

Maintaining the Airwaves with LoRa Solutions

Industry: Television Broadcasting

Product: AIOT-IP6801

Introduction

When it comes to delivering television to millions of people across a country, broadcast towers are still the most critical infrastructure component for most operators. Whether it's signal origination or a broadcast repeater, broadcast towers can provide wide reach and a greater number viewing audiences.

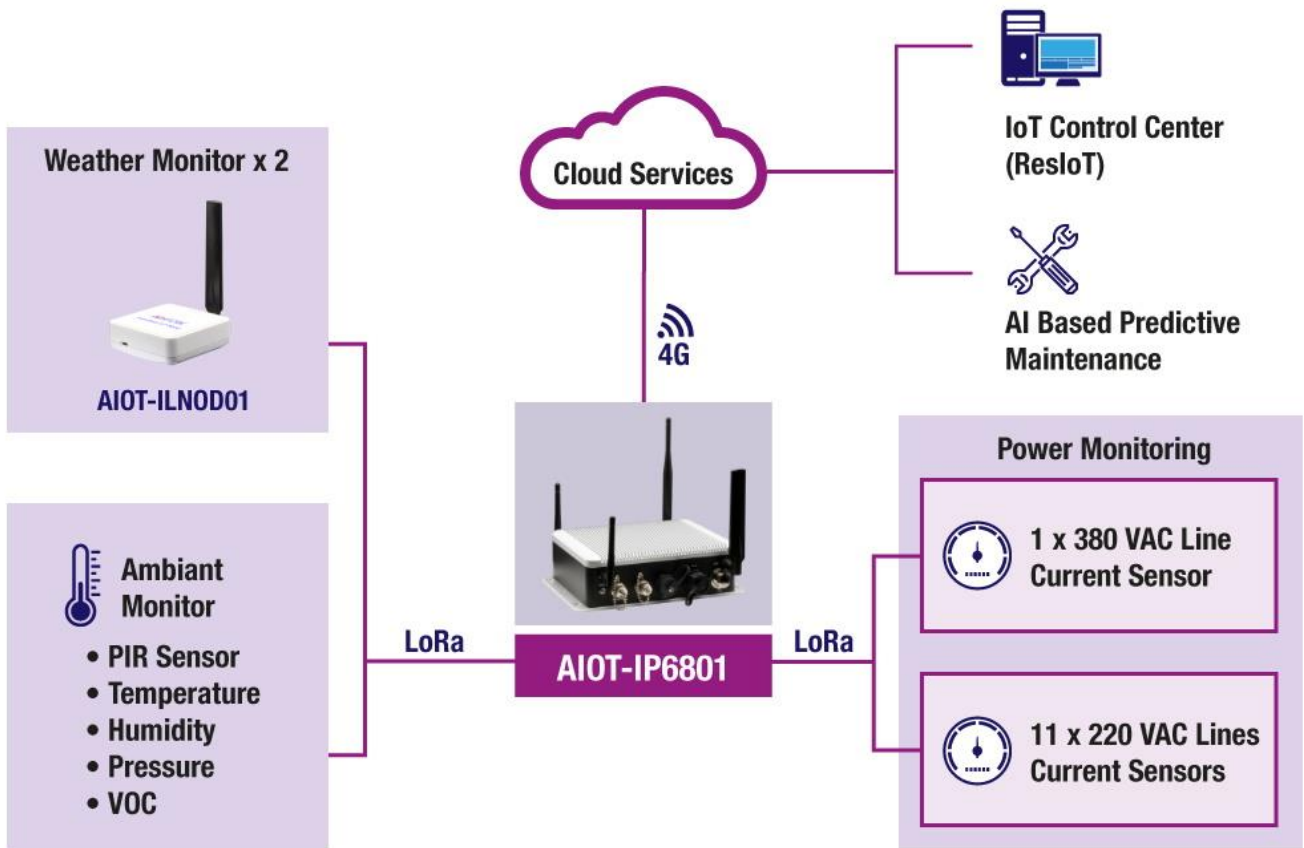


Due to factors such as government requirements and ordinances, size and clearance requirements, and to provide the most efficient use to maximize coverage area, broadcast towers are often located in remote areas with mostly unmanned operation. Maintaining a network of broadcast towers can present many challenges from ensuring timely maintenance to prevent loss of service to installing the necessary infrastructure to power and control the facilities.

Recently, a European public broadcaster with a network of over 1,500 antennas sought to integrate new technologies to allow greater control and monitoring of their remote sites. By utilizing big data and smart AI solutions, the broadcaster could not only monitor their stations in real time, but predictive analysis could warn of potential maintenance issues to reduce service outages. With the remote nature of these sites and the need for rugged solutions, they turned to AAEON and the AIOT-IP6801 outdoor IoT gateway.

Challenges

Building a network of connected monitors across the varied geography of the broadcaster's coverage area presented several key challenges. An appropriate solution needed to support wireless communication to central cloud servers, provide a better value for installation, and be capable of operating in varying conditions without climate controls.



Cellular Networking

Connecting over 1,500 sites into a single network makes wireless communication a necessity, as physical infrastructure becomes prohibitively expensive. The AIOT-IP6801 supports a broad range of wireless communication including 3G and 4G/LTE, allowing for easy set up and reliable connections to the central network.

LoRa Solutions

To provide the level of accuracy and monitoring required, each site would require upwards of a dozen different sensors in each facility. As a public broadcaster needs to be mindful and efficient with their budgets, deploying LoRa capable sensors reduces the need not only for cable connections, but also reduce overall power consumption and reliance thanks to battery powered deployment. The AIOT-IP6801 provides the option to deploy with LoRa capabilities and

is compatible with a wide range of LoRa node devices.

Rugged Environments

Between warm valleys and cold mountain sides, the broadcaster's towers are deployed in a wide range of environments that can experience wildly different weather conditions. To provide ease of maintenance and deployment, the AIOT-IP6801 is built to operate outdoors with an IP68 rated environmental sealing, fanless operation and a wide operating temperature range of -20°C up to a blistering 70°C.

AAEON Advantage

While not everyone can meet the challenges faced by projects like this, AAEON and the AIOT-IP6801 not only met these challenges, but exceeded them along with several key advantages over competitors.

AAEON LoRa Environment

Along with the AIOT-IP6801 gateway, the broadcaster took advantage of AAEON's own LoRa node, the AIOT-ILND01. With out-of-the-box compatibility, the AIOT-ILND01 provides key tools and expandability for environmental monitoring such as temperature and humidity, as well as connecting to sensors for more accurate weather analysis. This provides the broadcaster with a wide network of weather monitoring, providing more accurate data for meteorologists and weather forecasts.

Smart Data Platform

The AIOT-IP6801 provided a valuable tool for the broadcaster's project of deploying a smart application for predictive maintenance. AIOT-IP6801 is compatible and compliant with big data management tools such as

ResIoT, allowing for finer control and a smarter LoRa network infrastructure.

Regulatory Certifications

To best help customers in deploying wireless IoT devices, AAEON products are tested and certified to meet government regulatory standards governing electromagnetic compatibility (EMC). AIOT-IP6801 is certified compliant with the CE Radio Equipment Directive (RED), and is also certified for FCC regulations.

Industry Leading Service

AAEON offers industry leading support and service from technical support to providing customization of platforms. AAEON also works closely with many solutions partners to ensure clients receive the end-to-end support needed to deploy their projects on AAEON platforms.

Impact

With the AIOT-IP6801 and AAEON's service and support, the broadcaster is able to monitor their network of broadcast antennas and begin implementing their smart management platform. With the information provided by the nodes connected to the AIOT-IP6801, the broadcaster not only gets real-time status and environmental monitoring, but can begin to train the AI models that will in the near future be able to predict maintenance issues so service outages can be prevented.

With the deployment of monitoring across the wide range of their coverage area, the broadcaster can also provide more accurate weather analysis and prediction for the nation. Their customers can enjoy better quality of service and information thanks to the AIOT-IP6801.

Product

The AIOT-IP6801 Outdoor IoT Gateway provides a rugged solution to connecting device to cloud at the edge. Powered by the Intel Atom® E3940 processor, the AIOT-IP6801 offers users with reliable performance, low power consumption while delivering processing performance optimized for Industrial IoT applications.

AIOT-IP6801 is designed to deploy in any condition, with its rugged and compact design that's easy to mount and install anywhere you need it. Built for the outdoors, it features IP68 environmental sealing and wide operating temperature range of -20°C to 70°C to provide reliable operation in any condition. AIOT-IP6801 offers greater



flexibility in deploying edge networks, supporting wireless communications including W-Fi, 4G/LTE and LoRa.



Along with the AIOT-IP6801, the AIOT-ILND01 LoRa Node takes the guess work out of setting up LoRa WAN networks by offering an in-house solution that's guaranteed to work out of the box with AAEON LoRa gateways. AIOT-ILND01 LoRa Node is available as a board or with an enclosure. It can be powered by two 14500 Lithium-ion batteries, or through its micro USB 2.0 port. It features built-in temperature and humidity sensors, as well as a 3-axis accelerometer, and is designed to also connect with a wide variety of sensors and inputs. With three Grove connectors, it is easy to connect to a computer to configure.

AAEON manufacturer services and support offer a range of customization options to tailor each platform to your application needs. AAEON also offers OEM/ODM support with end-to-end service to accelerate development, reduce time-to-market, and ensure your project gets off the ground.

About AAEON

Established in 1992, AAEON has become one of the leading designers and manufacturers of advanced industrial and embedded computing platforms. Committed to innovative engineering, AAEON provides Industry 4.0 integrated solutions, hardware and intelligent automated services for premier OEM/ODMs and system integrators worldwide, as well as IoT solution platforms that seamlessly consolidate virtual and physical networks. Reliable and high-quality computing platforms include industrial motherboards and systems, industrial displays, rugged tablets, PC/104, PICMG and COM modules, embedded SBCs, embedded controllers, network appliances and related accessories. AAEON also offers customized end-to-end services from initial product conceptualization and product development through to volume manufacturing and after-sales service programs. It is also committed to continuously redefining and harmonizing the management and development processes of the industry.

With its constant pursuit of innovation and excellence, AAEON became a member of the ASUS group in 2011, enabling the company to further strengthen its leadership, access advanced technology from ASUS, and leverage resources from within the group. AAEON is poised to offer more diversified embedded products and solutions at higher quality standards to meet world-class design and manufacturing demands in the years to come.

AAEON is an Associate member of the Intel[®] Internet of Things Solutions Alliance.

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