INGICS TECHNOLOGY

IGS DemoBoard APP Guide

Introduction

The IGS DemoBoard application can be used for demonstration or testing the Ingics BLE gateway (iGS01/iGS03) using direct TCP connection (M2M) or MQTT protocol with a broker. The DemoBoard includes the parser of Ingics BLE beacon payload for users to get the sensor data of the beacons.

Installation

This application is an open-source project under MIT license. You can find the source code and release packages at https://github.com/ingics/ingics-blegw-demoboard.

Use Binary Release

Linux

The application will be released in AppImage (https://appimage.org/) format for Linux, you can download the file, make it executable and run it. The application has been tested on Ubuntu 20.04.

Windows

The application will be released as a portable app file (without installer) for Windows 10.

Source Code

If you want to modify the source code and build the application on your own. You can follow this instruction.

1. Install NodeJS on your development system
2. Install Quasar-framework CLI (https://quasar.dev/quasar-cli/installation)

   # npm install -g quasar
3. Checkout the source code.

   # git clone https://github.com/ingics/ingics-blegw-demoboard
4. NPM install packages

   # npm install
5. Run application in development mode

   # quasar dev -m electron
6. Build application package

quasar build -m electron

The executable file will be placed in the 'dict' folder.

Usage

Setup with M2M Mode

For using M2M mode, please make sure the iGS03 IP address is accessible from DemoBoard (PC). Whatever using iGS03 as WiFi AP, connected to extra WiFi AP or using LTE.
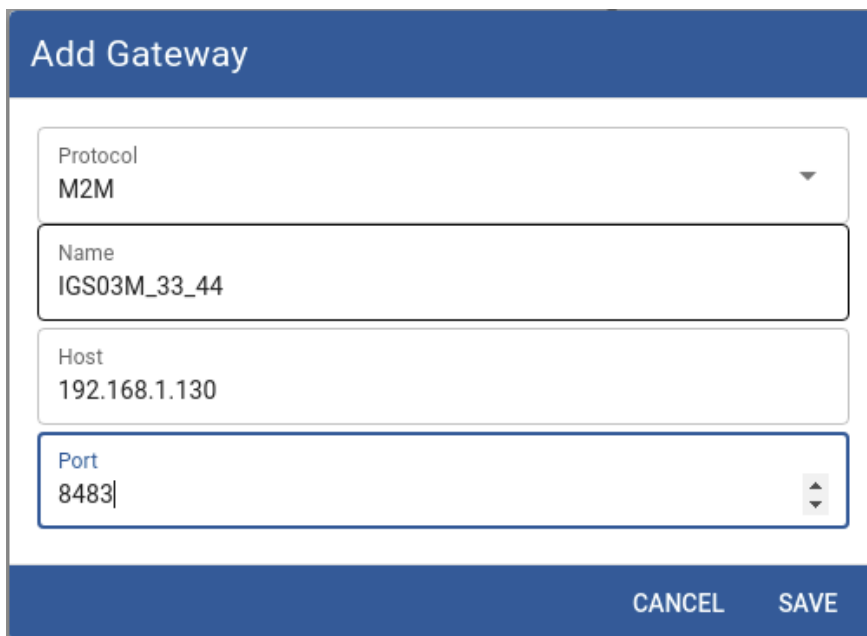
1. iGS03 Configuration

   Setup in application page
   - Mode: M2M server
   - Port: 8483 (can be any port number you want)

2. Add a new gateway in DemoBoard
   - Mode: M2M
   - Name: string used to display on DemoBoard UI
   - Host: the IP address of iGS03
   - Port: 8483 (the port number setup in iGS03)

Add Gateway

Protocol
M2M

Name
IGS03M_33_44

Host
192.168.1.130

Port
8483

CANCEL   SAVE

INGICS TECHNOLOGY

Setup with MQTT Mode

You can set up an MQTT broker or use a public broker like test.mosquitto.org to test the iGS03 MQTT function. Below is a step by step example for use test.mosquitto.org.
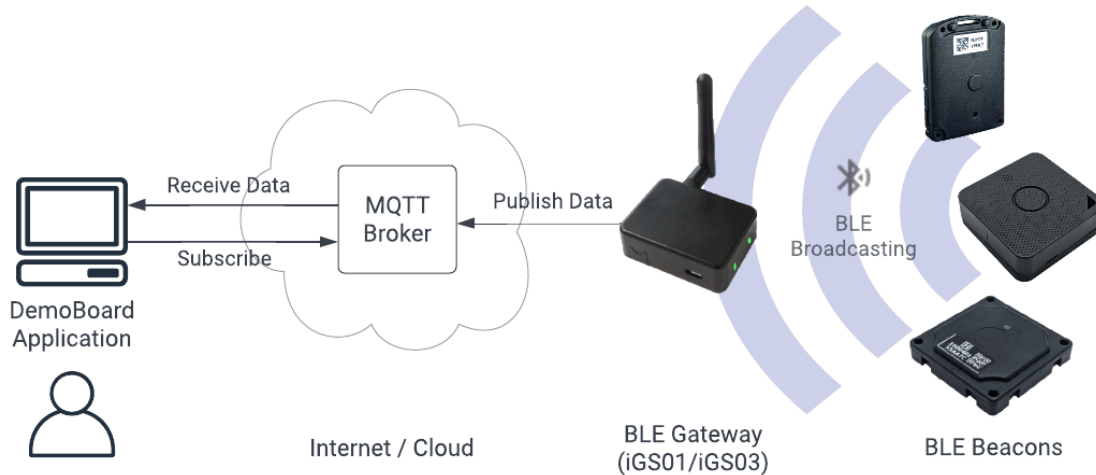
1. Network Configuration

   To use an open broker, just need to make sure the iGS03 and PC can access the internet with the correct DNS setting. Or, if you want to use an internal MQTT broker, please make sure the broker is accessible from iGS03 and DemoBoard (PC).

2. iGS03 Configuration

   Setup in application tab

   - Mode: MQTT client
   - Host: test.mosquitto.org
   - Port: 1883
   - Publish Topic: mytest/IGS03M_3B_04 (any topic string you want for identify this gateway)

Application Settings

Mode
MQTT Client

Taget Host/IP
test.mosquitto.org

Port
1883

☐ MQTT over TLS (MQTTS)

Publish Topic
mytest/IGS03M_3B_04

3. Add a new gateway in the DemoBoard
   - Protocol: MQTT
   - Name: string used to display on DemoBoard UI
   - Host: test.mosquitto.org
   - Port: 1883
   - Topic: mytest/IGS03M_3B_04 (same as the Publish Topic setup in iGS03)

Add Gateway

Protocol	
MQTT	▼

Name
IGS03M_3B_04

Host
test.mosquitto.org

Port
1883

Subscribe Topic
mytest/IGS03M_3B_04

CANCEL   SAVE

Active the Gateway Connection

Gateway Card

After adding the gateway in DemoBoard, your gateway setting will be displayed as gateway cards on UI. You can click the gateway card to activate the gateway connection for browsing the logs or beacons.

IGS03M_3B_04	⚙ 🗑
Host	Port
test.mosquitto.org	1883
Protocol	Subscribe Topic
MQTT	mytest/IGS03M_3B_04

IGS03W_33_44	⚙ 🗑
Host	Port
192.168.1.130	8384
Protocol	
M2M	

INGICS TECHNOLOGY

Log Browser

After activating the gateway, you will enter the log browser. Or you can click the button in the title bar to switch the UI between Log Browser and Beacon Browser pages.

All messages published/sent by iGS03 will be displayed here. But for saving memory usage, the DemoBoard only keeps the last 100 messages received.

If there are too many logs sent from iGS03, you can use the PAUSE button to freeze the log browser. Then you can take your time to check the logs received.
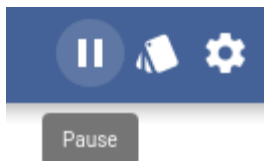
INGICS TECHNOLOGY

In Beacon Browser, you can see all BLE beacons which have been sawed by the iGS03 (since the gateway was activated). You can click on the beacon to expand the detail parsed result.
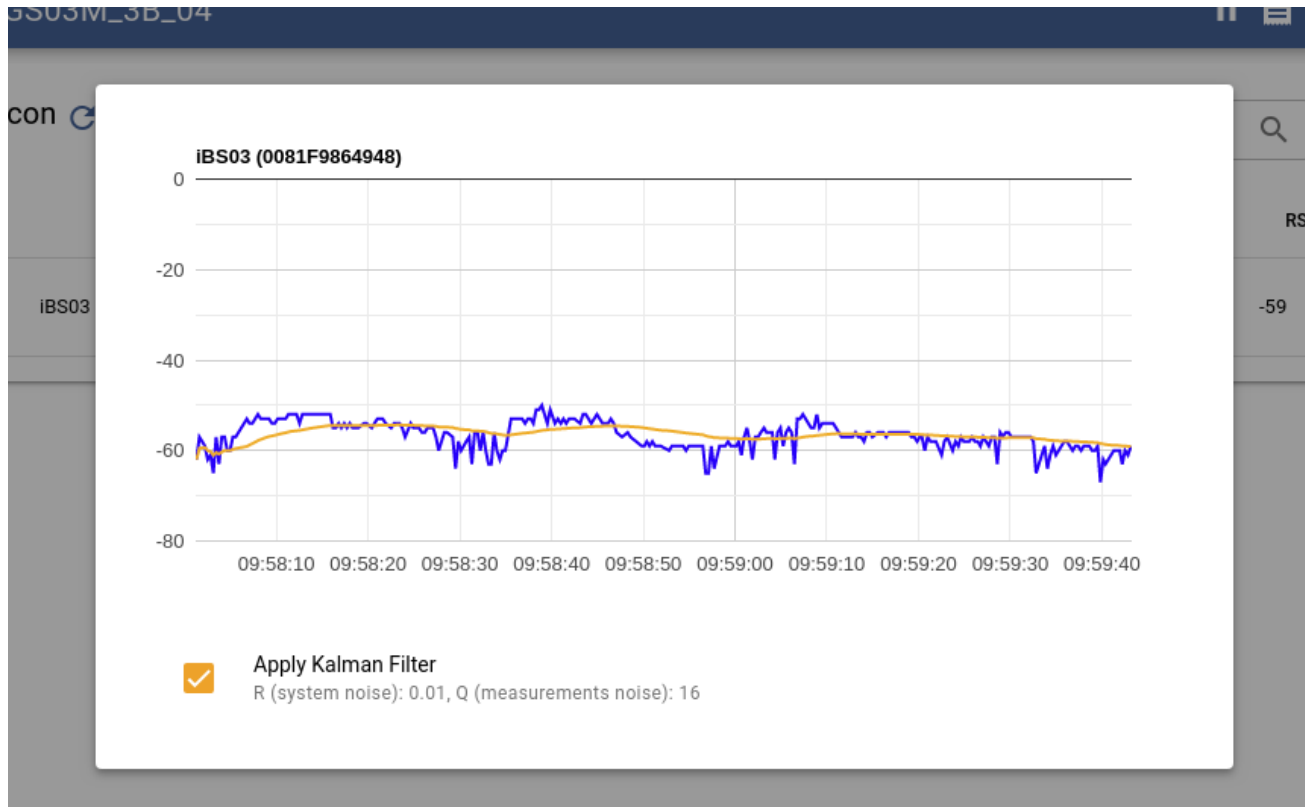

To open the RSSI chart, click on the 'line_chart' icon next to the RSSI value. It will keep 300 RSSI records at most to display the RSSI history. You can also enable the Kalman Filter to see the possible result after applying Kalman Filter (the APP uses parameters for a static system, which means assume the beacon did not change location).

INGICS TECHNOLOGY

If there are too many beacons, you can use the search function to find the beacons you aim to. It is a free text input used to match the beacon's MAC address or detailed message.

Or, you can use the RSSI threshold to filter the beacons.

Revision History

DATE	REVISION	CHANGES
April 29, 2020	1	Initial release
May 21, 2020	1a	Add rssi chart and update beacon browser screenshot
March 24, 2022	1b	Update block diagram of MQTT system architecture