Technical Article

Get Connected with WEPTECH's 6LoWPAN IoT Gateway Solution

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What Is the Problem You Are Solving and How?

WEPTECHs 6LoWPAN Internet of Things (IoT) gateway provides an affordable, open-source-based solution for connecting 802.1.5.4 based 6LoWPAN-based IoT networks to the Internet.

The use of NAT64 allows addressing IPv4 servers from any 6LoWPAN node. NAT64 is an established interim mechanism, which converts IPv6 to IPv4. Therefore, e.g. sensor data from the radio network can be transmitted to servers located anywhere in the Internet. A native IPv6 operation (“Bridge Mode”) is also possible.

What Is Unique and Differentiated about Your Gateway Solution?

By providing both 2.4 GHz and Sub-1 GHz radios, together with Ethernet and an ARM® Cortex®-M3 microcontroller (MCU), the gateway is able to work as a dual-band receiver and can handle both frequencies on the same board. It just takes a few easy steps to prepare the gateway.

When acquiring the WEPTECH gateway, developers can easily experience a neat solution for bridging 6LoWPAN wireless networks via an Ethernet connecting with TI’s SimpleLink™ multi-standard CC2650 SensorTag kit. Developers simply need to download the WEPETCH manual and follow the documentation.

The gateway offers out-of-the-box support for the Contiki border router firmware, which allows an immediate start and makes it integral to integrate the CC2650 SensorTag kits with existing IP networks. Compared to other options, this gateway is focusing on ease of use by not having a management interface for configuration and instead it simply gets an IPv4 address via DHCP. Just connect to the network and provide power.

You can find directions to connect the SensorTag kits with the gateway here.

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What Is the Hardware and Software Offering?

The gateway is based on the ARM® Cortex®-M3-powered 6LoWPAN CC2538 wireless MCU that provides an AES and SHA encryption engine and embeds 512 kB of Flash memory and 32 kB of RAM. The board provides dual-band operation with two radio interfaces: the CC2538 wireless MCU integrates an 802.15.4-compliant radio interface in the 2.4 GHz band and an extra Sub-1 GHz transceiver (TI's CC1200 RF transceiver) enabling use in the 868 or 915 MHz frequency bands.

The connection to the Internet is enabled via a 10BASE-T Ethernet interface, implemented using an Ethernet Controller.

The software is based on the open source Contiki OS with the source code available for download via Github (http://www.contiki-os.org/).

After acquiring the WEPTECH gateway kit, WEPTECH offers hardware and software consultancy.

What Markets Is the Gateway Targeted for?

The audience includes every developer who wants to create solutions in the direction of 6LoWPAN on the basis of 802.15.4. Especially in the areas sensor networks, smart homes and street lighting, the Weptech IoT Gateway provides a neat solution for bridging 6LoWPAN wireless networks and Ethernet. A connection to a smartphone or tablet is also provided.

Which Are the Product Key Features Highlight and Benefits?

- Powerful microcontroller with AES and SHA Encryption Engine with 512kB Flash, 32kB RAM
- Dual-band operation: 2.4 GHz or 868 / 915MHz
- Tabletop / wall-mount enclosure
- Internal antennas (U.FL optional)
- 10BASE-T Ethernet
- Serial interface and firmware-update via USB
- An established interim mechanism “Plug-and-Play“ NAT64
- A native IPv6 (“Bridge Mode“), allowing network integration
- Source code available for download
- Power supply via USB microcontroller

Get started developing today with the WEPTECH 6LoWPAN IoT Gateway which is supported on and by the platform Contiki. Additionally, buy your very own SensorTag kit to connect your gateway to sensors and more.

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