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A Wireless Mesh IoT sensor system

Bifrost Gateway series

FEATURES

A SmartMesh IP network consists of a highly scalable self-forming multi-hop mesh of wireless nodes, known as motes, which collect and relay data, and a network manager that monitors and manages network performance and security, and exchanges data with a host application.

- > 99.999% Data Reliability even in harsh, dynamically changing RF environments
- Secured Network
- Makes traditional sensors wireless
- Covers most standard sensor interfaces
- Low Power – Runs on batteries for years
- Delivers real-time critical information
- Network Manager supports up to 100 nodes
- Mesh Network Node distances typical 50m
- WEB browser based Interface configuration

DESCRIPTION

Vicotee Bifrost series serves as Network Manager in the Wireless Mesh network system, and Gateway between the Mesh network and the Cloud Network/User Applications.

The complete system also consists of Sensors and Wireless Nodes.

Radio and Networking part of Vicotee Bifrost Gateways is based on the SmartMesh IP Dust network from Linear Technology.

Cloud Networking part is based on 2.4 GHz 802.11n WiFi, alternatively 10/100Base-T Ethernet.

Vicotee Bifrost series Gateways are powered by external power supply (included).

Future Variants:

4 x USB 2.0 ports, Bluetooth Low-Energy, Cellular GSM/3G.

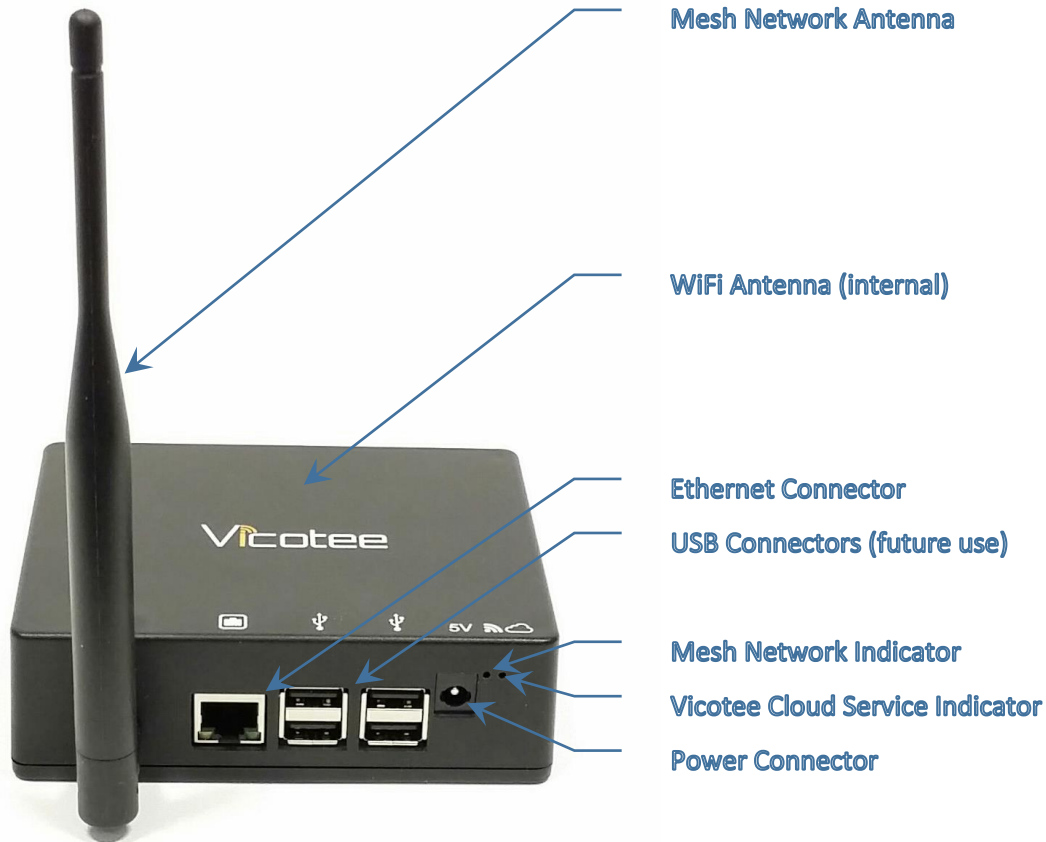
Application Example



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1 BIFROST GATEWAY SERIES



2 MESH NETWORK

Mesh Networking in Vicotee Bifrost Gateway is based on the SmartMesh IP Dust network from Linear Technology. A SmartMesh IP network consists of a self-forming multi-hop mesh of nodes, known as motes, which collect and relay data, and a network manager that monitors and manages network performance and security, and exchanges data with a host application.

Mesh Radio specification					
Parameter	Condition	Min	Typ	Max	Units
Frequency Band		2.4000		2.4835	GHz
Transmitter Output Power	Delivered to a 50Ω load				
High Calibrated Setting			8		dBm
Low Calibrated Setting			0		dBm
Receiver Sensitivity	Packet Error Rate (PER) = 1%		-93		dbm
Receiver Saturation	Maximum Input Level the Receiver Will Properly Receive Packets		0		dBm
Range (Note 1)			50		m
Notes:					
<ol style="list-style-type: none"> Actual RF range is subject to a number of installation-specific variables including, but not restricted to ambient temperature, relative humidity, presence of active interference sources, line-of-sight obstacles, and near-presence of objects (for example, trees, walls, signage, and soon) that may induce multipath fading. As a result, range varies. 					

3 CLOUD NETWORK

Cloud Networking in Vicotee Bifrost Gateway is based on 2.4 GHz 802.11n WiFi, alternatively 10/100Base-T Ethernet.

WiFi 2.4 GHz Radio specification					
Parameter	Condition	Min	Typ	Max	Units
Frequency Band		2.4000		2.4835	GHz
Data Rate			40	600	Mbit/s
Range (Note 2)			100		m
Notes:					
<ol style="list-style-type: none"> Actual RF range is subject to a number of installation-specific variables including, but not restricted to ambient temperature, relative humidity, presence of active interference sources, line-of-sight obstacles, and near-presence of objects (for example, trees, walls, signage, and soon) that may induce multipath fading. As a result, range varies. 					

10/100Base-T Ethernet specification					
Parameter	Condition	Min	Typ	Max	Units
Data Rate	10Base-T			10	Mbit/s
	100Base-T			100	Mbit/s
Range	Cat-5 cable			100	m

4 POWER REQUIREMENTS

Parameter	Condition	Min	Typ	Max	Units
DC Voltage Input		4.5		5.5	V
DC Current Input	No USB Peripheral Current		0.5	1.5	A
AC Voltage Input	Power Supply unit, 50Hz/60Hz	100		240	V
AC Power Input	Power Supply unit, 50Hz/60Hz		3.3	10	W

5 ENVIRONMENTAL

Parameter	Condition	Min	Typ	Max	Units
Storage Temperature	Gateway unit only	-20		70	°C
	Power Supply unit only	-10		55	°C
Operating Temperature	Gateway unit only, Indoor use	0		50	°C
	Power Supply unit only	0		40	°C
Temperature Ramp Rate	While operating in Network	-8		+8	°C/Min
Storage and Operating Relative Humidity	Non-Condensing	10		90	%RH
Protection Rating			IP41		

6 MECHANICAL & MOUNTING

Parameter	Condition	Min	Typ	Max	Units
Mounting	Gateway unit only		Table Top		
Mechanical dimensions	Gateway unit only		See Figure		
Mass	Gateway unit only		0.2		kg

