SEMTECH®

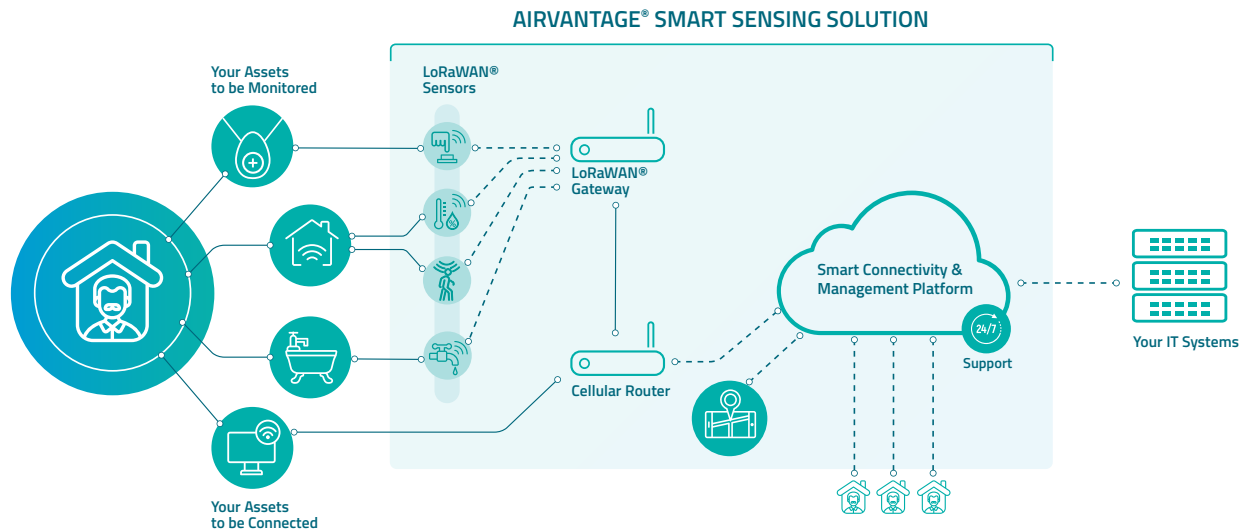# AirVantage® Managed Solutions: Smart Sensing

Environmental Anomaly Detection for Pharmaceutical, Retail, and Aging in Place.
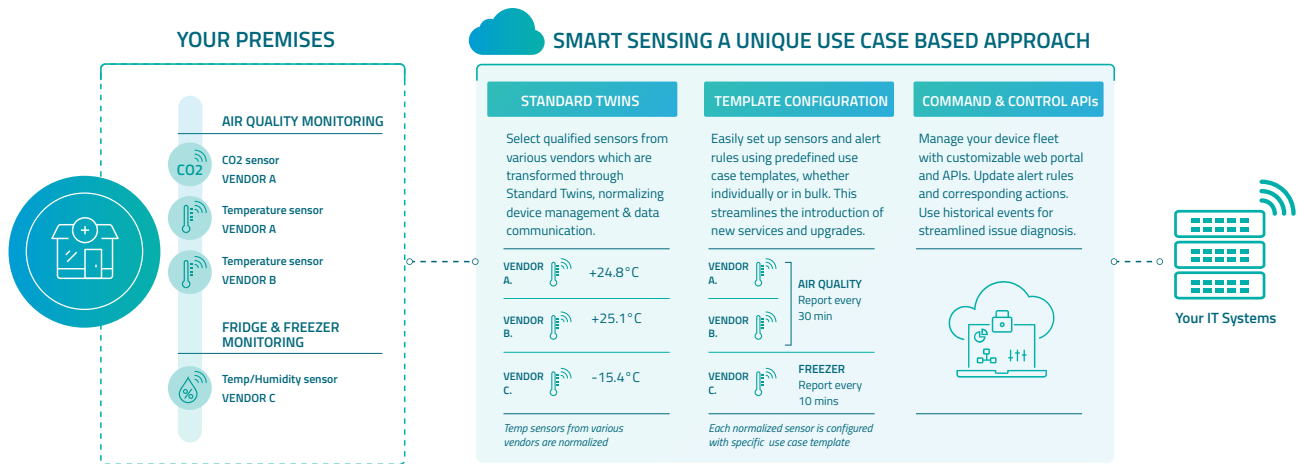
IoT Sensors Bring Data Insights Detect Anomalies Before They Become Costly Problems

IoT has transformed many industries by bringing real-time insights from sensors into field into real-time analytics applications in the cloud, enabling adopters to take immediate action to remediate problems in the field before they become catastrophic. For example, COVID-19 vaccines need to be stored in temperature ranging from between -130°F and -76°F. During the peak of the COVID pandemic, *a worker in Florida accidentally unplugged a refrigerator storing the vaccines resulting in loss of over 1000 vials at a time* [1] when vaccines were in high demand. This human error could have easily been averted had the fridge been equipped with an IoT temperature/humidity sensor which could have easily detected the anomaly and alerted workers to plug the fridge back in avoiding wastage. In other example, the *National Institutes of health conducted a population-based study of patients who were found in their homes either helpless or dead* [2]. Over 12 weeks, paramedics employed by the city of San Francisco identified 387 such events involving 367 persons. The frequency of such incidents increased sharply with age, from a rate of 3 per 1000 per year among those 60 to 64 years of age to 27 per 1000 per year among those 85 years of age or older. The highest rate was among men 85 years and older who were living alone (123 per 1000 per year). In 23 percent of the cases, the person was found dead. These deaths could have possibly been averted by deploying an IoT solution in the persons home which can monitor activity such as movement, Co2 levels, medical adherence, change in sleep patterns and combined with AI can detect anomalies and alert care workers to increase chances of mortality.

AIRVANTAGE® SMART SENSING SOLUTION

YOUR PREMISES

SMART SENSING A UNIQUE USE CASE BASED APPROACH

AIR QUALITY MONITORING

CO2 sensor
VENDOR A

Temperature sensor
VENDOR A

Temperature sensor
VENDOR B

FRIDGE & FREEZER MONITORING

Temp/Humidity sensor
VENDOR C

STANDARD TWINS

Select qualified sensors from various vendors which are transformed through Standard Twins, normalizing device management & data communication.

VENDOR A.   +24.8°C

VENDOR B.   +25.1°C

VENDOR C.   −15.4°C

Temp sensors from various vendors are normalized

TEMPLATE CONFIGURATION

Easily set up sensors and alert rules using predefined use case templates, whether individually or in bulk. This streamlines the introduction of new services and upgrades.

VENDOR A.

VENDOR B.

AIR QUALITY
Report every 30 min

VENDOR C.

FREEZER
Report every 10 mins

Each normalized sensor is configured with specific use case template

COMMAND & CONTROL APIs

Manage your device fleet with customizable web portal and APIs. Update alert rules and corresponding actions. Use historical events for streamlined issue diagnosis.

Your IT Systems

Why Smart Sensing is the Easiest Way to Realize Your Sensing Network

- Easily use our plug-and-play solution for an enterprise-grade, scalable LoRaWAN® sensor network
- Select sensors from multiple vendors and let us harmonize them for no-code upstream integration
- Monitor and update all or part of your fleet through APIs or web portal with campaign management
- Built on our industry-leading platform with proven history of mass IoT device management
- Leverage our 30+ years of IoT connectivity, devices and management services with world-class support

A Turnkey Sensing Solution to Enable Digital Transformation

For companies seeking to harness the benefits of IoT without grappling with technical intricacies, Smart Sensing offers a comprehensive turnkey solution for managing the design and configuration of a secure and scalable sensor network. Smart Sensing efficiently handles the influx of IoT data, extracting only relevant business information and seamlessly integrating it into your IT systems.

Flexibility and Easy Expansion

Smart Sensing provides users with the utmost flexibility to easily deploy multi-vendor sensor networks and seamlessly expand into new use cases across the whole enterprise.

Use Case Examples

Here are a few examples for how Smart Sensing can bring tangible benefits to your business in certain industries.

PHARMACY AND HOSPITAL

Ensuring that high value cold storage assets such as vaccines are maintained within acceptable temperature ranges are critical to avoid loss. Hygiene, stock control, and employee safety are top priorities. Automating routine tasks, like fridge monitoring with sensors, improves operational efficiency and eliminates human error risk. Aggregating data at the enterprise level brings additional benefits and reduces losses.

ASSISTED LIVING

Telecare solutions use IoT technology to provide advanced monitoring services that surpass traditional "SOS buttons". By using IoT sensors, these solutions enable non-intrusive monitoring, detecting behavioral patterns and potential incidents in advance. Thus enhance end user's health, well-being, and safety. They may also include environmental monitoring, such as leak detection in bathrooms.

Archangel uses Smart Sensing to non-invasively track the daily routines of telehealth users. By proactively issuing preventive alerts on potential health risks, Archangel minimizes the occurrence of real emergencies.

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I am thrilled with Semtech's Smart Sensing solution—it is precisely what Archangel needs as we spearhead the UK challenge to switch in excess of 1.8 million individuals from analogue reactive pendant solutions to digital ambient monitoring systems.

Archangel collaborates with scalable, reliable global partners to implement our vision of connecting silo systems and delivering a better way to provide services using proactive and preventative models within an integrated health, care and housing system.

Semtech's pedigree and comprehensive offering, including cellular connectivity, aligns perfectly with our deployment strategy.

Tom Morton
CEO of Archangel Ltd.

1. *https://nypost.com/2021/01/29/covid-19-vaccines-lost-from-florida-worker-turning-off-fridge/*
2. *https://pubmed.ncbi.nlm.nih.gov/8637517/*

Contact us to Learn More

For more information visit our **Smart Sensing** www.sierrawireless.com/iot-services/iot-managed-solutions/smart-sensing/ or contact us directly at **1.877.687.7795** or sales@sierrawireless.com

About Semtech
Semtech Corporation (Nasdaq: SMTC) is a high-performance semiconductor, IoT systems and cloud connectivity service provider dedicated to delivering high-quality technology solutions that enable a smarter, more connected and sustainable planet. Our global teams are committed to empowering solution architects and application developers to develop breakthrough products for the infrastructure, industrial and consumer markets.

To learn more about Semtech technology, visit us at **Semtech.com** or follow us on **LinkedIn** or **X.**

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