Create a More Energy-Saving and Greener Building with IoT-based Energy Management System (EMS) in Malaysia

📍 In Kuala Lumpur, Malaysia   LoRaWAN®

Milesight Partner	Location	Number of Devices Deployed	Applications
Resource Data Management Asia Sdn. Bhd.	Kuala Lumpur, Malaysia	AM107 / WS202 EM300-TH /EM500-CO2 UC100 /UG65	Smart Buildings and Management Indoor Ambience Monitoring Temperature and Humidity Monitoring Occupancy and People Counting

Background

There is a growing focus on energy efficiency among all stakeholders that goes beyond mere legislative compliance. Building owners have recognized the rising market demand for green buildings and the appeal of reducing energy consumption in every aspect including HVAC, lighting and solar energy utilization. Consumers and users are highly motivated to actively participate in the fight against increased energy bills and carbon emissions. As the IoT devices and solutions have developed, the IoT-based energy management system (EMS) has been launched and gradually implemented globally.

Milesight's partner, Resource Data Management has helped their client who is an international conglomerate with its headquarters situated in the heart of Kuala Lumpur, Malaysia. The client's influx of employees working in the building has raised several issues which creates an opportunity for creating a smart building utilizing IoT solutions.

Challenges

Poor Indoor Air Quality

- Complaints of stuffiness, odors, or discomfort among occupants.
- Concerns about the presence of pollutants, allergens, or contaminants in the indoor air.
- Inadequate ventilation leading to stagnant air or high levels of CO2.

Temperature and Humidity Imbalance

- Complaints of stuffiness, odors, or discomfort among occupants.
- Concerns about the presence of pollutants, allergens, or contaminants in the indoor air.
- Inadequate ventilation leading to stagnant air or high levels of CO2.

High Energy Consumption

- Rising utility bills due to inefficient use of heating, cooling, and lighting systems.
- Lack of visibility into energy usage patterns and opportunities for optimization.
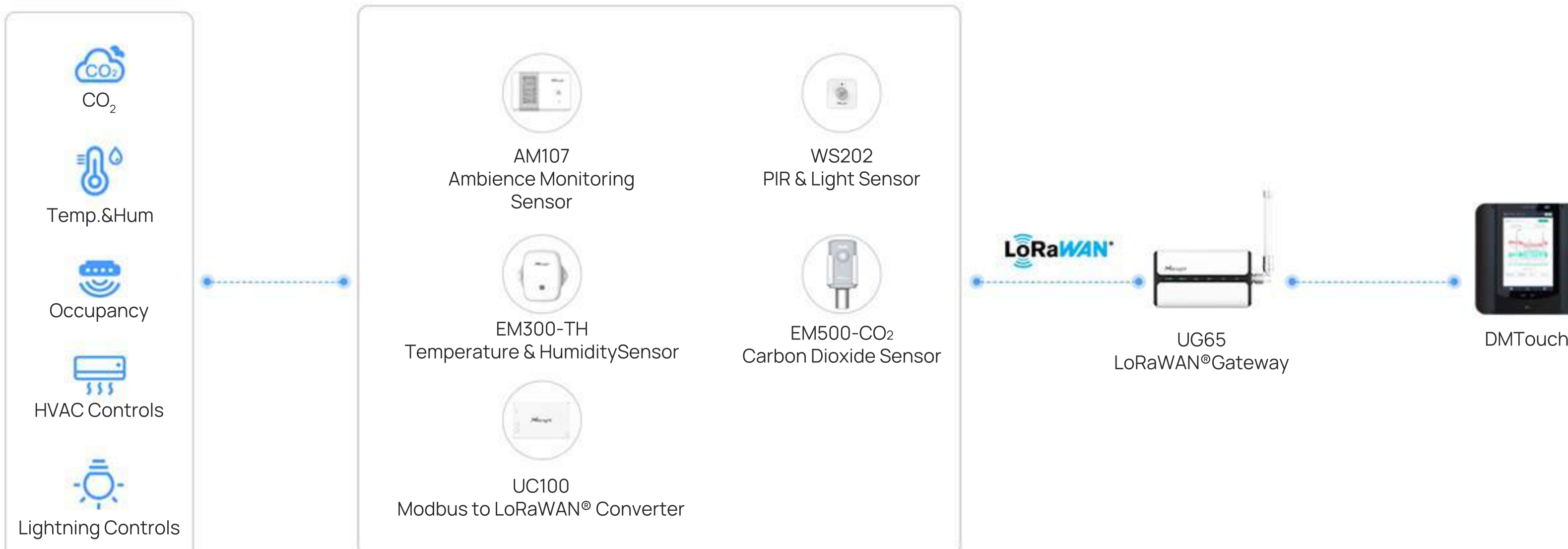- Inefficient utilization of resources leading to environmental concerns.

Occupancy and Space Utilization

- Difficulty in managing lighting and HVAC systems based on occupancy patterns.
- Concerns about underutilized or overcrowded areas within the building.
- Security vulnerabilities due to inadequate monitoring of occupancy in certain spaces.

Compliance and Safety Regulations

- Need to comply with indoor air quality standards and regulations.
- Requirements for safety measures such as motion-activated lighting or CO2 monitoring in enclosed spaces.
- Concerns about liability related to occupant health, safety, and comfort.

Solutions

Resource Data Management Asia has deployed a wireless solution utilizing sensors and gateway to address the challenges faced by the client. The solution works in tandem with the energy management system (EMS) implemented by Resource Data Management Asia to optimize energy consumption and maximize occupant comfort. Moreover, RDM has also developed a Unity-based 3D Digital Twin to highlight energy consumption, room occupancy, and internal air quality in the building.

The RDM EMS provides a comprehensive platform for monitoring, controlling, and optimizing energy usage in various facilities. It integrates advanced technology to collect and analyze data from multiple sources, such as HVAC systems, lighting, and equipment. For this project, digital power meters collect critical energy data and wired through RDM's PLC controller. The data is sent to RDM's control and monitoring system front-end, DMTouch, where algorithms and data analytics are used to identify patterns, anomalies, and areas for improvement. It provides users with insights into energy usage patterns, equipment performance, and potential efficiency gains.

As for room occupancy and internal air quality metrics, Milesight LoRaWAN solutions are utilized. With Milesight Semi-industrial LoRaWAN® Gateway UG65, all environmental data collected by sensors can be transformed and presented on the EMS dashboard for facility managers to better understand and improve management. Building managers have access to real-time data on motion, humidity, TVOC, temperature, CO2, and more, which collected by AM107 7-in-1 IAQ Sensor, WS202 LoRaWAN® PIR & Light Sensor, EM300-TH Temperature and Humidity Sensor and EM500-CO2 Outdoor CO2 Sensor.

With the help of this information, HVAC systems and lighting systems can be intelligently controlled. For example, when the indoor air quality reaches a threshold (shown as red on the dashboard), the HVAC system can be adjusted in time to improve ventilation with the help of IoT controller UC100. In addition, lights can be turned off if no motion is detected in the meeting room.

Results

Enhanced Occupant Comfort

Maintains optimal indoor environmental conditions, including temperature, humidity, and air quality, leading to increased occupant comfort and satisfaction.

Enables proactive adjustments to HVAC and lighting systems based on real-time data, ensuring a comfortable environment regardless of external factors.

Automated Water Quality Management

Monitors and controls pollutants, allergens, and contaminants, resulting in healthier indoor air quality.

Reduces the risk of health issues such as respiratory problems and allergies among occupants.

Energy Efficiency

Optimizes the operation of heating, ventilation, and air conditioning (HVAC) systems based on occupancy, temperature, and humidity data, leading to energy savings.

Enables the implementation of energy-efficient lighting strategies, such as dimming or turning off lights in unoccupied areas.

User Engagement and Accessibility

Collects real-time data on environmental conditions, occupancy patterns, and energy usage, providing valuable insights for building management and optimization.

Enables data-driven decision-making processes to improve building performance, occupant comfort, and operational efficiency over time.

Why Milesight

Resource Data Management Asia has chosen Milesight as their LoRaWAN® solution provider for several reasons.

Reliability

Milesight offers reliable LoRaWAN® solutions that are known for their stability and performance. Their devices are built with quality components and undergo rigorous testing to ensure reliability in various environments.

Cost-effectiveness

Milesight's solutions are designed to be cost-effective, offering competitive pricing without compromising on quality. This makes them an attractive option for companies looking to deploy IoT solutions within budget constraints.

Scalability

Milesight provides scalable solutions that can cater to the needs of both small-scale and large-scale deployments. Whether a company needs to connect a few devices or thousands, Milesight's solutions can accommodate the scalability requirements.

Ease of Integration

Milesight's LoRaWAN® solutions are designed for easy integration with existing systems and infrastructure. They offer various communication protocols and APIs, making it easier for companies to connect their devices and collect data seamlessly.

Comprehensive Solutions

Milesight offers a comprehensive range of LoRaWAN® devices and solutions, including sensors, gateways, and network management software. This allows companies to find all the necessary components for their IoT projects from a single provider, simplifying procurement and integration.

Support and Service

Milesight provides excellent customer support and service to assist companies throughout the deployment process and beyond. Their technical expertise and responsive support team can address any issues or concerns that may arise, ensuring a smooth implementation of LoRaWAN® solutions.

Milesight Partner

About Resource DataManagement Asia Sdn Bhd

Resource Data Management Asia Sdn Bhd is a company dedicated to providing innovative solutions in the field of smart building solutions, particularly focusing on the Asian market. With a strong emphasis on utilizing the latest technology and analytics, RDM Asia specializes in developing and implementing cutting-edge strategies to optimize facilities, streamline building operations, and enhance overall efficiency for businesses owners across various industries. Through their expertise and commitment to excellence, RDM Asia aims to empower organizations to harness the full potential of futuristic building management solutions to achieve sustainable growth and success in today's dynamic business landscape.

Resource Data Management