiring Manual Wake-up：

Safety Assistance Function:

For example, when reporting a fall detection event, the user can say the wake-up

command "Help" to activate the voice interaction function. The device will then prompt: "Did you fall?"

Based on the user's response, different voice commands such as "I fell", "I have fallen", or "I did not fall" can be used to trigger different status reporting or cancel the alarm.

5.2 Commands Without Wake-up Required:

- Keyword Voice Learning Function:

The device supports voice learning for customized keywords, including dialects and new voice commands. Use the voice command "Enter learning mode" to activate the learning mode, then follow the voice prompts from the device to complete the learning process.

- Reset Voice Prompt Function:

To delete the learned voice prompt content, use the voice command "Restore factory settings" twice. The learned voice prompt content will be deleted, while the original built-in voice prompts will not be affected.

5.3 Passive Voice Triggering：

When the device detects a fall event, it will automatically initiate a voice prompt and ask the user: "Did you fall?"

A. If the user does not respond to confirm whether a fall has occurred, and the fall status is not cleared within 15 seconds, the device will automatically report the fall event to the service platform.

B. If the user responds with a voice command confirming the fall status, the device will report the fall event to the service platform according to the user's response.

In addition to the above scenario, the device also supports passive voice triggering during fall detection verification. After the device is installed, when a person falls within the detection area, the radar sensor detects the fall event and automatically triggers a voice prompt. The user can respond to confirm whether a fall has occurred, and the device will report the corresponding status. If the user does not respond and the fall status is not cleared within 15 seconds, the device will automatically report a fall event.