SEMTECH

LoRa®

YoSmart

Creating Efficient Energy Management Solutions

SEMTECH'S LoRa DEVICES ENABLE ROBUST, COST-EFFECTIVE WHOLE-BUILDING ENERGY

DESCRIPTION

Semtech's LoRa® devices make it easy and economical to retrofit nearly any existing home, apartment or other structure with energy saving smart building systems. Designed to support robust, long range wireless communication where Wi-Fi, Zigbee and other wireless technologies cannot, LoRa devices are becoming the technology of choice for connecting energy management systems with smart thermostats, lighting controls, outlets, and other energy-aware devices. LoRa devices also help smart buildings work in concert with smart appliances to manage peak energy consumption and schedule non-essential operations when energy demand and pricing are at their lowest.

Property owners are discovering that investments in LoRa-enabled energy management solutions create cost savings with reduced utility bills and increased occupant comfort.

BENEFITS

LoRa devices were created specifically for applications requiring competitively priced products that deliver extraordinary performance, reliability and service life. In this case, embedded wireless sensors in a smart building are remotely managed through LoRa-enabled gateways and Cloud-based applications.

LoRa devices' robust transmission characteristics allow wireless sensors, controllers and energy-aware devices located throughout a large building to transmit data through multiple walls, floors and other structural elements that other wireless technologies cannot. In cases where LoRa-enabled smart buildings need to communicate with a human manager or a Cloud-based management application across public infrastructure, buildings access LoRa gateways at sensitivities up to 148dBm.

Despite LoRa devices' superior signal penetration and performance, power conserving features make it possible for a LoRa-enabled wireless sensor to operate for 10 or more years on a single consumer-grade battery. This provides additional cost savings to the consumer.

APPLICATION

A smart outlet allows users to turn electronic devices (i.e., lamps, water heaters, humidifiers, and water dispensers) on or off remotely, or on a prefixed schedule to conserve energy and maximize savings.

Property owners are discovering that investments in LoRa-enabled energy management solutions create cost savings with reduced utility bills and increased occupant comfort.

LoRa®
Use Case

IoT Challenge

- Provide homeowners consistent, remote monitoring and adjustment of home systems and appliances
- Adjust system use schedules automatically to save on power consumption

LoRa Devices Used

- YoSmart leveraged Semtech's LoRa SX1272/3 and SX1301 chipsets in its sensors, and SX1276/7/8/9 in its gateways
- Wirelessly connected sensors communicate data to the Cloud in real time

For More Information

About Semtech's LoRa devices for home and building applications, visit

semtech.com/LoRa

About YoSmart

yosmart.com

SEMTECH'S LoRa DEVICES FOR ENERGY MANAGEMENT AND SUSTAINABILITY

HOW IT WORKS

Semtech's LoRa® devices enable connectivity, real-time analytics, geolocation, and energy cost savings.

1 The smart home is equipped with a central control hub that communicates with embedded wireless sensors to relay data to smart thermostats, wireless sensors and lighting controllers. The home's LoRa-enabled smart thermostats run pre-programmed energy saving schedules that allow an area to use less heating or cooling during times they are not expected to be occupied.

2 Data from the sensors is sent periodically to a LoRa-based gateway. The data allows the control hub to schedule high-demand appliances, such as washers, dryers, dishwashers, and water heaters to run during low-demand periods when electricity pricing is low.

3 LoRa devices' native IP capabilities make it easy for the smart home to connect to a Cloud-based management application.

4 The application server sends alerts to the homeowner's personal computer or smartphone app to let them know if they need to adjust lighting, HVAC or other functions in their home.

REAL USE CASE SOLUTION

When KingTingTech (YoSmart), a high-tech enterprise company focusing on smart home and life products, needed to develop its next-generation smart home solutions for conserving energy, it evaluated several wireless technologies. In the end, YoSmart chose LoRa as the basis of its platform because it offered a unique combination of advantages.

LOW DEPLOYMENT COST

A LoRa-based application can operate over public infrastructure when available, eliminating the need for large capital expenditures. For applications requiring a dedicated infrastructure, LoRa devices' robust long range and low power technology penetrates several layers of walls to connect sensors compared to other wireless technologies, thereby minimizing the number of gateways needed to serve an area.

LOW PER-UNIT COST

Adding LoRa devices to an end-node sensor module requires a single low cost IC, making it easy for YoSmart to offer its products and services at highly competitive prices. LoRa-based gateways are equally affordable, with carrier-grade units capable of covering a 15+ square mile service area for around $100-200 USD.

3 The Cloud

4 Monitoring through network

1 Smart Home

2 LoRa-based gateway
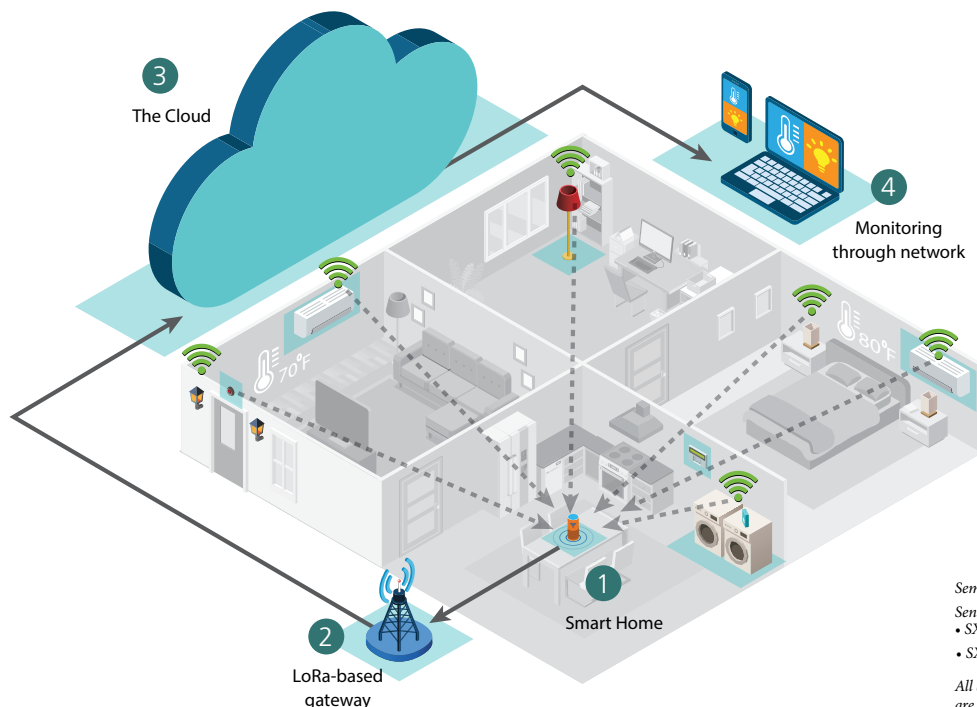
Semtech Products used in this application:

Sensors	Gateway
• SX1272/3	• SX1301
• SX1276/7/8/9	

All application elements (sensing modules, gateways, servers, software) are available through LoRa Alliance® partners.

LOW OPERATING COST

YoSmart and its customers enjoy minimal downtime and maintenance costs because LoRa devices' low power capabilities allow a battery-powered sensor module to operate over 10 years between battery replacements.

STANDARDS-BASED

LoRa devices are engineered for interoperability with other technology, networks and applications, allowing YoSmart to offer products with global flexibility. LoRa-based products also benefit from the economies of scale that reduce unit costs and further accelerate its adoption.

SECURE

LoRa secures all communications using end-to-end AES128 encryption, making YoSmart's smart home solutions highly resistant to cyber attacks.

HIGH CAPACITY

A single LoRa-based gateway can handle millions of messages, ensuring YoSmart's smart home solutions are able to support large, active customer bases.

Contact Us

Learn about Semtech's LoRa Devices
semtech.com/LoRa

Visit the LoRa Developer Portal to Access the LoRa Catalog
LoRa-developers.semtech.com

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Semtech's LoRa devices is a widely adopted long-range, low-power solution for IoT that gives telecom companies, IoT application makers and system integrators the feature set necessary to deploy interoperable IoT networks, gateways, sensors, module products, and IoT services worldwide. IoT networks based on the LoRaWAN® specification have been deployed in over 100 countries and Semtech is a founding member of the LoRa Alliance®, the fastest growing IoT Alliance for LPWAN applications.

Semtech Corporation is a leading supplier of high performance analog, mixed-signal semiconductors and advanced algorithms for high-end consumer, enterprise computing, communications, and industrial equipment. Semtech, publicly traded since 1967, is listed on the Global Select Market under the symbol SMTC and has more than 32 sales and application support offices in 14 countries as well as representatives and distribution support locations in more than 30 countries. Semtech is dedicated to providing proprietarys, differentiated by innovation, size, efficiency, performance, and reach.

The LoRa Alliance is an open, nonprofit association that has become one of the largest and fastest-growing alliances in the technology sector since its inception in 2015. Its members closely collaborate and share experiences to promote the LoRaWAN protocol as the leading open global standard for secure, carrier-grade IoT LPWAN connectivity. With the technical flexibility to address a broad range of IoT applications, both static and mobile, and a certification program to guarantee interoperability, the LoRaWAN protocol has already been deployed by major mobile network operators globally and connectivity is available in over 100 countries, with continuing expansion ongoing.