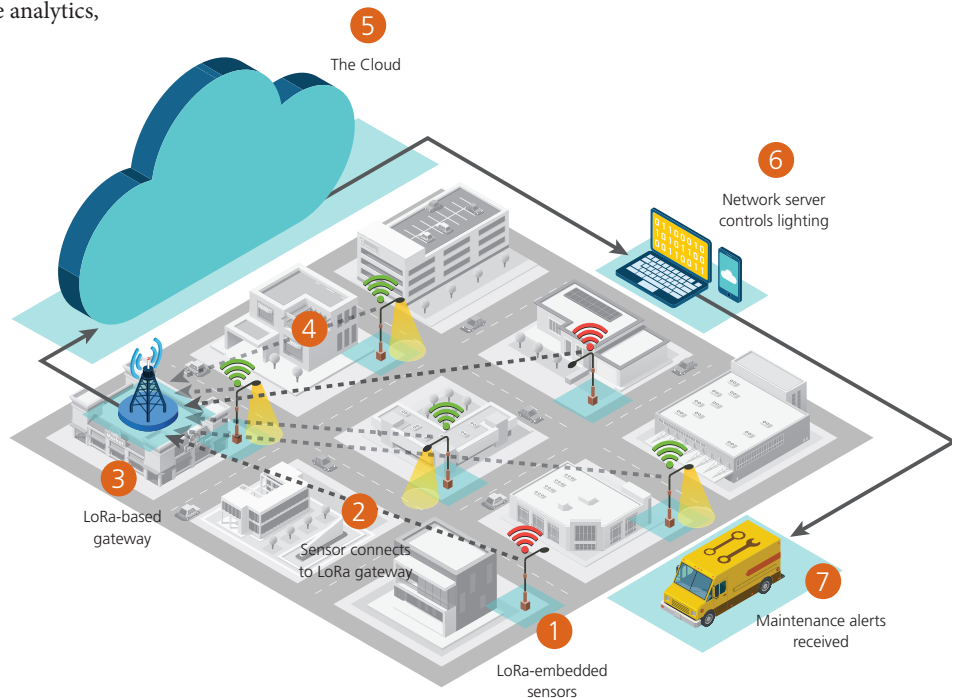# Smart Lighting

DESCRIPTION

Smart lighting adds intelligence and control to street lights to help reduce the largest energy expense of a typical city. Smart lighting provides remote lighting control that can better adjust the amount of time the lights are turned on to minimize energy costs without sacrificing public safety. Smart lighting can also significantly reduce street light maintenance costs and simplifies asset management. Smart street lights also can deliver the networking and power for other smart city applications. For example, in Los Angeles microphones are being integrated into streetlights at busy street intersections to pick up noises and instantly discern events such as car crashes.

By implementing a smart lighting solution comprised of sensors and gateways embedded with LoRa Technology and an intelligent low power wide area network based on the LoRaWAN™ protocol, city managers can better cut energy costs while keeping citizens safe.

HOW A LoRaWAN-BASED SMART LIGHTING SYSTEM WORKS

Semtech LoRa Technology enables connectivity, real-time analytics, reporting, and additional functions such as geolocation.

1. Sensors embedded in each street light have the ability to control light functions

2. LoRa Technology in the sensor connects the street light to a LoRa-based gateway

3. The LoRa gateway aggregates data from all nearby street lights

4. Sensors for other smart city applications connect to the same gateway

5. The gateway sends information to the Cloud where the data is analyzed by an application server

6. Application server controls lighting

7. Server sends maintenance alerts for burnt out bulbs and other issues

BENEFITS

- Reduced energy costs due to better control of light usage

- Context-aware lighting for enhanced public safety at big events or in key areas

- Data from street light sensors can reduce maintenance and asset management costs

- Serve as a platform for other smart city applications, providing network connectivity and power for sensors

APPLICATIONS

Adds intelligence and networking to street lighting to reduce costs and provide other smart city applications.

5 The Cloud

6 Network server controls lighting

3 LoRa-based gateway

2 Sensor connects to LoRa gateway

1 LoRa-embedded sensors

7 Maintenance alerts received

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.

Smart Lighting

FIND YOUR IoT SOLUTION FROM SEMTECH'S LoRa ECOSYSTEM

MODULES & MODEMS	SENSORS	BASE STATIONS	NETWORK SERVERS	SYSTEM INTEGRATORS

For a full list of LoRa Ecosystem partners and services, visit our LoRa Community www.semtech.com/LoRaCommunity

KEY FEATURES OF SEMTECH'S LoRa WIRELESS RF TECHNOLOGY

LONG RANGE — Penetrates in dense urban and deep indoor environments, connecting to sensors 15-30 miles away in rural areas

LOW POWER — Enables multi-year battery lifetime of up to 20 years or more

HIGH CAPACITY — Supports millions of messages per base station

GEOLOCATION — Enables tracking applications without GPS or additional power consumption

STANDARDIZED — LoRaWAN specification ensures interoperability among applications, IoT solution providers and telecom operators

SECURE — Embedded end-to-end AES-128 encryption of data ensuring optimal privacy and protection

LOW COST — Reduces upfront infrastructure investments, as well as operating and end-node costs

JUMP-START YOUR IoT DEVELOPMENT TODAY

Semtech offers several training options to help you get started:

- Learn about Semtech's LoRa Technology platform: visit www.semtech.com/IoT
- Join the LoRa Community: www.semtech.com/LoRaCommunity
- Become a member of the LoRa Alliance™: visit www.lora-alliance.org
- Attend a LoRa Boot Camp for a full-day of training featuring LoRa Technology and real world applications: www.semtech.com/IoT
- Follow Semtech on LinkedIn and our LoRa Showcase page
- To contact one of our global offices in North America, Europe and Asia, visit www.semtech.com/contact

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