

Water Flow Monitoring

LoRa® APPLICATION BRIEF

DESCRIPTION

With the recent increase in extreme weather events, water is becoming scarcer and its usage is becoming a front page news topic. A great amount of water is being lost through leaks in the piping infrastructure. Water leakage and meter reading represent two of the biggest operational costs for water utilities.

By implementing a smart water infrastructure, comprised of sensors, gateways, automated meter readers embedded with LoRa Technology, and an intelligent low-power wide area network based on the LoRaWAN™ protocol, utility companies can dramatically reduce their operational costs.

HOW A LORAWAN-BASED WATER FLOW MONITORING SYSTEM WORKS

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

- 1 Multiple sensors embedded with LoRa Technology are placed on water pipes leading into homes or buildings
- 2 If sensors detect a leak, they send an alert to a LoRa-based gateway; meter readers can also send information to the gateway about irregular readings that may indicate a leak
- 3 Gateway sends information to the network where the data is analyzed by an application server
- 4 Application server generates a work order
- 5 Maintenance personnel receive work order via computer or mobile device, so that leak repairs can be scheduled and taken care of quickly

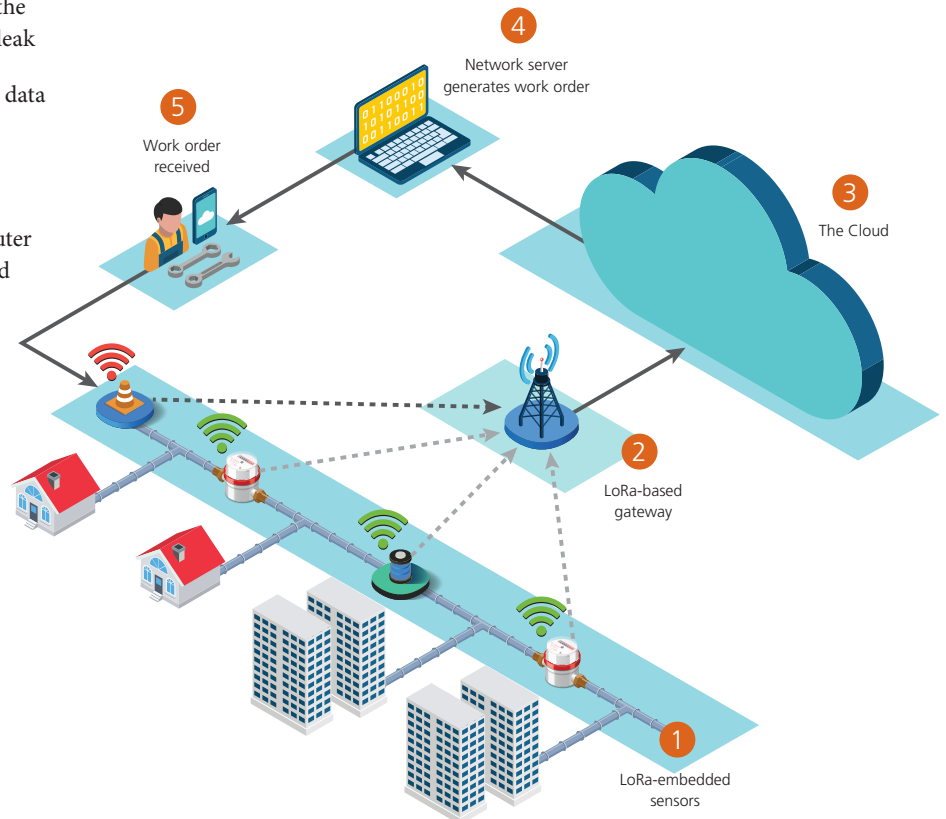
BENEFITS

- Reduce utility operational expenses with precise detection of water leaks through sensors and automated meter readers embedded with LoRa Technology
- Dramatically reduce service costs as low-power operation ensures sensor batteries can last up to 20 years
- Reliable RF communication link between sensing infrastructure and LoRaWAN-based network provides excellent underground coverage

APPLICATIONS

Utilities have a wide range of sensing solutions to monitor water flow, including:

- Leak detectors
- Smart water meters
- Fire hydrant monitors
- Automatic water valve shut off systems



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.



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



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