

Milesight

Smart Building Success Stories



Make Sensing Matter

SMART BUILDINGS CONTENT

Facility Management >

- Energy Efficient Renovation
- Real-Time Water Leakage Monitoring

Energy Management >

- Energy Efficiency in Buildings
- Environmental Protection & Sustainable Development
- Smart Green Buildings
- Trash & Water Leak Management
- Office Building Smart Lighting Retrofit

Space Management >

- Indoor Air Quality Monitoring
- Smart IoT Office
- Smart Office Cleaning
- Smart Home Energy Management

People Sensing >

- Smart Campus BMS Systems
- Renovation of Theater Energy Efficiency
- Smart Retail



01

FACILITY MANAGEMENT

- Energy Efficient Renovation
- Real-Time Water Leakage Monitoring



Heat and Energy Consumption Monitoring over 100 Residential Buildings

Background

Mechanical and boiler rooms contain essential systems that often run unsupervised, making efficiency and safety vital. In residential communities, over 100 buildings needed a wireless system to monitor electricity and heat consumption. This system had to collect data from multimeters and BTU meters and send it to the Niagara controller, avoiding disruptive cabling or construction.

What was the challenge?

The system could not be wired to avoid wiring issues, tenant disruptions, and to reduce costs and implementation times. Some devices needed to be installed in basements, requiring a strong and stable wireless connection.

Demand for Reliable Wireless Solutions

The system had to ensure a robust and stable wireless connection, especially for devices in challenging locations like basements.

Compatibility with Niagara Controllers

The system needed to communicate with Modbus devices in the field and with Niagara controllers.

Unnecessary Manual Costs

Traditional boiler room environments required workers to manually check each boiler unit, leading to significant time and human resource costs.



Location
Italy

Heat and Energy Consumption Monitoring over 100 Residential Buildings

- UC100
- UG56



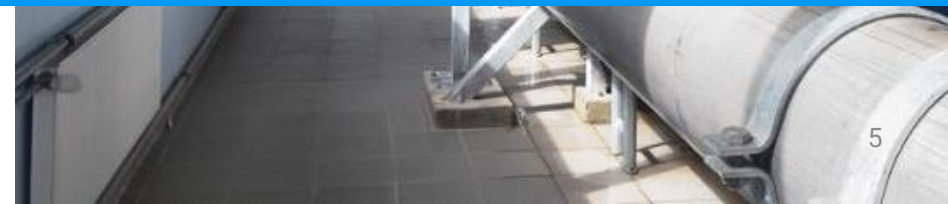
UC100



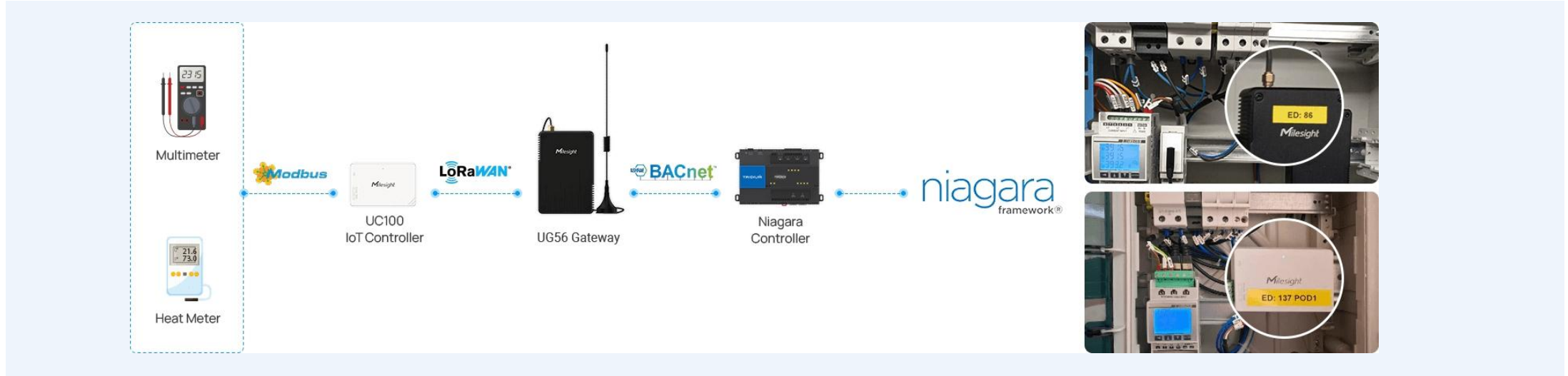
UG56

Highlights

- **Wireless Solution:** Implement wireless data transmission through LoRaWAN technology, avoiding wiring and construction, thus reducing costs and implementation time.
- **Real-time Monitoring:** The Milesight UC100 IoT controller can read data from up to 32 Modbus RTU devices in real-time and supports transparent transmission.
- **System Integration:** Milesight gateways support the BACnet/IP protocol, allowing seamless integration into existing Building Management Systems (BMS).
- **Scalability:** The system design supports scalability, making it easy to expand devices and functionalities as the number of buildings increases.
- **No Manual Intervention:** Reduces the workload of manual inspections in traditional boiler room environments, improving efficiency.



Heat and Energy Consumption Monitoring over 100 Residential Buildings



Deployment

In high-end apartments and rental residences, UC100 IoT controllers and UG56 industrial LoRaWAN gateways were deployed to achieve efficient data collection and transmission. The UC100 IoT controller collects data from field devices (such as electricity meters and BTU meters) using the Modbus protocol and transmits the data to the UG56 gateway through the LoRaWAN network.

Subsequently, the UG56 gateway converts the data to the BACnet/IP protocol and transmits it to the central Niagara controller. Milesight gateways are capable of decoding LoRaWAN sensor data and mapping it to BACnet objects, ensuring compatibility with existing Building Management Systems (BMS).

The application of wireless technology ensured that the deployment of devices and data transmission did not cause any interference or inconvenience to residents. The system supports centralized monitoring and management, significantly improving energy efficiency and building performance.

Water Leakage Monitoring System for Condominium and Rental Buildings

Background

Water leaks in buildings can stem from various sources such as faulty plumbing, overflowing bathtubs, sprinkler incidents, or roof leaks, leading to significant property damage and health risks if not promptly addressed. At 1111 Atwater St., a 38-floor condominium and rental building in Montreal, Thingsfactory was tasked with implementing a comprehensive water leak detection and protection solution in early 2021. They collaborated with building engineers and developers to deploy the BuildUp! monitoring platform and Milesight LoRaWAN® equipment, ensuring timely detection and mitigation of water damage.

What was the challenge?

- Preventing water leak damages in a 38-story building using traditional methods is challenging.
- Water leakages can go unnoticed until significant damage occurs.
- Water damage claims are among the most frequent and expensive claims filed by property owners in the past 5 years, according to the insurance industry.



Location

Quebec, Canada
High-End Apartments & Rental Housing

Water Leakage Monitoring System for Condominium and Rental Buildings

Highlights

- **Real-time Monitoring:** Using Milesight IoT devices, water leaks can be detected in real-time, ensuring that issues are identified before they escalate.
- **Rapid Response:** Upon detecting a leak, the system can shut off the relevant water valve in less than 3 seconds and send SMS/email notifications to facility management personnel.
- **High Reliability:** Since deployment in 2021, all devices have operated stably without any failures, and the battery life has been excellent.
- **Data-driven Insights:** The BuildUp! platform provides real-time monitoring of building health, assisting managers in making data-driven decisions.
- **Multiple Redundancies:** Internet access employs a triple redundancy design, ensuring that the system can operate normally under all circumstances.



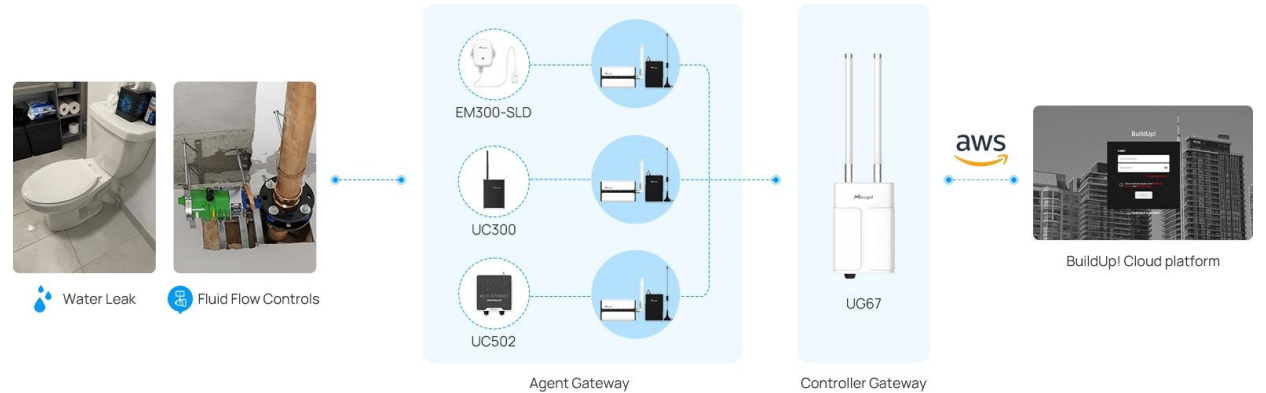
- EM300-SLD
- UC300
- UC502
- UG56
- UG65
- UG67



Water Leakage Monitoring System for Condominium and Rental Buildings

Deployment

A comprehensive deployment of Mulesight IoT devices has been implemented to enhance building management and mitigate water damage. EM300-SLD point leak detection sensors have been installed in critical areas such as bathrooms, laundry rooms, kitchens, and mechanical rooms. UC1114 and UC300 controllers are used to manage electromechanical valves throughout the building. Multiple Mulesight LoRaWAN gateways, including UG56, UG65, and UG67 models, have been strategically placed, with UG67 serving as the main gateway and providing backup cellular connectivity.



The system architecture includes gateways installed in garbage chute rooms on every two floors, connected to a dedicated building VLAN, and all devices are supported by generators to ensure continuous operation during power outages. Data from all devices is processed and stored on AWS BuildUp! servers, retaining 30 days of information.

Since the pilot and full installation, the system has significantly reduced potential water damage and property loss. Facility management personnel receive alerts via smartphones or email, enabling prompt action.



02

ENERGY MANAGEMENT

- Environmental Protection & Sustainable Development
- Energy Efficiency in Buildings
- Smart Green Buildings
- Trash & Water Leak Management
- Office Building Smart Lighting Retrofit



\$250,000 Have Been Saved from Energy-Efficiency Buildings with 4,400 Milesight Sensors

Background

For buildings, there's a large desire for the efficient operation and management.



What was the challenge?

Extra Expense

Each Temperature and CO₂ sensor required a sim card that generated an extra \$500 monthly for each floor.

Poor Signal with Excess Maintenance

The original solution was based on a technology with limited signal coverage, up to 60% of sensors onsite were down at any moment, resulting in increased maintenance cost as well.



Location

Canada
Commercial Buildings & Educational Campuses

\$250,000 Have Been Saved from Energy-Efficiency Buildings with 4,400 Milesight Sensors

Highlights

- **Wider Area Coverage:** Just 5 units of gateways are enough to support a high building with 19 floors;
- **Lower Power Consumption:** Battery health dropped 3% only within one year, no maintenance cost rose;
- **Wireless Deployment:** Installation is simple and does not require access to existing infrastructure making it ideal for both new and retrofit buildings;



- EM500-CO₂
- EM300-TH
- UG67 Outdoor Gateway
- WS52x
- AM319 & AM107
- VS121 AI Workplace



\$250,000 Have Been Saved from Energy-Efficiency Buildings with 4,400 Milesight Sensors



Deployment

- In Ontario, Canada, Milesight partners Peak Power tailored a Smart Building Solution for more than 62 buildings including commercial offices and educational campuses;
- Around 4,400 sensors and 440 gateways are deployed in the project, including IAQ sensors, people counting sensors and many more;
- The Peak Insight™ platform works with sensors that monitor occupant comfort, energy usage, and air quality all over the building, provides building owners, operators and managers with energy-saving advice;
- The data is transmitted through UG67 outdoor gateways on a dedicated network for stability and security;

Milesight IoT Empowers Vancouver Indigenous Community to Achieve Net Zero Emissions

Background

The "Roadmap to Net-zero Ready Homes in Musqueam First Nation Vancouver" by BCIT and BC Housing aims to reduce greenhouse gas emissions from buildings on the Musqueam First Nation Reserve. The study focuses on achieving net-zero energy and emissions by 2050 through energy modeling, identifying effective conservation measures, and developing retrofit roadmaps.

What was the challenge?

Infrastructure Compatibility: Many existing buildings have outdated wiring, plumbing, and structural systems that may not support modern technology. Creative engineering solutions and careful planning are needed to minimize disruption.

Cost Considerations: The high upfront cost of implementing high-tech solutions in old buildings can be prohibitive, particularly for projects with limited budgets. Balancing the initial investment with long-term energy savings and operational efficiencies is crucial.



Location

Vancouver
Canada

Milesight IoT Empowers Vancouver Indigenous Community to Achieve Net Zero Emissions



Highlights

- **Real-time Energy Monitoring:** Utilizing Milesight smart current transformers (CT101 and CT103) and smart plugs (WS523) to achieve real-time monitoring and analysis of building electricity consumption.
- **Non-invasive Installation:** The devices feature a split-core design, allowing for quick and safe installation without disrupting circuits or interrupting power supply.
- **Data-driven Decision Support:** Data storage and visualization are achieved through Chirpstack and InfluxDB, assisting managers in conducting scientific analysis and optimizing energy efficiency.
- **Reduced Operational Costs:** The deployment of wireless sensors and gateways simplifies the retrofit process, while the strong penetration capability of LoRaWAN technology ensures signal coverage.
- **Centralized Management and Energy Optimization:** The data supports the creation of digital twin models of buildings, predicting future energy usage and optimizing energy consumption.

Milesight IoT Empowers Vancouver Indigenous Community to Achieve Net Zero Emissions

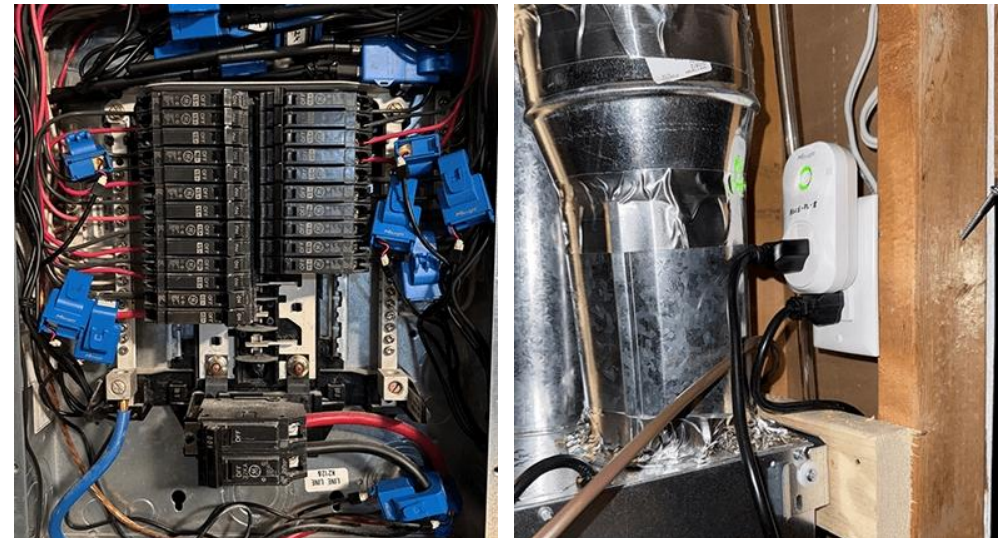
Deployment

We deployed LoRaWAN devices, including Milesight's smart current transformers (CT101 and CT103) and smart plugs (WS523), to monitor and analyze building electricity consumption in real-time. The CT101 and CT103 were installed in the main distribution panel to directly measure electricity from circuits, eliminating battery constraints. The WS523 smart plugs were connected to plug loads to obtain real-time energy consumption data. Additionally, we deployed UG65 semi-industrial gateways and UG67 outdoor gateways for data collection and transmission.

Data is transmitted to a cloud platform via LoRaWAN gateways, managed by Chirpstack, and stored and visualized in InfluxDB. This system supports real-time and historical data viewing, aiding scientific analysis.



Through real-time monitoring and data analysis, we significantly reduced energy usage and costs. The system created digital twin models of the buildings, enabling precise predictions of future energy use. Additionally, it provided various combinations of energy-saving measures to help managers evaluate effectiveness and reduce greenhouse gas emissions.



Exploring the Future of Smart Buildings

Background

To implement the concept of green development and promote the high-quality development of green buildings, the conservation of resources and environmental protection are emphasized to provide people with healthy, adaptable, and efficient living spaces, ultimately achieving a high-quality architecture that harmonizes human life with nature.

What was the challenge?

Limited Energy Efficiency

Traditional buildings often lack energy-efficient design features, leading to higher energy consumption for heating, cooling, and lighting.

Poor Indoor Air Quality

Inadequate ventilation and insulation in traditional buildings can lead to poor indoor air quality, potentially affecting occupant health and comfort.

Limited Accessibility

Older buildings may not meet modern accessibility standards, posing challenges for people with disabilities or mobility impairments.

Inefficient Use of Space

Traditional building layouts may not optimize space utilization or support efficient workflows, impacting productivity and usability.



Location China

Exploring the Future of Smart Buildings

Highlights

Health and Well-being :

Green buildings support occupant health and well-being by reducing exposure to pollutants, enhancing natural light and views, and promoting physical activity through features like stairs and bike racks.

Financial Savings :

Green buildings typically have lower operating costs, including reduced energy and water bills, lower maintenance costs, and higher property values, leading to long-term financial savings for owners and tenants.

Convenient Deployment:

By minimizing energy consumption, resource use, and waste generation, green buildings contribute to a smaller ecological footprint and promote environmental sustainability.



Exploring the Future of Smart Buildings

Deployment

Utilizing WS202 PIR & light sensors and WS50x smart wall switch for D2D linkage, the lights in the elevator hall turn on when someone exits the elevator, and turn on when someone enters the elevator hall.

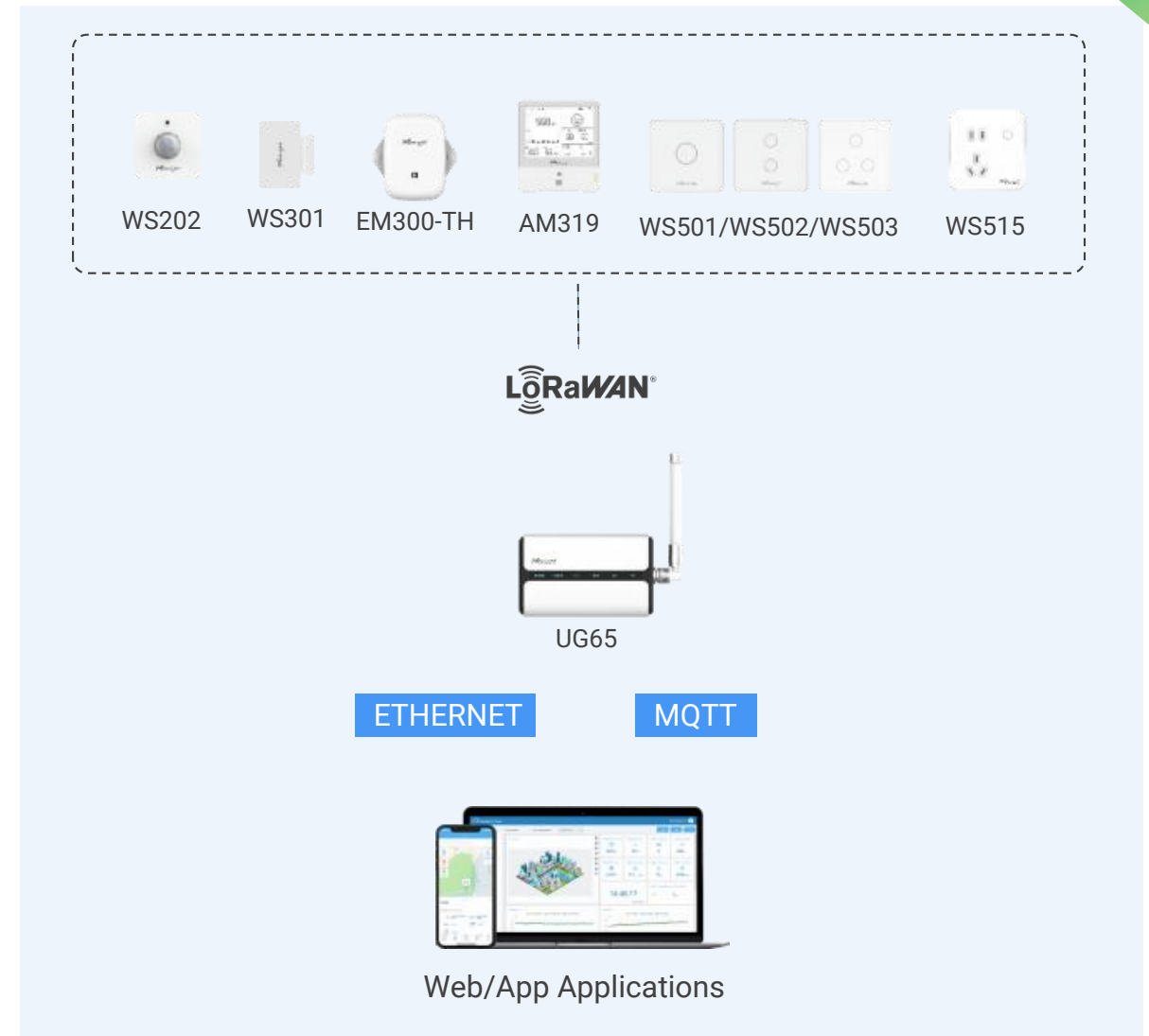
WS202 PIR & light sensors monitor meeting room occupancy status. When occupied, WS50x wall switch are linked to turn on the lights; when vacant, the lights turn off. Additionally, when the scheduled meeting time arrives, a WS515 socket panel controls the screen to turn on automatically.

WS202 PIR & light sensors and WS301 wireless door sensors are used together to detect restroom stall occupancy.

Additionally, AM319 monitors temperature, humidity, PM2.5 & PM10, and CO₂.

WS50x smart wall switch remotely (in batches) control the exhaust fan's on/off status.

EM300-TH continuously monitors temperature and determines the exhaust fan's on/off status based on temperature thresholds.



Put the "Smart" in Milesight Headquarters

Background

Through its innovative approach and dedication to excellence, Milesight has contributed to a multitude of successful projects and inspiring success stories worldwide. It is within the heart of Xiamen, China, where Milesight's true commitment to the advancement of smart green buildings and smart offices comes to life in its remarkable headquarters.



What was the challenge?

High Energy Consumption

Traditional buildings typically have poor insulation, inefficient HVAC systems, and outdated lighting fixtures, leading to high energy consumption for heating, cooling, and lighting. This results in increased utility bills and contributes to greenhouse gas emissions.

Limited Indoor Environmental Quality

Poor ventilation, inadequate air filtration, and volatile organic compounds (VOCs) from building materials can result in poor indoor air quality in traditional buildings. This can lead to health problems such as allergies, asthma, and respiratory illnesses among occupants.

Low Occupant Comfort and Productivity

Inadequate thermal comfort, poor lighting quality, and noisy environments in traditional buildings can negatively impact occupants' comfort, health, and productivity. This can lead to decreased job satisfaction, increased absenteeism, and reduced overall performance.



Location

Milesight Headquarters
Xiamen, China

Put the "Smart" in Milesight Headquarters

Highlights

Boost Energy Efficiency and Sustainability

Achieve Up to 45% on Energy Saving per Year

Improve Water Efficiency

Water Theft Prevention and Outdoor
Irrigation Water Usage Decreased by 13%

Enhance Employee Comfort and Satisfaction

Employee Satisfaction Increased by 83%

Revolutionizing Space Utilization

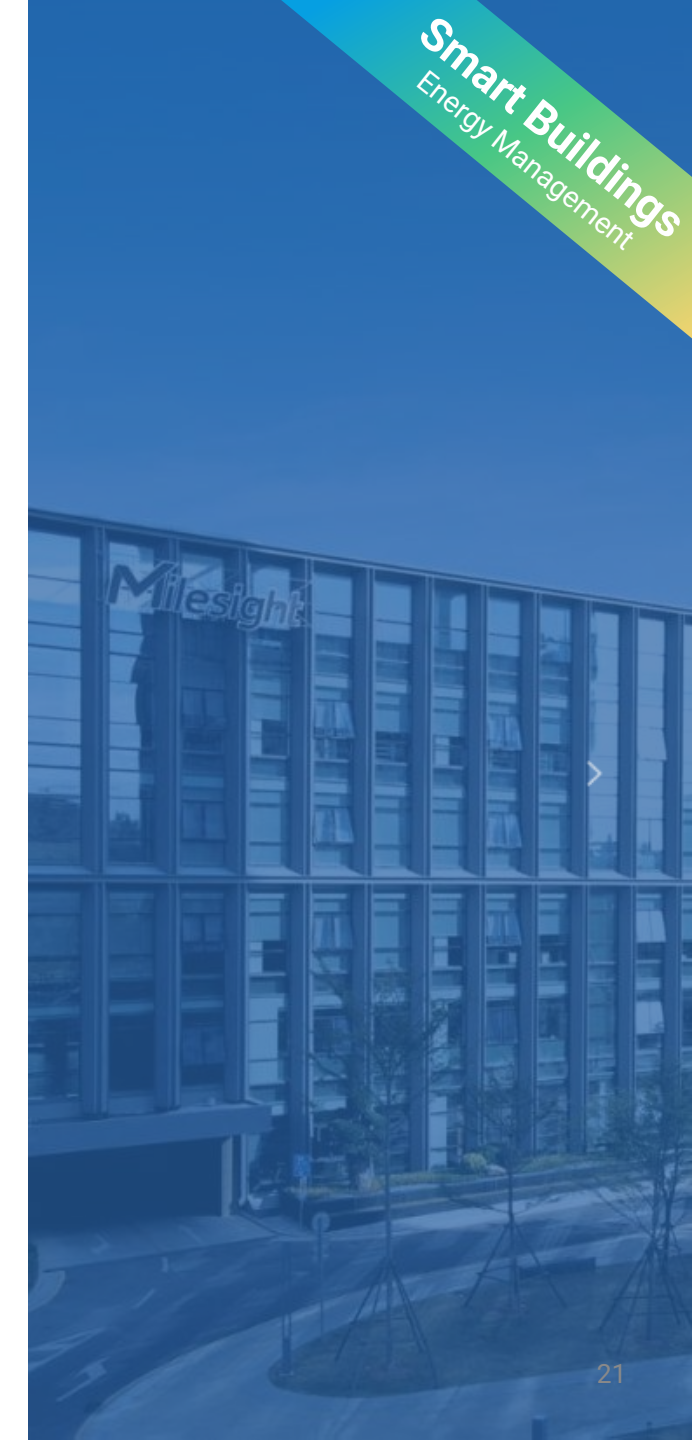
Achieve Up to 45% on Energy Saving per Year

Safeguarding Assets: Strategies for Assets Protection

Robust Security, Safeguarding Valuable Assets with
Advanced Monitoring and Alerts

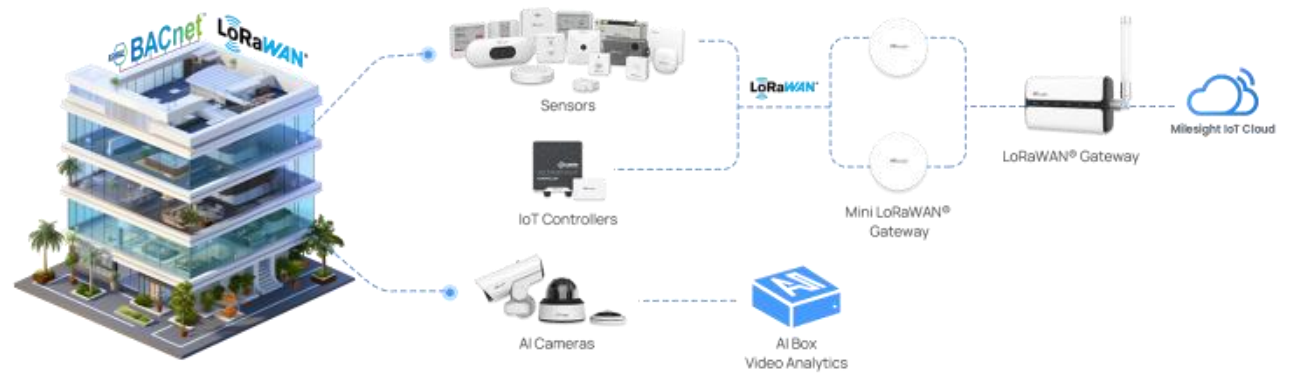
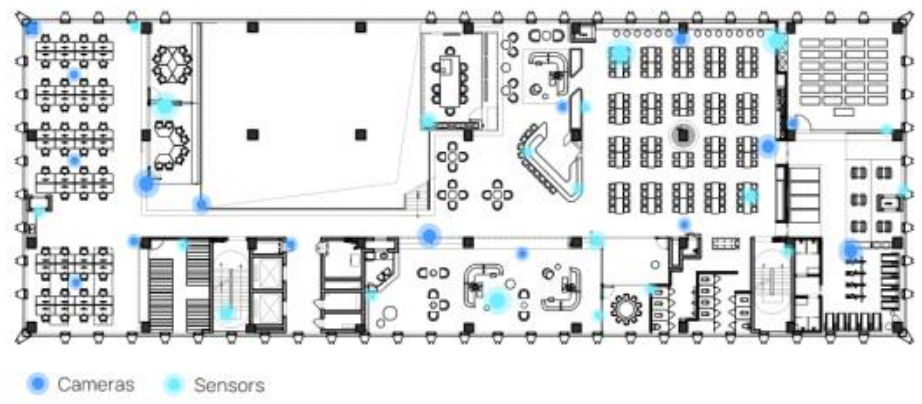
Building Security and Employee Safety: A Focus on Protection

Building Security and Employee Safety Measures



Put the "Smart" in Milesight Headquarters

Deployment



In the Milesight Green Building, there are a total of 352 Milesight sensors and 126 AI Network Cameras in deployment. These sensors play a crucial role in making the building smarter, enhancing energy efficiency and employee satisfaction. Additionally, the 126 Milesight AI Network Cameras strategically placed throughout the building serve to detect unauthorized access and suspicious loitering, effectively safeguarding lives and property.

Trash & Water Leak Management for Residential Buildings

Background

Smart buildings are the future! And many advanced technologies such as trash can empty efficiency and water damage prevention are in great need.

Location

- Legacy residential building “Artisan Garden” in Hong Kong
- “Artisan Garden” is the latest completed high-quality residential project that was jointly developed by the HK New World Development Company Limited(NWD) and HK Urban Renewal Authority in the Ma Tau Kok area, offering 294 units on 31 floors.

Challenge

- Bin Management: Collects waste on predetermined time and route regardless of the fill rate or level;
- Water Leak Detection: Water leaks from a broken faucet or a leaky pipe will be a big deal when water seeps into an elevator pit;
- Network Deployment: The prevailing wired system is neither optimized nor efficient;

Trash & Water Leak Management for Residential Buildings

- EM300-SLD
- EM310-UDL
- UG65 Indoor Gateway
- Milesight IoT Cloud



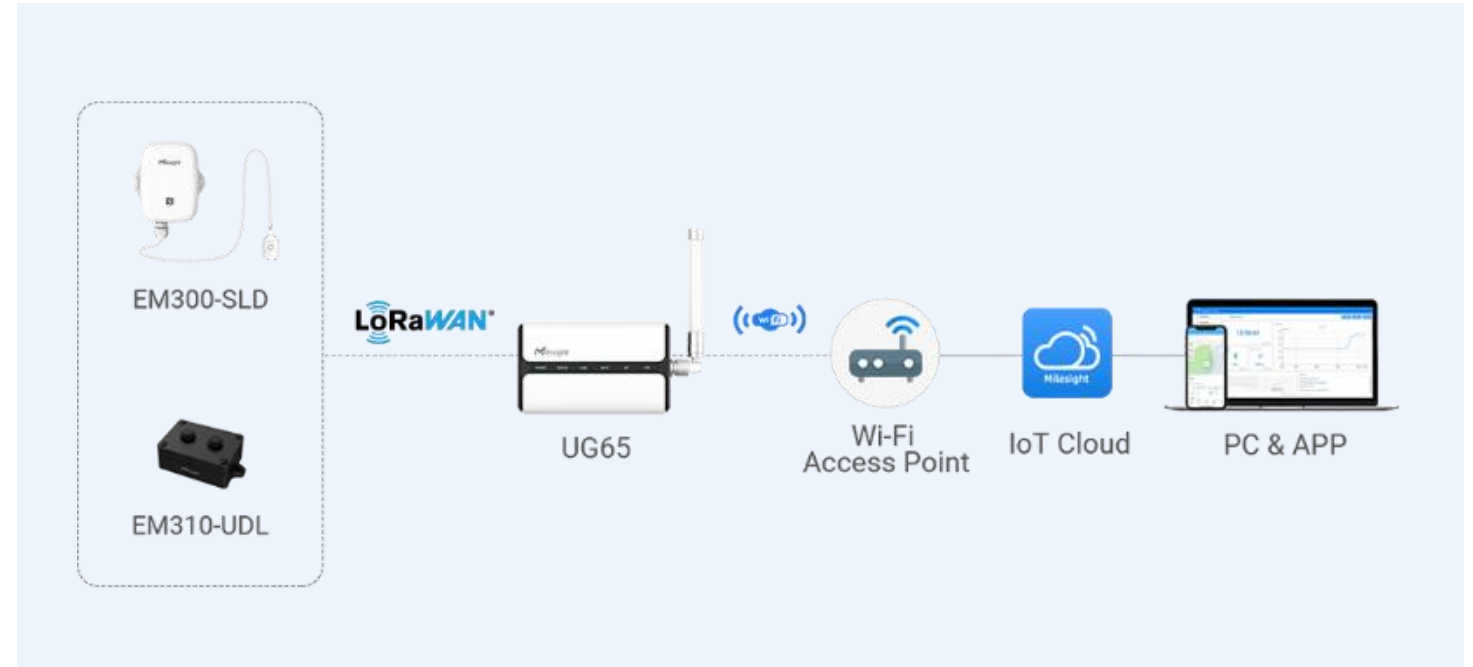
Highlights

- **Incredibly Efficiency:** No need for additional cabling and simple to implement to existing buildings and setups;
- **Smart Monitoring:** Customise data feeds to receive information at your pre-defined intervals;
- **Server-based Strategy:** Strategy in the Cloud simplifies daily operations and maintenance;
- **Timely Alerting System:** Action can be taken quickly when an incident occurs because of the Web and Mobile App monitoring

Trash & Water Leak Management for Residential Buildings

Deployment

- The smart bin sensor makes use of ultrasonic distance measurement technology to monitor the available room of every bin in real-time.
- The spot leakage detection sensor is vertically screwed on the bottom of the door to make sure its two probes are close to the floor, only when both of them touch the water simultaneously the alert can be triggered.
- The LoRaWAN® gateway is lying on a shelf at a higher position to provide signal coverage widely.
- The collected data was via the gateway to Milesight IoT Cloud.



Smart IoT Lighting Solutions Slash Office Energy Costs by 25% in Dubai

Background

Global companies are adopting smart lighting systems to reduce energy use, cut costs, and enhance building value. These systems, which can increase building value by \$20 for every \$1 saved in energy, also improve occupant satisfaction by up to 25%. In Dubai, an office building partnered with Sensgreen to implement a smart light control solution, significantly boosting energy efficiency and reducing operational costs.

What was the challenge?

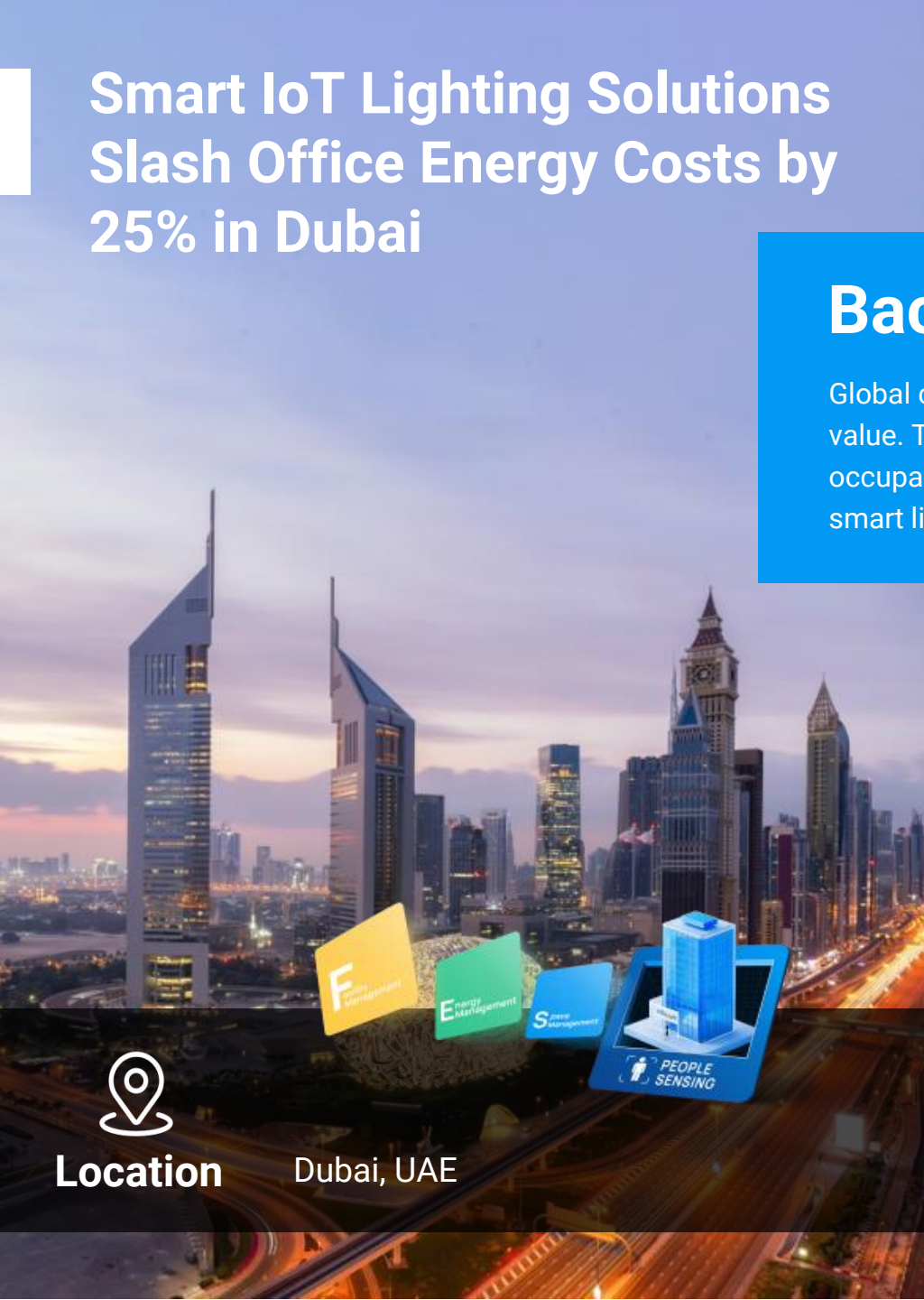
Manual Operation: Buildings rely on security personnel to manually turn off lights each night, leading to labor-intensive processes and potential human errors.

High Energy Costs: Lack of automation results in high energy consumption and increased electricity bills, impacting operational budgets.

Operational Inefficiency: Manual light control leads to operational inefficiencies, with lights sometimes left on unnecessarily, wasting energy.

Sustainability Issues: Outdated lighting systems do not meet modern sustainability standards, increasing the building's carbon footprint.

Lack of Reliable Data: Traditional lighting controllers cannot collect real-time data, preventing users from understanding the causes of energy waste.



Location Dubai, UAE

Smart IoT Lighting Solutions Slash Office Energy Costs by 25% in Dubai

Highlights

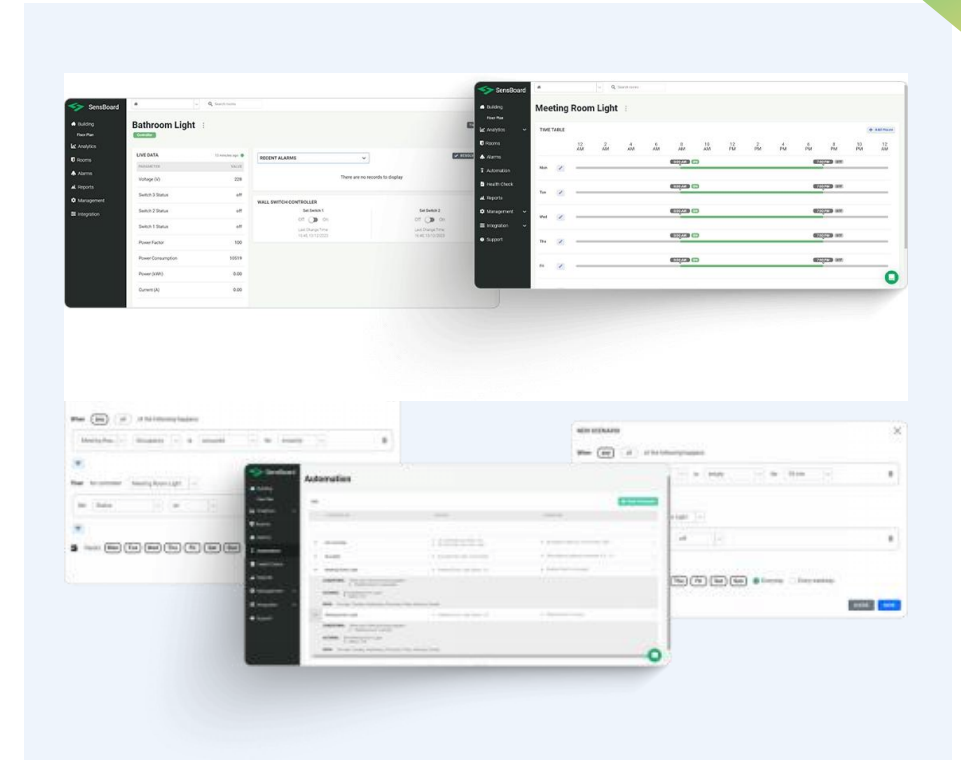
- **25% Lighting Efficiency Improvement:** The smart lighting control system reduced lighting energy consumption by 25% within just one month of deployment.
- **Monthly Savings of 11,000 Hours of Lighting Usage:** Optimized lighting schedules significantly reduced lighting operation time.
- **Annual Savings of \$3,000 in Electricity Bills:** Approximately \$250 saved per month, totaling \$3,000 annually.
- **Scalability:** The smart lighting system can integrate with other devices (e.g., occupancy sensors, indoor air quality sensors) to further enhance building intelligence.
- **Reduced Carbon Footprint: Enhanced Operational Control:** BuildiAutomated lighting systems meet modern energy efficiency standards, reducing the building's carbon emissions.
- **Enhanced Operational Control:** Building managers gained better control over the lighting system, achieving a more sustainable and cost-effective solution.



Smart IoT Lighting Solutions Slash Office Energy Costs by 25% in Dubai

Deployment

- Fifteen WS558 LoRaWAN® smart lighting controllers were deployed to manage 87 lighting units, with each controller overseeing multiple lighting circuits.
- The lighting controllers were integrated with WS202 PIR and light sensors, allowing automatic adjustments based on natural light and business hours. Data is transmitted through a LoRaWAN gateway to a cloud platform, enabling centralized control and real-time monitoring.
- The installation process minimally impacted daily operations, ensuring business continuity. The system supports flexible lighting modes that are both energy-efficient and maintain high-quality lighting.
- Facility managers can access real-time and historical data via the cloud platform for scientific analysis and optimization.



03 SPACE MANAGEMENT

- Indoor Air Quality Monitoring
- Smart IoT Office
- Smart Office Cleaning
- Smart Home Energy Management



IAQ Projects in British Schools, Reported by BBC News

Background

Poor air quality can have a significant impact on a pupils' ability to study and their health, as high levels of CO₂ in the classroom can significantly impair decision-making and cognitive performance. Thus, a new air quality monitoring system is installed in classrooms to make sure students can concentrate properly.



Challenge

Visible Data

No data can be used to make sure classrooms are well ventilated to stop the spread of COVID-19;

Separate Monitors

Monitors levels of CO₂, heat, humidity and light by separate devices, which means high investment;



Location

Isle of Man Schools, UK
Tynwald buildings in Douglas, UK

IAQ Projects in British Schools, Reported by BBC News

Highlights

- **Long-term Monitoring:** The vital data from sensors enable the local government to review existing environments within schools and inform the planning stages of any education infrastructure in the future;
- **Wireless Deployment:** Sensors are attached to the wall using screws or adhesive pads.
- **Unrivalled Accuracy:** Sensors use NDIR technology to provide unrivalled accuracy of CO₂;



AM107

AM107 Sensor



IAQ Projects in British Schools, Reported by BBC News



Deployment

- The AM107 features CO₂, Temperature, Humidity, Occupancy, TVOC and Light sensors – with support for LoRaWAN;
- Sensors are deployed in every classroom to measure whether the fresh air passing through the filtration system is comfortable for people;
- The collected data from sensors are forwarded to the existing public LoRaWAN network that covers the whole of the island;
- MTG Cloud Platform is built in Microsoft Azure and provides a highly scalable environment for dashboards, data collection, storage and visualisation.

47,000 IAQ Sensors Create Safer Classrooms in Canada

Background

To curb the spread of COVID-19 and protect students and faculties' safety, the **Ministère de l'Éducation du Québec** in Canada decides to adopt an IoT solution that is able to monitor temperature, humidity and the level of CO₂ in over **90,000** classrooms.

Installation Sequence:

- ① Priority 1: CO₂ level exceeding 2000 ppm
- ② Priority 2: CO₂ level exceeding 1500 ppm
- ③ Priority 3: Naturally ventilated buildings or CO₂ level between 1000 and 1500 ppm
- ④ Priority 4: Mechanically ventilated buildings

What was the challenge?

- Reduce maintenance and installation difficulties
- Monitor CO₂, humidity and temperature level at 5 minutes intervals during school hours
- Create an information system without the use of Wi-Fi or Cellular Internet



Location

Public schools in Quebec,
Canada



47,000 IAQ Sensors Create Safer Classrooms in Canada



UG65



AM107



EM500-CO₂



Highlights

- **Safeguard of Back-to-School Plan:** Deploy CO₂ sensors in 47,000 classrooms to automatically detect, collect data and indicate indoor air quality;
- **Competitive Solution:** Total 5 lots in the public tender, in which Milesight has become the winner of the two lots, i.e. more than half of the sensors are supplied by Milesight;

- EM500-CO₂
- AM107
- UG65 Indoor Gateway

47,000 IAQ Sensors Create Safer Classrooms in Canada

Deployment

- 47,000 units of IAQ sensors deployed.
- 2,600 units of gateways deployed.
- 7,331,376/day (156/day/device) of message handled/period
- ROI data: There was no monitoring at all before. This IAQ project made the environment data under monitoring and control.



Milesight Drives Digital Transformation Initiatives to Smart Office

Background

The fast growth and transformation of the shipping industry in recent years have created a great need for efficient, innovative port infrastructure. To drive the desired outcome, the first digital transformation is going through the office and brings in smart IoT workplace.

What was the challenge?

Redefining Traditional Workspaces

With the legacy layout, it is hard to revolutionize and change the traditional IoT offices into smart, efficient, and green ones.

Inadequate Space Area for Work

Providing a choice of a dedicated desk, private office or shared office spaces, the format of work spaces is also evolving.

Schedule Inflexibility

Flexible schedules might seem complicated and hard to reach

Problems with New Technology and Innovation

Technological advancement means change. Changes may be unsettling for workers without sufficient training and instructions, and they may not feel motivated to do their jobs to the best of their ability.



Location

Johor Bahru,
Johor, Malaysia



Milesight Drives Digital Transformation Initiatives to Smart Office

Highlights

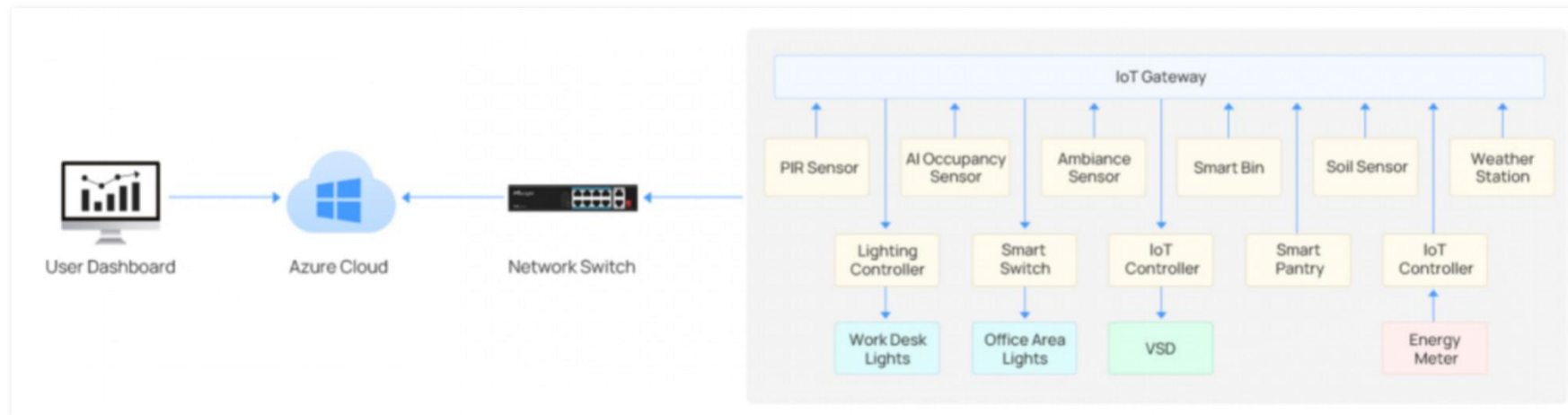
- Increased Flexibility of Workspace and Scheduling
 - Better and More Friendly Indoor Ambience
 - Improved Energy-saving and Cost Efficiency
-
- PIR and Light Sensor (WS202)
 - Smart Wall Switch (WS501)
 - Smart Light Controller (WS558)
 - AI Workplace Occupancy Sensor (VS121)
 - Smart Wall Switch (WS501)
 - Ultrasonic Distance/Level Sensor (EM310)
 - Indoor Ambience Monitoring Sensor (AM308)
 - Weather Station Sensor (WTS506)
 - IoT Controller (UC300)



Milesight Drives Digital Transformation Initiatives to Smart Office

Deployment

- PIR and Light Sensor (WS202-915M) together with Smart Wall Switch (WS501-915M) and Smart Light Controller (WS558-915M) for automated lighting control and individualized desk light control.
- Customize and individualize desk light switch on/off based on desk occupancy to minimize electricity usage, owing to the power of AI Workplace Occupancy Sensor (VS121-915M) together with Smart Wall Switch (WS501-915M).
- Minimize manual effort to check if the bins are full or the pantry consumables has diminished, by leveraging the intelligence of Ultrasonic Distance/Level Sensor (EM310-915M) for level monitoring.
- Indoor Ambience Monitoring Sensor (AM308-915M), Weather Station Sensor (WTS506-915M) and IoT Controller (UC300) can help automate meeting room facilities switch on/off and centralize air condition system control as well as monitoring of key parameters in the office such as temperature, air quality, weather conditions, garden soil conditions, etc.



Smart Cleaning Solution for Corporate Offices

Background

The traditional buildings are going through digital transformation into smart ones. Leveraging the intelligence of the emerging IoT/LoRaWAN® technology, these data and actionable insights allow for the precise coordination between responsible groups to manage and optimize resources.

What was the challenge?

- Analyze Room Usage Patterns and Trends
- Optimize Cleaning Tours and React to the Building Occupancy
- Flexible Cleaning Services
- Smooth Device Installation and Connection to the Cloud
- Infrastructure that Is Scalable and Future-proof



Location

Zürich,
Switzerland



Smart Cleaning Solution for Corporate Offices

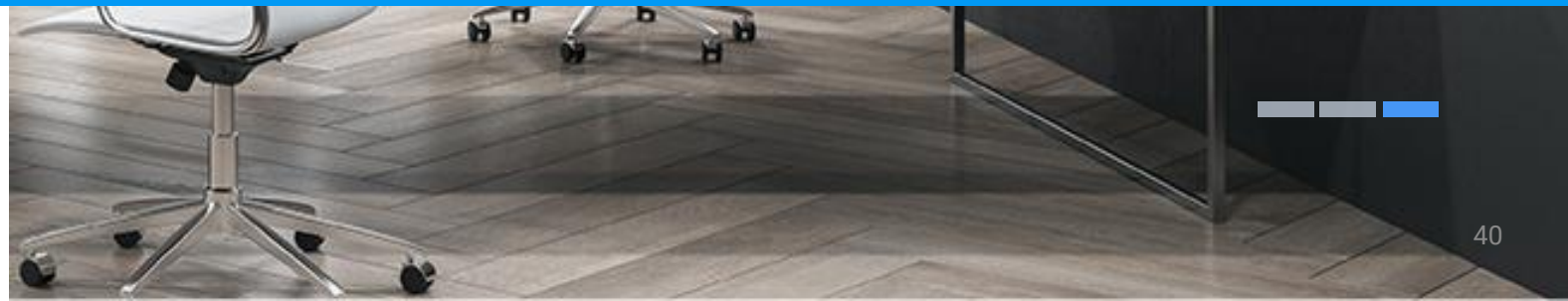


WS202

PIR and Light Sensor (WS202)

Highlights

- **Easy Onboarding of Devices:** The plug-and-play feature of WS202 PIR & Motion sensor, so as to enable data-driven operation while keeping up with demanding working regulations.
- **Scalable and Resilient to Change Infrastructure:** The WS202 provides secure and reliable connection to the infrastructure and removes the barriers to entry into the development of this emerging technology.
- **Improved Cleaning Tours Plan:** With the smart cleaning solution, it helps improve cleaning tours and clean in the right place at the right time .
- **Improved Satisfaction of Visitor and Employee:** The whole solution can provide accurate, round-the-clock analysis and occupancy report.



Smart Cleaning Solution for Corporate Offices

Deployment



- akenza
- Connectivity Management
- Device Management
- Device Data Processing
- Rule Engine
- Data Storage



The WS202 devices are installed throughout the buildings and collect occupancy data in different rooms via the akenza IoT platform. The sensor data is then forwarded to the soobr smart cleaning solution for data processing, leading to improved planning, execution and control of cleaning tours.

Milesight IoT Enhances Valencia's Green City with Air Quality Monitoring for Better Energy and Health

Background

As energy costs rise and concerns over greenhouse gas emissions increase, organizations need to achieve net-zero emissions while reducing operational costs. Advances in smart building technology are driving this change. The Wellbased project, launched in Valencia in September 2022, aims to address energy poverty and improve the health of vulnerable families. Leveraging Valencia's status as the European Green Capital for 2024, the project employs IoT technology to monitor and manage indoor environments, promoting a sustainable energy transition.

What was the challenge?

Data Accuracy and Reliability: Ensuring the IoT sensors provide accurate and reliable data in varied residential environments.

User Engagement: Encouraging active participation from residents in utilizing the technology for energy management.

Integration with Existing Infrastructure: This is the most serious problem. Seamlessly integrating IoT solutions into existing residential structures without invasive installations or disruptions to daily life.



Location

Valencia,
Spain

Milesight IoT Enhances Valencia's Green City with Air Quality Monitoring for Better Energy and Health

Highlights

- **Reducing Energy Costs:** By monitoring and managing energy usage, residents can significantly lower their energy bills.
- **Health Improvement:** Enhancing indoor environmental conditions reduces medical visits and associated costs.
- **Educational Impact:** The Energy Rights Citizen School educates and empowers residents, increasing community engagement and knowledge of sustainable practices.
- **Data Accuracy:** Milesight's sensors provide accurate and reliable data in diverse residential environments.
- **User Engagement:** Residents are encouraged to actively participate in energy management using technology.
- **Seamless Integration:** IoT solutions are seamlessly integrated into existing residential structures without disrupting daily life.



AM103L

NEWS Energy Efficiency



About Valencia, the European Green Capital 2024

"Valencia has earned the Green Capital title because of its ambitious sustainability strategy, and it has learned from lessons in the past. For many decades, the city has been driven forward by a bold civic movement that sustains genuine change. People are Valencia's asset. This year will enhance the experiences of citizens and support them even more in delivering the change we all need achieve for a better future." - Virginijus Sinkevičius, Commissioner for Environment, Oceans and Fisheries,

*Source: Valencia kicks off 2024 as new European Green Capital:
https://environment.ec.europa.eu/news/valencia-kicks-2024-new-european-green-capital-2024-01-11_en



About Wellbased Project

"From Valencian vision, energy poverty is a question of social injustice caused by several causes, most of them structural causes and therefore outside the household's control ... Interventions include the installation of sensors for the monitoring of energy, atmosphere, health and quality of life indicators from vulnerable households, aiming to prove the relationship between energy poverty and physical and mental health issues. Gathered data will be later analyzed and evaluated to assess the effects of the interventions in participants health and wellbeing."

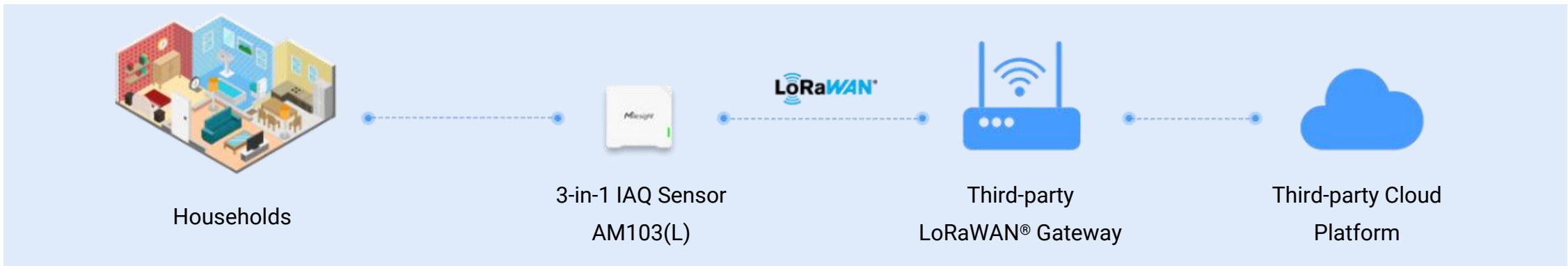
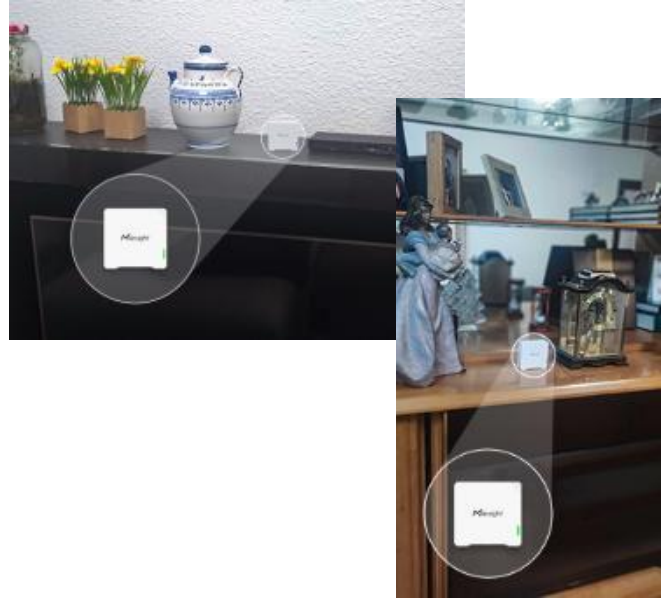
*Source: <https://wellbased.eu/project/valencia-spain/>

Smart Buildings
Space Management

Milesight IoT Enhances Valencia's Green City with Air Quality Monitoring for Better Energy and Health

Deployment

- AM103L three-in-one indoor air quality sensors were deployed in multiple households to monitor CO2 levels, temperature, and humidity. Data is transmitted to the cloud platform using third-party LoRaWAN gateways.
- Milesight IoT sensors collect environmental data and securely transmit it to a central data aggregation platform. The system analyzes the data to provide actionable insights on energy usage patterns, potential savings, and areas for health improvement to residents and energy advisors.
- The project not only met operational expectations but also significantly improved the health and well-being of Valencia residents through smarter energy usage. The high reliability and accuracy of the data ensure trustworthy data collection, supporting the project's sustainability goals.



04 PEOPLE SENSING

- Smart Campus BMS Systems
- Renovation of Theater Energy Efficiency
- Smart Retail



Real-time HVAC Control for Peak Energy Efficiency in Abu Dhabi

Background

Gartner has identified intelligent campuses as a key strategic technology for higher education. A smart campus is defined as an environment where humans and technology-enabled systems interact to create immersive and automated experiences. Modern campuses differ significantly from past institutions, with a focus on improving student outcomes, reducing costs, and future-proofing facilities. This shift addresses dynamic campus usage and resource pressures. The Internet of Things (IoT) plays a crucial role by providing valuable insights through big data on usage patterns.

What was the challenge?

University established its own Building Management System (BMS) for better management.

To enhance performance, integration of occupancy data and air quality data into the BMS is required.

The integration aims to be cost-effective.

The selection of appropriate LoRaWAN® gateways was challenging due to the building topology.



Location

Abu Dhabi,
UAE

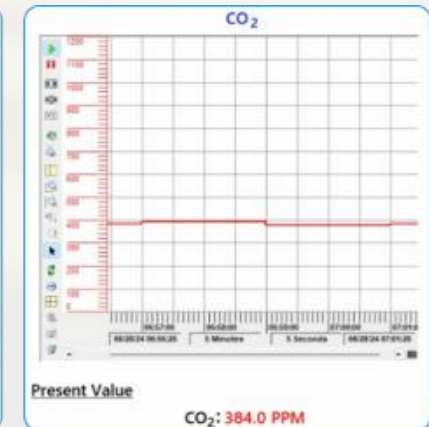
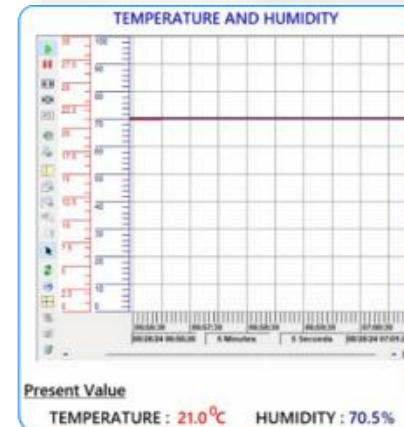
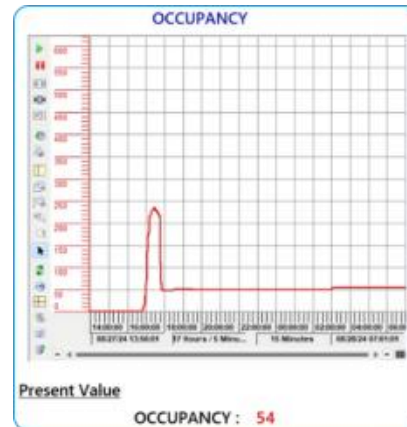


Real-time HVAC Control for Peak Energy Efficiency in Abu Dhabi

Highlights

- Enhancing Student Experience: Real-time monitoring of indoor CO2 levels allows for timely adjustments to ventilation rates, reducing symptoms like dizziness and chest tightness, and improving student focus and problem-solving abilities.
- Net Zero Sustainability: By monitoring in real-time, unnecessary costs and energy consumption can be identified, activating the ventilation system only when alerts are received, thereby saving energy and reducing carbon emissions.
- Data-Driven Decision Making: The data collected and presented by the BMS provides facility managers with a comprehensive performance view, enabling scientific decision-making based on current and historical data.
- High-Precision Sensors: The VS121 AI workplace occupancy sensor offers up to 98% accuracy, with continuous deep learning further enhancing its precision.
- Seamless Integration: The Milesight UG65 semi-industrial LoRaWAN gateway supports BACnet/IP, allowing real-time data to be seamlessly integrated into existing Building Management Systems (BMS).

- VS121
- AM103
- UG65
- UG67

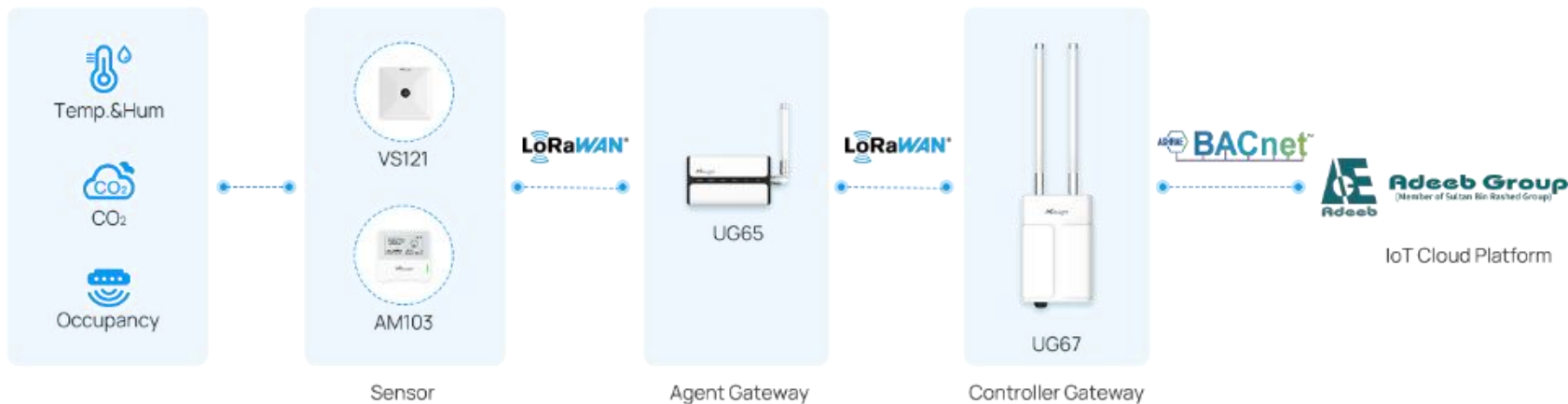


Real-time HVAC Control for Peak Energy Efficiency in Abu Dhabi

Deployment

VS121 AI workplace occupancy sensors and AM103 three-in-one indoor air quality sensors were deployed to monitor occupancy, CO2 levels, temperature, and humidity. Data is transmitted to the BMS system via LoRaWAN gateways. UG65 gateways support BACnet/IP for seamless data integration, while UG67 outdoor gateways are positioned on the building rooftops as primary gateways and provide backup cellular network connections.

Real-time monitoring and adjustment of the HVAC system ensure comfort for students and staff. Occupancy sensors detect "unoccupied rooms," turning off lights and air conditioning to prevent unnecessary waste. Data supports facility managers in making informed decisions, optimizing resource usage and operational efficiency.



Revitalizing Energy Efficiency at The Historic Theater

Background

A historic Italian theater, inaugurated in the mid-1800s, is a neoclassical masterpiece renowned for its elegant details, grand main hall, and exceptional acoustics. Despite meticulous restoration efforts preserving its beauty, the theater faces challenges in optimizing energy consumption and managing guest flows due to its historical infrastructure.

What was the challenge?

Poor Air Quality: The theater faced issues with maintaining optimal air quality, impacting both comfort and safety for the audience.

Occupancy and Space Analysis: There was a need for accurate monitoring of occupancy and efficient use of spaces, such as balconies and restrooms, to ensure optimal guest experience and operational efficiency.

People Flow Monitoring: Managing the flow of spectators in critical areas like the bar and entrance has been challenging without real-time and historical data insights.



Rome,
Italy

Location



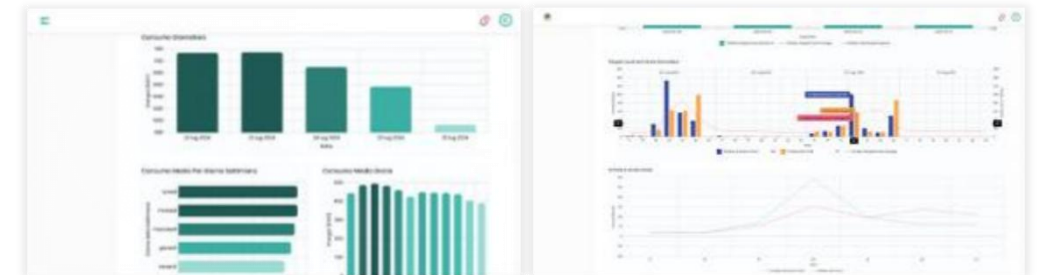
Revitalizing Energy Efficiency at The Historic Theater

Highlights

- Energy Efficiency Improvement: Real-time data collection and analysis optimize the theater's energy consumption, ensuring maximum energy use efficiency.
- Air Quality Monitoring: Deployment of AM107 IAQ sensors (upgraded to AM307) to monitor temperature, humidity, CO2, and TVOC parameters, ensuring audience comfort.
- Wireless Solutions: Most sensors are battery-powered, avoiding wiring issues, which is especially suitable for the renovation of historical buildings.
- Occupancy Monitoring and Smart Lighting Control: WS202 PIR & light sensors monitor occupancy in balconies and bathrooms, effectively managing lighting.
- Guest Flow Management: VS132 people counting sensors (upgraded to VS133) monitor guest flow in key areas, aiding in audience movement management.
- Data Integration: The iComfort platform integrates various sensor data, providing comprehensive insights to support energy system monitoring, building infrastructure, and personnel behavior analysis.
- Energy Savings and Compliance: By comparing energy usage with wholesale prices, energy use is optimized while ensuring compliance with safety and security regulations.



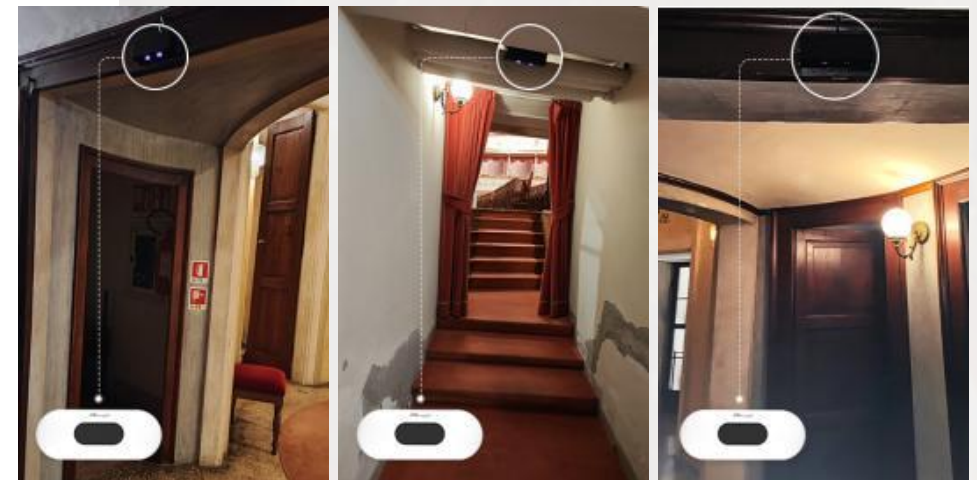
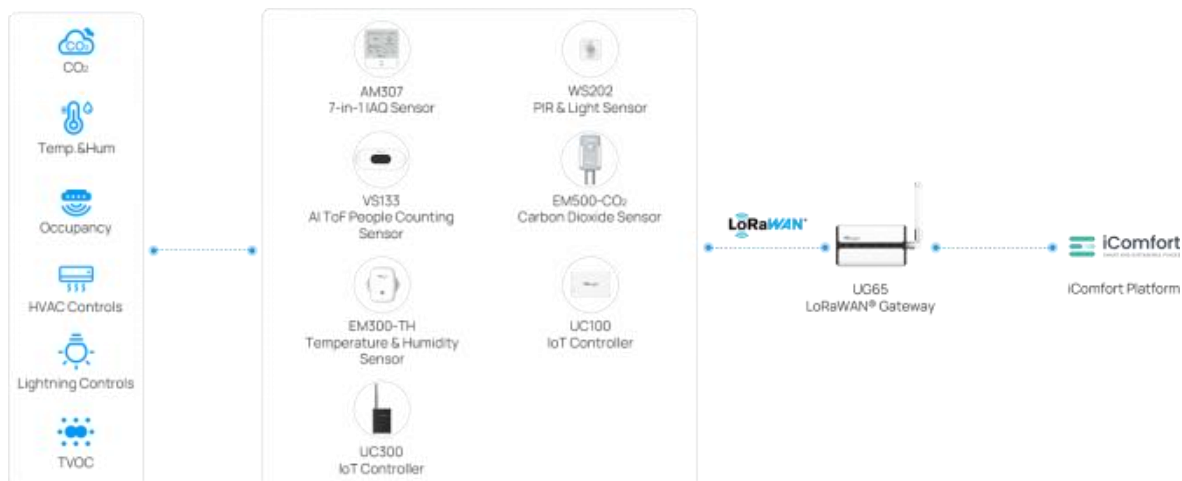
- WS202
- VS132
- UC300
- EM300-TH
- AM107
- UC100
- EM500-CO²
- UG65



Revitalizing Energy Efficiency at The Historic Theater

Deployment

- The theater has deployed various sensors, including WS202 PIR & light sensors, AM307 IAQ sensors, VS133 people counting sensors, UC100 and UC300 IoT controllers, an EM500-CO2 outdoor CO2 sensor, and an EM300-TH temperature and humidity sensor. These devices transmit data to Milesight gateways using LoRaWAN technology. The iComfort platform processes this data, providing centralized monitoring and management functions for environmental analysis, workplace analysis, and smart energy management.
- Real-time monitoring and adjustment of energy usage optimize guest flow management. The system provides comprehensive insights, supporting continuous improvement and innovation, ensuring the theater achieves modernization and sustainability while preserving its historical and cultural value.



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