SEMTECH

Asset Tracking

LoRa® APPLICATION BRIEF

Semtech's LoRa Technology Enables Affordable Asset Tracking in Airports and Seaports

DESCRIPTION

LoRa® devices and wireless RF technology (LoRa Technology) is making it easy and economical for smart supply chain and logistics to track valuable assets including vehicle fleets and on-ground equipment (i.e. trolleys, expensive tools). With Internet of Things (IoT) tracking for fleets and equipment, businesses can reduce cost by keeping these items in the field longer with better visibility for maintenance issues and close monitoring of real-time location.

In an airport or a seaport, LoRa Technology gives managers an affordable window into all the information they require from the assets at work. LoRa-based devices, sensors and gateways are an affordable way to capture, track and manage all the data generated by multiple movable assets in-motion.

BENEFITS

Tracking devices placed on company assets, such as tractors, trolleys, belt loaders, pallet loaders, forklifts, and other essential in-motion assets enable real-time location and status sharing with a central manager.

When monitoring engine temperature, velocity, oil pressure or battery charge status, essential information can be gathered and tracked over time in the Cloud, removing on-site IT from the duty of on-going management of tracking platforms and desktop software. Employees can immediately find what they are looking for using a smartphone or other mobile devices.

In addition, long-term maintenance tracking of assets allows for better buying decisions when it comes time to repair or replace. Managers are able to use the data to make better informed decisions about company assets.
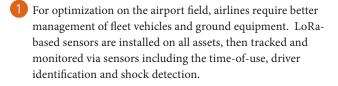
APPLICATION

A large airport with numerous vehicles and assets that need to be tracked to ensure they are utilized to the fullest potential.

SEMTECH'S LoRa TECHNOLOGY FOR SMART ASSET TRACKING

HOW IT WORKS

Semtech's LoRa Technology enables real-time connectivity, monitoring, cost savings, and analytics.

1. For optimization on the airport field, airlines require better management of fleet vehicles and ground equipment. LoRa-based sensors are installed on all assets, then tracked and monitored via sensors including the time-of-use, driver identification and shock detection.

2. LoRa-based gateways are installed about one per square mile, or farther if it is a large space. LoRa-based gateways gather information from the sensors and can be provided by a private or public LoRaWAN network provider.

3. Cloud-based software is configured to collect all asset data and track it permanently. This information is stored long-term, handled by a Cloud-based software provider, and accessed via the web, mobile devices, desktops, and tablets.

4. Assets are now visible in real-time and lost assets can be located in seconds with a smart phone.

5. Over time, data can be analyzed to track most commonly used assets and to reduce operation costs by improving fleet management and inventory control.

REAL USE CASE SOLUTION

Adveez joined the LoRa Alliance in 2015 and leverages LoRa Technology to help airports around the world reduce the costs of maintaining ground equipment. LoRa-enabled devices capture usage and location data from the tracked assets and send it wirelessly to LoRa-based gateways. The data is then transmitted to the Cloud, where operations personnel can view it on Adveez's web dashboards. This information is also accessible through a customer's existing equipment maintenance software, ensuring LoRa-enabled technologies fit into even the most customized situation.

LOW PER-UNIT DATA COST

Traditionally, per sensor data costs have been too high due to the usage of commercial cellular networks for the transmission of data and over-the-air updates. In cellular networks, single sensor devices could cost as much as $8 to $10 USD per month, but with LoRa Technology, the network connectivity can cost as little as $20 USD per month for an entire fleet of hundreds of vehicles.

STANDARDS-BASED

LoRaWAN™, a Low-Power Wide-Area Network (LPWAN) specification, is an open standard and supported by the LoRa Alliance™. Adveez can sell products that have assured global interoperability and benefit from the economies of scale that reduce unit costs and further accelerate its adoption.

3 The Cloud

2 LoRa-based gateway

4 Real-time asset tracking

1 LoRa-embedded sensor

5 Data analysis

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.

REAL USE CASE SOLUTION CONTINUED

SECURE

Multiple layers of security ensure devices are tracked safely and central management of all devices ensures every piece of hardware on a network is up to date.

LOW POWER

LoRa-based sensors have long battery lives. Some devices can last over 10 years on a single charge. More heavily used devices that transmit more than just once every hour can last up to five years.

HIGH CAPACITY

A single LoRa base station can handle millions of messages per day, ensuring Adveez's asset tracking solution is able to support large, active customer bases.

LOW PER-UNIT COST

LoRa Technology was designed to be affordable to hardware manufacturers and to enable developers to build quickly, reliably and within budget constraints. Additionally, LoRa Technology is easily available to manufacturers, ensuring there will not be shortages of supplies that can drive up costs.

JUMP-START YOUR IOT DEVELOPMENT TODAY

TRAINING OPTIONS TO GET STARTED

Learn about Semtech's LoRa Technology platform
www.semtech.com/iot

Join the LoRa Community
www.semtech.com/LoRaCommunity

Become a member of the LoRa Alliance™
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

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