

Fall Detection

LoRa® APPLICATION BRIEF

DESCRIPTION

For the elderly, falling and not being able to get up or summon help is a very scary prospect and happens frequently enough that it is a public health problem in certain communities. Fear of falling can keep elderly from participating in activities, accelerate depression and decrease social activities all of which leads to a reduced quality of life. IoT-based fall detection systems alleviate the fear of not being discovered which can help elderly to live an active, normal life.

By implementing a IoT-based fall detection solution comprised of sensors and gateways embedded with LoRa® Technology and an intelligent low power wide area network based on the LoRaWAN™ protocol, elderly people can live more full lives.

HOW A LoRaWAN-BASED FALL DETECTION SYSTEM WORKS

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

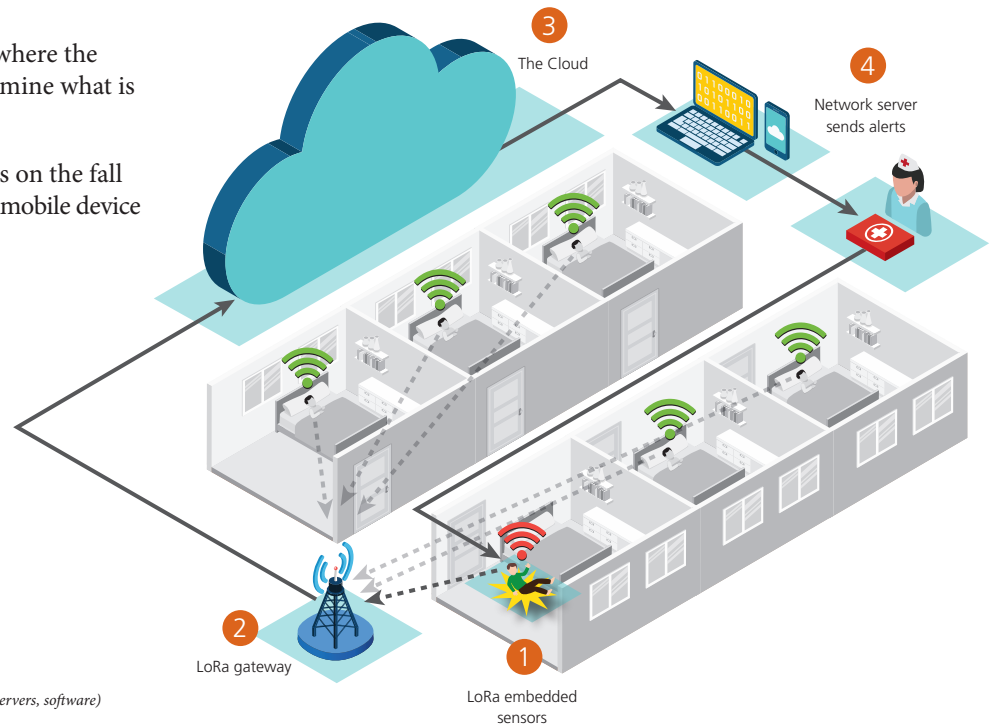
- 1 Fall/movement data collected by sensors embedded with LoRa Technology
- 2 Data from all sensors is sent to a LoRa gateway as person moves
- 3 Gateway sends information to the Cloud where the data is analyzed by an application to determine what is normal and what is a fall
- 4 Application server sends reports and alerts on the fall and location of the person to a computer or mobile device

BENEFITS

- Reduce the time elderly remain on the floor after a fall which could lead to other medical conditions with severe consequences
- Reduces a significant public health issue as up to 35% of people 65 and up to 42% of people over 70% experience a fall
- Easy to set up since sensors do not need to be connected to a power source – an entire building can be equipped in less than a day
- Keeps costs low as low-power operation ensures sensor batteries can last up to 20 years

APPLICATIONS

Reduce the impact and consequences of falls among the elderly by detecting and reporting their occurrence.



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 <https://semtech.force.com/lora>

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/loT
-  Join the LoRa Community: <https://semtech.force.com/lora>
-  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/loT
-  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

