

# BLE to WiFi Gateway



## Highlights

Connect Bluetooth Smart devices to the cloud

Low power and small form factor

MQTT Protocol Support

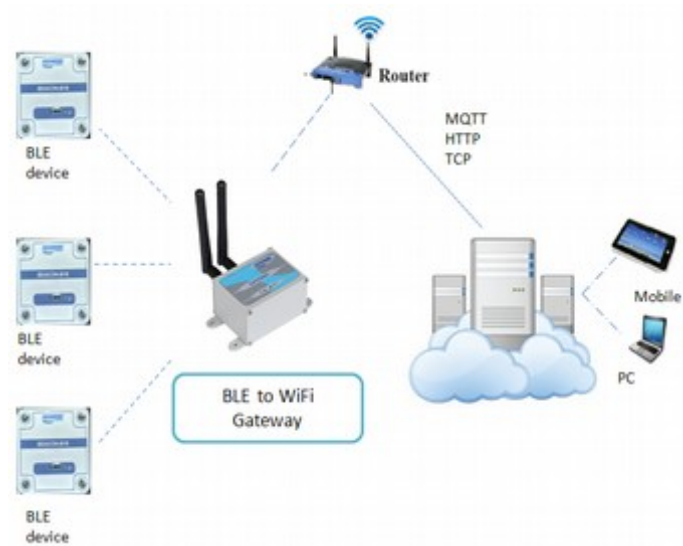
HTTP Configuration

Over the air upgrade

## Integrating the BLE node to cloud with WiFi

CASCADEMIC gateway reads BLE advertising data from beacons (like iBeacon or Eddystone), customized format and sends the information to MQTT server over Wi-Fi®. User can configure the server credentials, WiFi settings, data period through a simple web UI.

Gateway devices make it easy and cost efficient to cover an area with BLE and get it connected with cloud to take advantage of real time remote monitoring or asset tracking with a lesser effort and manpower.



## Remote Monitor and Control

Gateway is not limited to beacon method which is one way communication. it can be used as connectable and secure bidirectional data communication device. End BLE node can be controlled and monitored over the cloud via MQTT.

## Easy installation

With CASCADEMIC BLE to WiFi gateway, users can access and control their multiple sensor node from anywhere at any time with easy installation setups. For instance, even a battery-operated small home appliance can be remotely accessed and controlled from outside.

## Firmware Upgrade Over the air

FOTA support for both BLE and WiFi Firmware. FOTA is an essential feature which allows easy upgrading or adding of features to a remote installed device without the need for cables or man power.

## Applications

- iBeacon/ Eddystone receiver
- BLE sensor reader for sensor network
- Health monitoring
- Location tracking
- Access management
- Industrial automation

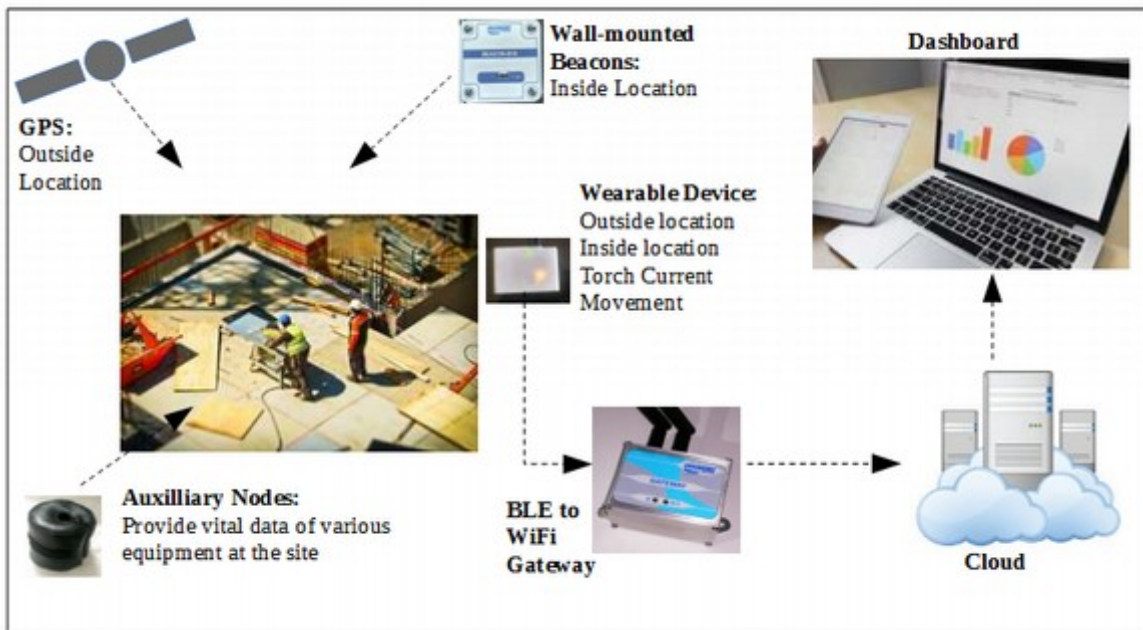
| Hardware                          |   |
|-----------------------------------|---|
| Processor                         | <ul style="list-style-type: none"> <li>ARM Cortex M4, ARM Cortex M3 Core based CPU</li> </ul>   |
| Memory                            | <ul style="list-style-type: none"> <li>256 KB RAM</li> </ul>  |
| Storage                           | <ul style="list-style-type: none"> <li>SPI FLASH – 1 MB default (Expandable up to 8 MB)</li> </ul>  |
| Power Supply                      | <ul style="list-style-type: none"> <li>5 V DC</li> <li>3.7 V, 1100 mAh Rechargeable Battery Back Up</li> </ul>  |
| Connectivity – WiFi               |   |
| WiFi                              | <ul style="list-style-type: none"> <li>802.11 b/g/n</li> <li>2.4 GHZ frequency band</li> <li>Station (WPS 2.0), AP and Wi-Fi Direct mode(optional)</li> <li>TX Power <ul style="list-style-type: none"> <li>18.0 dBm @ 1 DSSS</li> <li>14.5 dBm @ 54 OFDM</li> </ul> </li> <li>RX Sensitivity <ul style="list-style-type: none"> <li>-95.7 dBm @ 1 DSSS</li> <li>-74.0 dBm @ 54 OFDM</li> </ul> </li> </ul> |
| Wireless Protocol Support         | <ul style="list-style-type: none"> <li>TCP</li> <li>HTTP</li> <li>MQTT</li> </ul>   |
| Security                          | <ul style="list-style-type: none"> <li>Secure Wi-Fi &amp; Internet Connections with 256-Bit AES Encryption for TLS and SSL Connections</li> <li>WPA2 Personal and Enterprise Security</li> </ul>  |
| Antenna Support                   | <ul style="list-style-type: none"> <li>On board Chip antenna</li> <li>SMA/ UFL</li> </ul>   |
| Connectivity – BLE                |   |
| BLE                               | <ul style="list-style-type: none"> <li>BT Version 5.0</li> <li>2.4-GHz</li> <li>Receiver Sensitivity -97 dBm</li> </ul>   |
| BLE data format (Non connectable) | <ul style="list-style-type: none"> <li>Ibeacon, Eddystone</li> <li>Customized format</li> </ul>   |
| Other                             | <ul style="list-style-type: none"> <li>* Connection method (optional)</li> </ul>  |
| Antenna Support                   | <ul style="list-style-type: none"> <li>On board Chip antenna</li> <li>SMA/UFL</li> </ul>  |

| User Interface               |   |
|------------------------------|---|
| LED                          | <ul style="list-style-type: none"> <li>• Power Status</li> <li>• WiFi connectivity Status</li> <li>• BLE status</li> </ul>          |
| Wireless Configuration       | <ul style="list-style-type: none"> <li>• WiFi AP, STA setting</li> <li>• MQTT configuration</li> <li>• Device Parameters</li> </ul> |
| Other Interface              |   |
| Serial                       | <ul style="list-style-type: none"> <li>• 1 * UART(TTL)</li> <li>• 1 * RS485</li> </ul>  |
| Modules*                     | <ul style="list-style-type: none"> <li>• GSM (3G/4G)</li> <li>• LoRa</li> </ul>   |
| Operating Temperature        | <ul style="list-style-type: none"> <li>• 0 deg. C to +50 deg. C</li> </ul>  |
| Storage Temperature          | <ul style="list-style-type: none"> <li>• -40 deg. C to +85 deg. C</li> </ul>  |
| Relative Humidity            | <ul style="list-style-type: none"> <li>• 5% to 95% Non Condensing</li> </ul>  |
| Mechanical Parameters        |   |
| Enclosure over all Dimension | <ul style="list-style-type: none"> <li>• 87 X 47 X 42 mm</li> </ul>   |
| Weight                       | <ul style="list-style-type: none"> <li>• 200 gram</li> </ul>  |
| Material                     | <ul style="list-style-type: none"> <li>• Aluminum</li> </ul>  |
| Mounting                     | <ul style="list-style-type: none"> <li>• Wall mount, Table top</li> </ul>   |

\* Custom configuration

## Applications

The applications of CASCADEMIC's Asset Tracking System range from Asset tracking and control, workforce monitoring to visually impaired assistance systems, proximity ads and push notifications.



The above picture demonstrates how the system can be used for tracking energy consumption of welding machines and also to monitor manpower efficiency of welder activity.

CASCADEMIC's system will be able to monitor the welding machine and the presence of welders within the vicinity of the Welding machine. The compact nodes can be attached to welding torch, welding machine and also wearable by employees. Hall-sensor based measurement for the welding machine and accelerometer based measurement of movement in the case of welding personnel and welding torch is used.

Another typical need for such a tracker is in health-care industry for tracking critical personnel like nurses and patient files. The Asset tracking System from CASCADEMIC is the best option not only in the above case, but it can literally be used in any situation where location positioning, communication and analytics are needed.



Industrial IoT Gateway



Energy Monitoring Solution



LoRa Connectivity Solution

# Innovation towards Embedded Planet

Cloud Connectivity Solution



Environment Monitoring



Thermal Printer



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