

Optimizing Operations with IoT-Powered Factory Facility Monitoring

Factory Facility Monitoring in Seoul, Korea with Milesight Devices and Daliworks Solutions

in Seoul, Korea

LoRaWAN

Milesight Partner

Daliworks Co., Ltd.

Location

Seoul, Korea

Number of Devices Deployed

20 * UC300 IoT Controller
4 * UG65 Semi-Industrial LoRaWAN Gateway

Applications

Smart Factory, Smart Metering,
Industrial IoT Solution,
Factory Facility Monitoring

Background

In response to the unique needs of small and medium-sized enterprises (SMEs) seeking to undergo digital transformation, we have developed a smart factory service that is highly suitable for the constraints and requirements of these businesses. This service is designed to be easily installable, ensuring a quick and straightforward implementation process. With its reasonable pricing structure, it addresses the financial considerations of SMEs, making it a cost-effective solution. Moreover, the service offers the flexibility to enhance manufacturing capabilities gradually, thanks to the integration of our proprietary AIoT platform, Thingplus.

- Smart Factory
- Industrial IoT Solution
- Smart Metering
- Factory Facility Monitoring



Challenges



Financial Constraints

Firstly, financial constraints often hinder their ability to invest in advanced technologies and infrastructure required for smart manufacturing. SMEs may find it challenging to allocate sufficient funds for the initial setup and ongoing maintenance costs associated with smart factory implementation.



Technical Expertise Gaps

Secondly, limited technical expertise within SMEs can pose a significant barrier. The complexity of smart factory technologies, such as the Internet of Things (IoT), artificial intelligence, and automation, requires specialized knowledge for successful integration. SMEs may struggle to find or afford skilled professionals capable of overseeing the implementation and ensuring optimal operation of these advanced systems.



Operational Disruptions

Moreover, the fear of operational disruptions during the transition to a smart factory can be a deterrent. Many SMEs operate on tight production schedules, and the prospect of downtime or delays during the implementation phase can discourage them from taking the necessary steps toward smart manufacturing. The primary challenge of this project was to develop a smart factory service tailored for small and medium-sized manufacturing enterprises unable to adopt smart factories due to factors such as financial constraints, technical expertise gaps, and concerns about operational disruptions.

Solutions



This project is one of the smart factory services for SMEs and provides facility operation monitoring based on LoRaWAN communication. Customers install power meters on the distribution boards of facilities operated by the factory and manage the operation status, power usage, and electricity quality of the facilities. Thingplus, an AIoT platform provided by Daliworks, provides accurate facility operation information through AI analysis of the amount of power used by the facility. In addition, it is possible to check whether there is a problem with the power supplied to the facility by analyzing electrical quality values such as unbalance ratio and power factor of three-phase voltage/current values.

In this project, there are 20 UC300 controllers and 4 UG65 gateways were installed to monitor 20 manufacturing machines located in four factories. Milesight UG65 LoRaWAN gateway and UC300 IoT Controller are used to create a wireless network environment for easy installation of sensor devices and data collection in the factory environment. Milesight's products provided a stable communication environment for facility operation monitoring services and provided a Modbus interface for data linkage with power meters.



UG65 Semi-Industrial LoRaWAN Gateway

- IP65 Rating
- NXP Quad-Core Processor
- Semtech SX1302 LoRa Chip
- Multiple Backhaul Connectivities
- Embedded Network Server
- Compatible with Multiple Network Servers
- Global LoRaWAN Frequency Plans



UC300 IoT Controller

- Rich Industrial Interfaces
- Temperature Transmitter
- Intelligent Trigger System
- Autonomous Operation
- Flexible Cloud Integration
- LoRaWAN or 4G LTE Communication

Results

The service offering real-time operation status monitoring, energy management, and electrical quality and safety management brings forth several benefits that significantly improve work and life efficiency.

Optimized Production Efficiency

- Real-time operation status monitoring allows users to promptly assess production status and equipment utilization rates.
- Quick decision-making based on real-time insights helps optimize production processes, leading to increased efficiency and reduced downtime.

Cost Savings and Sustainability

- Energy management features enable the tracking and analysis of energy consumption patterns.
- Manufacturers can identify peak power usage and implement strategies to reduce energy costs, contributing to overall cost savings.
- Insights into carbon emissions support sustainability efforts, allowing for the implementation of environmentally friendly practices within the manufacturing environment.

Proactive Electrical System Maintenance

- Electrical quality and safety management tools, such as power factor analysis, voltage imbalance monitoring, and current imbalance analysis, contribute to enhanced electrical system health.
- Proactive identification of power factor issues helps optimize energy usage and reduce wastage.
- Early detection of voltage and current imbalances allows for preventive measures, ensuring compliance with safety standards and minimizing the risk of electrical failures.

Enhanced Work Environment Safety

- The comprehensive approach to electrical management ensures a safer working environment for factory personnel.
- Proactive monitoring and analysis of electrical parameters contribute to the prevention of electrical accidents and support compliance with safety regulations.

Longevity and Reliability of Equipment

- The focus on electrical quality and safety contributes to the longevity and reliability of electrical equipment in the factory.
- Proactive maintenance based on real-time insights helps prevent equipment failures and extends the lifespan of critical machinery.

In summary, the service not only enhances operational efficiency within the smart factory setting but also promotes sustainability, cost-effectiveness, and a safer work environment. These benefits collectively improve overall work/life efficiency for both the manufacturing processes and the personnel involved in the operation.



Why Choose Milesight



First of all, we chose your product because of its competitive price compared to other products.

In addition, despite the low price, the hardware is stable and durable, and the communication between the LoRa gateway and the device is stable.



Testimonials

KOREA ASSOCIATION FOR DIE&MOLD INDUSTRY DEVELOPMENT

"It's a quick and easy way to adopt a smart factory at an affordable price. It was convenient that the system could be built by attaching power meters without changing the operation or position of the facilities."

Ssang Yong Cable

"Facility downtime losses were reduced and productivity increased. We checked utilization rates, found efficient ways to utilize it, and planned for additional production."



Next Technology System

"We've saved money through energy management. We looked at our power consumption, identified inefficient energy consumption, and took action to save energy."

Neuromeka

"We're more efficient and able to respond to facility issues. We were able to monitor the production floor in real time and take quick action with alarms when anomalies occurred."

Partner



About Daliworks Co., Ltd.

We provide Thingplus a cutting edge IoT solutions of Things cloud platform that enables our clients to build real-time, price competitive, scalable IoT solutions with proven reliability and security. Our team includes many of Korea's top IoT experts and over the past five years, we have developed, together with leading ICT companies, one of the world's most effective tools for developing real-world IoT solutions.