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
- SX1272/3
- SX1276/7/8/9
Gateway
- SX1301

All application elements (sensing modules, gateways, servers, software) are available through LoRa Alliance™ partners.
Water Flow Monitoring

FIND YOUR IoT SOLUTION FROM SEMTECH’S LoRa ECOSYSTEM

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

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
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<tbody>
<tr>
<td>LONG RANGE</td>
<td>Penetrates in dense urban and deep indoor environments, connecting to sensors 15-30 miles away in rural areas</td>
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<tr>
<td>LOW POWER</td>
<td>Enables multi-year battery lifetime of up to 20 years or more</td>
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<tr>
<td>HIGH CAPACITY</td>
<td>Supports millions of messages per base station</td>
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<tr>
<td>GEOLOCATION</td>
<td>Enables tracking applications without GPS or additional power consumption</td>
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<tr>
<td>STANDARDIZED</td>
<td>LoRaWAN specification ensures interoperability among applications, IoT solution providers and telecom operators</td>
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<tr>
<td>SECURE</td>
<td>Embedded end-to-end AES-128 encryption of data ensuring optimal privacy and protection</td>
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<tr>
<td>LOW COST</td>
<td>Reduces upfront infrastructure investments, as well as operating and end-node costs</td>
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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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