

Vibration Monitoring

# Product Catalog

---

Ver1.0



2017.05.02

## Revision

Rev	Date	Description	Author
1.0	2017.05.02	Initial Version.	Peter Li

# 1. System Architecture

WiiMesh is an implement of Wireless Sensor Network. It includes WiiMine, WiiGate, WiiCarrier, WiiCloud, and user terminals:



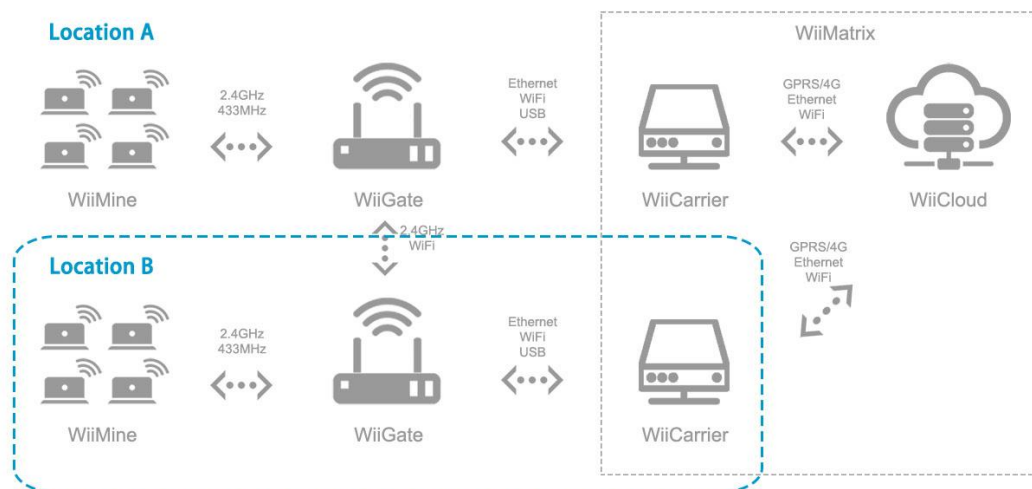
## System architecture of WiiMesh

Responsibilities of each role are listed below:

- WiiMine – Wireless sensor, acquiring vibration data;
- WiiGate – Wireless Gateway, transmitting data;
- WiiCarrier – Local Server, pre-processing data on the site;
- WiiCloud – Cloud datacenter, processing data in the cloud;
- WiiMatrix – Processing system, supporting many algorithms;

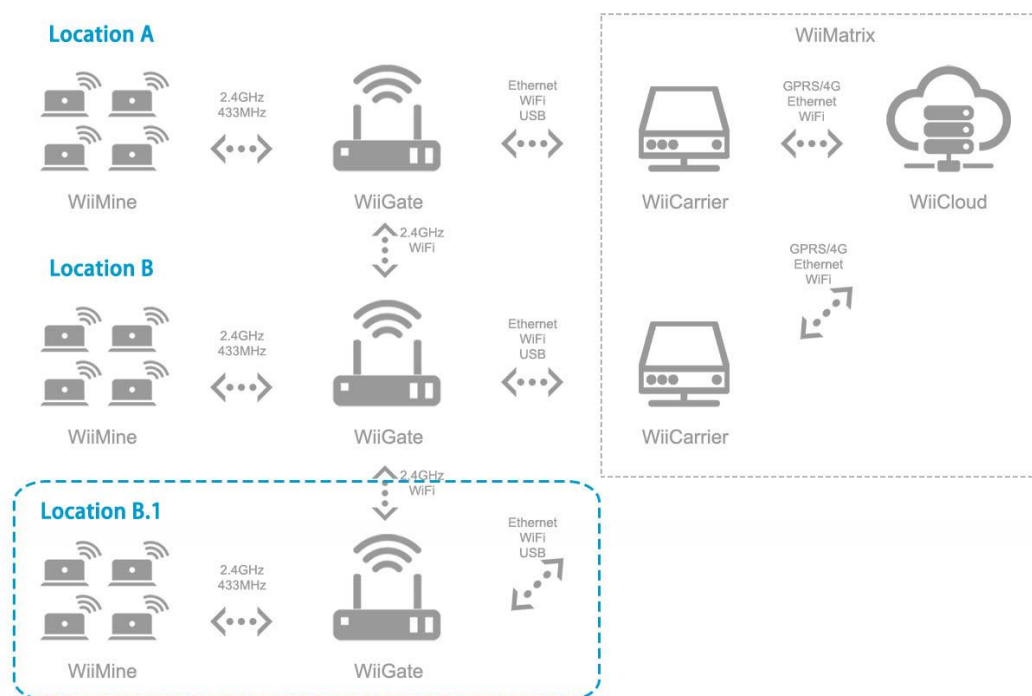
Every component in the network works efficiently, flexibly and robustly.

To expand signal coverage, the system has two derived architectures:



### Expand signal coverage No.1

*From Location A to Location B. (Network for long distance separated)*



### Expand signal coverage No.2

*From Location B to Location B.1. (Network for nearby area)*

## 2. Data Acquisition



WiiMine – Sensor

Item	Parameter
Sensor Type	MEMS
Sensors	Accelerometer/Temperature/Humidity
Accelerometer Resolution	3-axis @0.1mg
Monitoring Target	0.25-180,000 RPM Rotating machine
Wireless Connectivity	2.4G Hz/BLE/Wi-Fi/4G
Battery Life	18m @upload per minute, 5y @upload every 2 hour.
Weight	58g
Installation	Sticking/Screwing
Water-Proof	IP65
Working temperature	-20°C - +75°C

### 3. Data Transmission



WiiGate – Wireless Gateway

Item	Parameter
Network Protocol	TCP/IP, DHCP, ARP, RARP, TCP, UDP
RF Distance with sensor	BLE:0.5m-15m 433MHz: 30m-1000m
RF antenna	2.4GHz, 433MHz
Power Source	Commercial: 12V/0.5A DC Industrial: 48V/0.1A DC/ PoE IEEE 802.3AF
Security	AES 128 bit
Processing resources	32bit ARM Cortex-M4 4MB RAM; 2MB Flash;
Ethernet	Adaptive 10/100Mbps
Wi-Fi	802.11 b/g/n
Sub-G	433MHz ISM
Bluetooth	V4.2, BLE
Working temperature	-20°C - +75°C

## 4. Data Processing

### (1) WiiCarrier – Local Server



WiiCarrier – Local Server

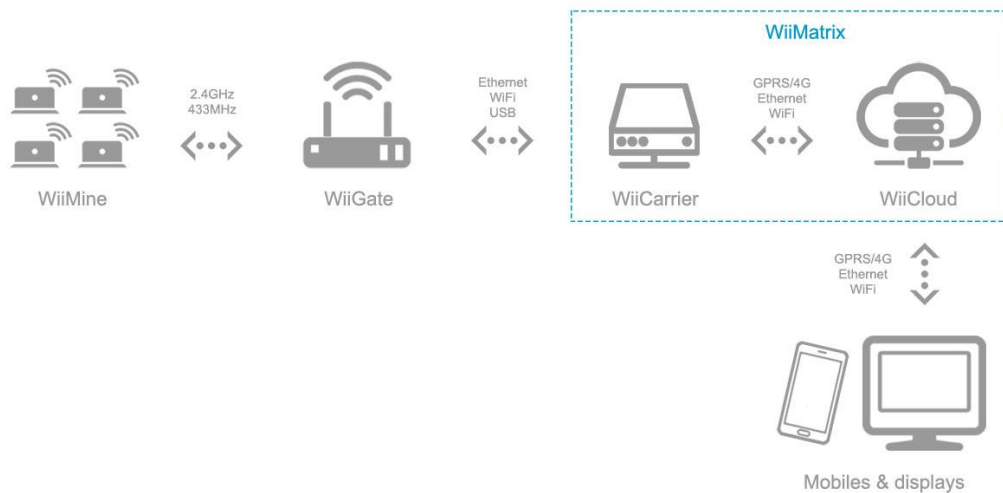
Item	Parameter
CPU	Intel Celeron N2807, 1.58GHz Dual Core.
RAM	2GB, DDR3L-1333MHz
Video	Integrated Intel® HD Graphics, 2048 x 1280 @60Hz, VGA/HDMI
Audio	Realtek ALC662-VD0, 1 x MIC-IN, 1 x AUDIO OUT
Connectivity	Realtek 8111F Gigabit Ethernet, Wi-Fi, Bluetooth, 2G/3G/4G
USB	1 x USB 3.0, 3 x USB 2.0
Interface	1 x full-size Mini-PCle with mSATA support 1 x full/half-size Mini-PCle
Operating system	Linux, Windows 7, Windows 10
Power Source	5V 3A DC
Dimension	116 x 106 x 30 mm
Working temperature	0°C - +65°C

## (2) WiiCloud – Cloud Server

WiiCloud, deployed on Baidu Cloud and AWS Cloud.

## (3) WiiMatrix – Processing System

WiiMatrix runs on the WiiCarrier and WiiCloud:



### WiiMatrix – Processing System

Functionalities of WiiMatrix include:

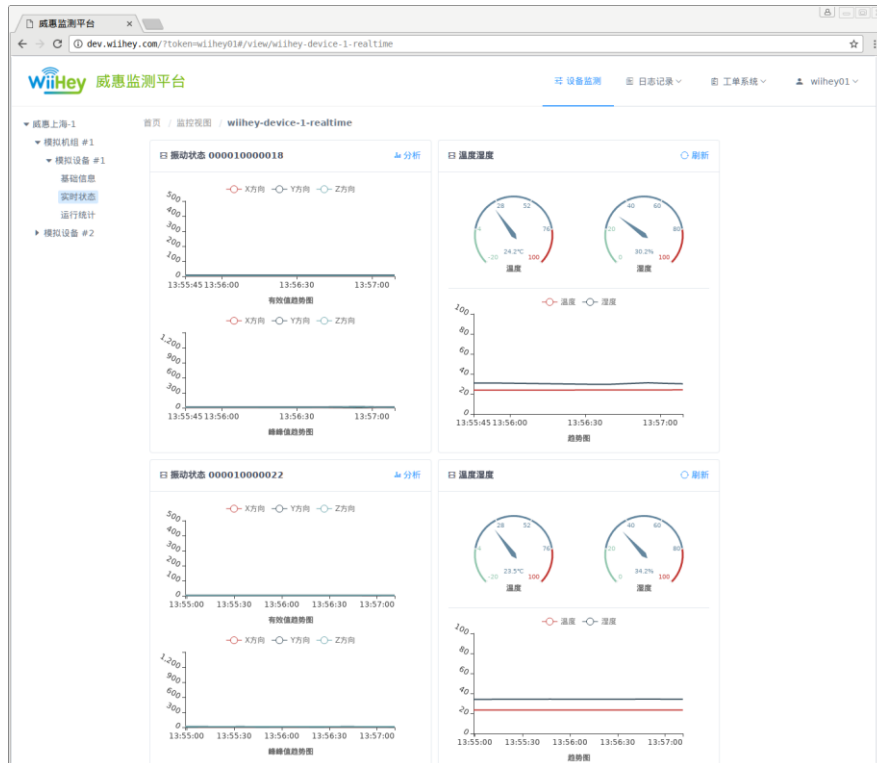
- Distributed computing.
- Big data processing/Data mining.
- Machine Learning/Pattern recognizing.
- Data transforming, FFT, Wavelet, etc.
- Alarm & notification.
- Web console management.



## 5. Data Display

### (1) Web Console

Please refer to <http://dev.wiihey.com>



WiiHey Web Console

### (2) Wechat App



WiiHey on WeChat

## 6. Accessories



Plane Antenna  
2.4GHz 14dBi



Grid Antenna  
2.4GHz 24dBi



Solar Power  
Outdoor Power



Industrial Tablet  
Support 3G/4G Telecom

### Accessories