Value Added is Our mission

SUSTECH
INTEGRATED TECHNOLOGIES

Smart Building Solutions

As the demand for smart building technologies continues to grow, SUSTECH Integrated Technologies recognizes the need to integrate advanced systems that enhance building automation and energy efficiency.

What is SitSMART?

SitSMART is a SUSTECH Integrated Technologies taler-made solution Based on LoRaWAN a DNA of Internet of Things (IoT) brand, offering advanced control solutions to the market. The combination of SUSTECH staff air conditioning expertise and the state-of-the-art industrial 4.0 controller with the IIOT LoRa technology, developed smart building solutions allows to deliver comprehensive solutions that seamlessly integrate with existing building infrastructure.

What is SIT-SAAS?

Is a IIOT Platform with SCADA+ cloud based or on-prim , can monitor your asset via Mobile or PC, By leveraging the power of data and automation, we empower building owners and operators to make informed decisions, optimize operational efficiency, and help create sustainable environments for occupants.

Being a LoRa alliance member solution provider as well system integrator for edge 4.0 Altus
SUSTECH leverages LoRa expertise in smart building solutions, which encompass a range of technologies such as data analytics, machine learning, and IoT connectivity. These transformative solutions enable us to create intelligent, connected systems that improve occupant comfort, reduce energy consumption, and enhance overall building management.

System Capabilities

EXISTING BUILDING MANAGEMENT SYSTEMS

FRAGMENTED SOLUTIONS
Existing BMS solutions provide fragmented layers making integration difficult with a requirement to use multiple products to achieve a satisfactory outcome

HIGH INSTALLATION COSTS
Most BMS require specialized knowledge and significant resources to implement

SIGNIFICANT DOWNTIME
Due to the complexity of most solutions on the market, replacing items lead to significant downtime

OUTDATED TECHNOLOGIES
Completely wired and cumbersome, these solutions utilize technologies that are restrictive, outdated, proprietary, and unsecured

DIFFICULT TO SCALE
Adding a new sensor or removing one from the system can be a complicated proce

COMPLETE SOLUTION
From environmental and asset sensors to controllers, to BMS software – SitSMART offers the full stack local or cloud

LOW INSTALLATION COSTS
Each monitor is LoRa-enabled. No wiring, no wiring means less risk and less disruption

RAPID DEPLOYMENT
Swap out a sensor in a matter of minutes. No downtime, no waste of resources

POWERFUL TECHNOLOGY
SitSMART has bought current web-based technologies that are used in other industry-leading software and hardware applications to the BMS industry

EASY TO SCALE
Install a new wireless sensor and connect it to the Rubix Compute in under a minute

System Architecture

System Description

1. Sensors and Devices

- **Sensors**: These are the primary data sources in a smart home. They can include temperature sensors, motion detectors, humidity sensors, smart locks, and more.
- **Devices**: These can be smart appliances, lights, thermostats, etc.

2. Data Transmission

- **LoRa Modules**: Each sensor and device is equipped with a LoRa module that transmits data wirelessly. LoRa use Chirp Spread Spectrum (CSS) technology, which allows for long-range communication with low power consumption.
- Uplink Communication: Sensors send data packets to the gateway. This is known as uplink communication. The data is transmitted asynchronously, meaning devices send data only when needed, such as when a sensor detects a change.

3. Gateways

- **LoRa Gateways**: These act as bridges between the sensors/devices and the network server. They receive data packets from multiple sensors and forward them to the network server.
- Multi-Channel Reception: Gateways can receive data on multiple channels and at different data rates, making them efficient in handling numerous devices.

4. Network Server

- **Data** Aggregation: The network server is built in the gateway. It consolidates duplicate packets and ensures data integrity.
- Routing: The server determines the best route for sending data back to the devices (downlink communication) if needed.

5. Application Server sitSMART

- **Data Processing: The application server processes the data received from the network server. This can include analysing sensor data, triggering actions (like turning on lights), and sending notifications to users.**
- **User Interface**: Data is presented to users through a mobile app or web interface, allowing them to monitor and control their smart home devices.

6. Cloud Storage

- **Data Storage**: Processed data can be stored in the cloud for long-term analysis and historical reference.
- **Analytics**: Advanced analytics can be performed on the stored data to provide insights and optimize smart home operations.

Key Capabilities

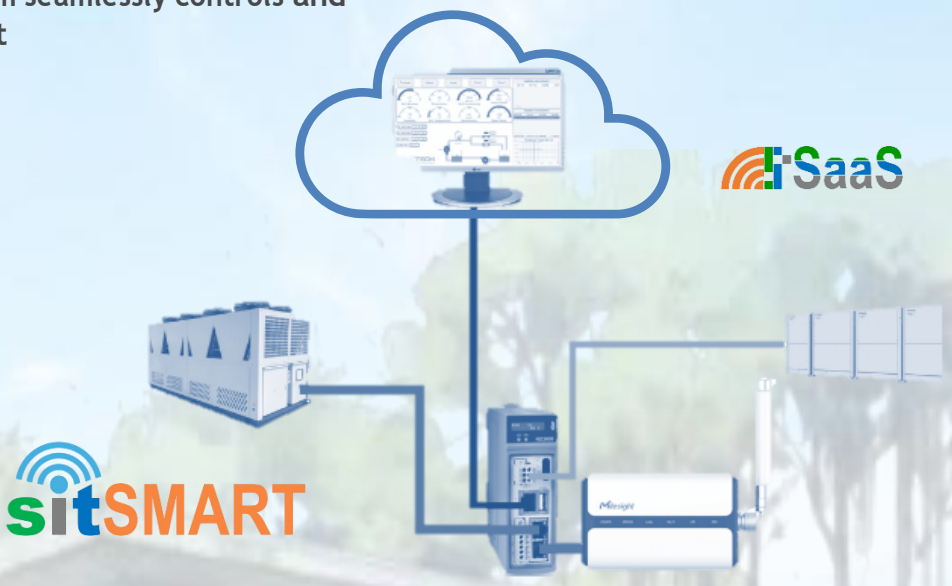
The SitSMART utilize a unique combination of sensors, gateway edge computing, cloud-based AI and applications providing real-time data and control of physical assets.

HVAC Control

The SitSMART control system seamlessly controls and monitors HVAC equipment

Air Conditioning Equipment
- VRF Systems
- Roof Top Package Units
- Chillers and AHUs
- Split Systems

Ventilation Equipment
- Exhaust Fans
- Dampers
- Valves
- Car Park Exhaust

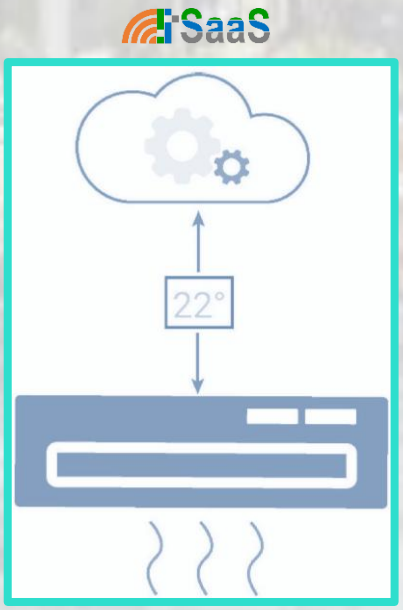


HVAC Optimization

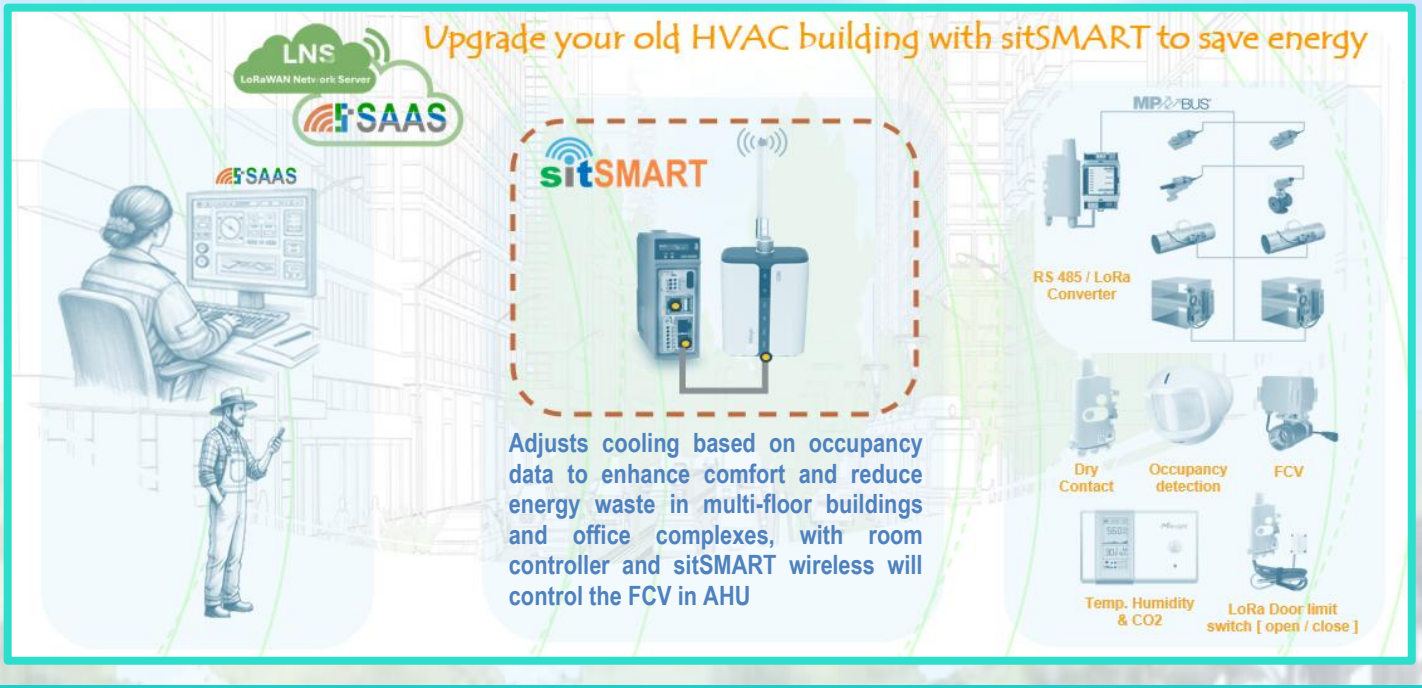
Using sensors to reduce energy consumption and detect faults.

Wireless Monitoring - SIT-SAAS
- Current for equipment status
- Vibration to determine run times and status
- Zone Temperatures
- Supply air duct temperatures

Fault Detection
- Critical A/C cooling diagnostics
- Receive early-stage notifications if ambient store temperature is rising
- Receive early-stage notifications for current or vibration anomalies



IOT- Occupancy Control



IOT-Indoor Air Quality

The SIT-SAAS platform can connect to a range of wireless and wired indoor air quality sensors which can be used for monitoring or interlocking with associated equipment

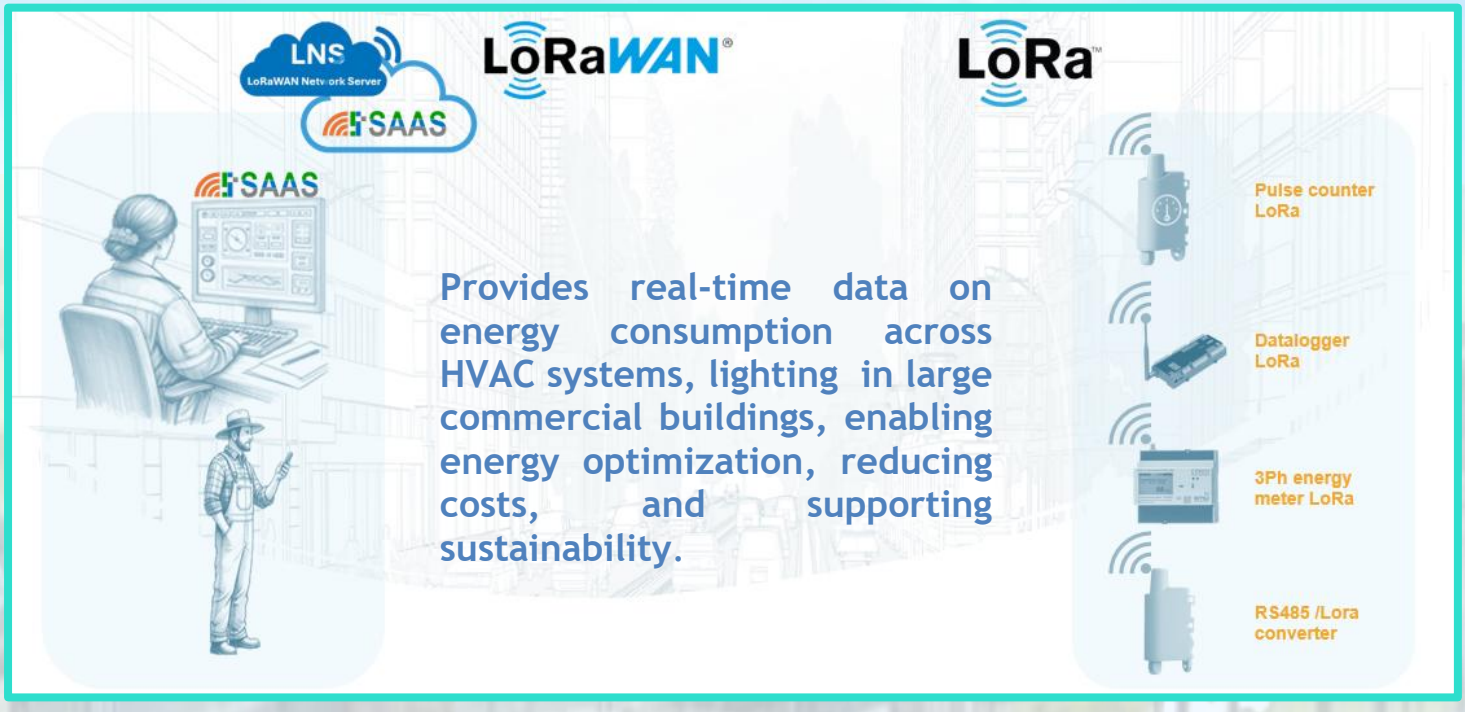
Sensor Types

- CO2 -Carbon Dioxide
- CO - Carbon Monoxide
- VOC - Volatile Organic Compound
- PM2.5
- Humidity

Benefits

- Green Star Requirements
- Ensure Optimal Working Environments
- Interlock Sensors with Fresh Air Strategies

IoT - Energy Monitoring & Optimization



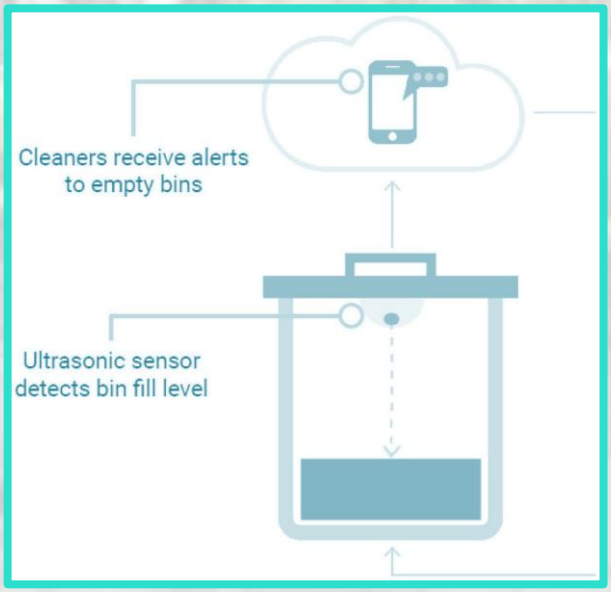
IoT - waste Monitoring

Wireless ultrasonic sensors to detect bin fill level

- Turnkey IoT solution for waste management
- Reduce the frequency of bin changes and optimize cleaning processes
- LoRaWAN sensors provide up to 10km transmission range
- Battery powered using AA batteries
- Detects up to 2000mm bin depth
- 5-7-year battery life

ROI

- Reduced maintenance customer experience
- Can these bins be emptied less frequently?
- Can we better avoid bin overflows?
- Predictive cleaning based on data



IoT - Irrigation Controller

Wireless Edge Controller

- Complete irrigation program gets the data wireless LoRa WAN and as per the devices feedback the controller deiced to open close solenoid valve or main isolated Valves
- Feedback of the water meter and weather station and soil condition as soil moisture, along with preprogramed timing irrigation , irrigation controller give command,
- Level monitoring sensors to detect current water levels , and this will allow to Run the pump in case or open the isolation valve .

ROI

- Predictive maintenance or on-demand
- Optimized rostering of staff
- Reduce water consumption
- enhance the quality of the crops

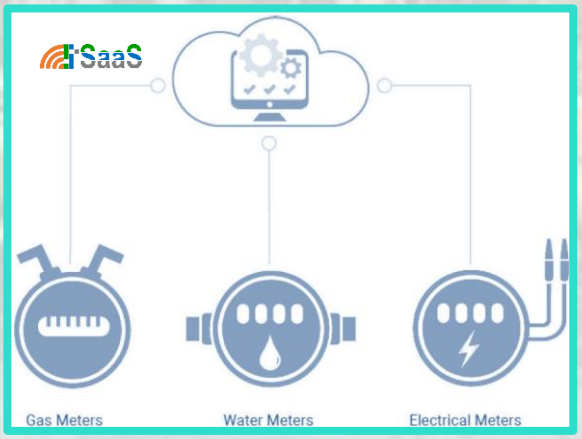
IoT - Utility Monitoring

Monitor utilities consumption

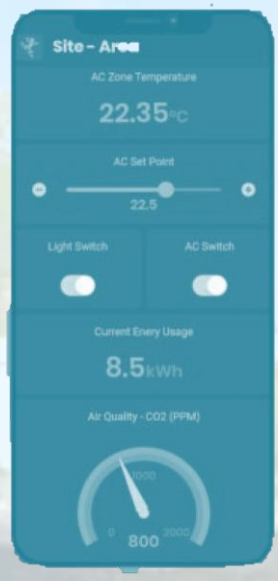
- Low-cost remote monitoring solution providing consistent and accurate data about utilities consumption
- All meter data aggregated for
- Whole tenancies and sub-tenancies

ROI

- Reduced bills for energy, water and gas
- Sub-tenancy apportioning
- Maintain Green Star and Nabers
- Low-cost data conduit
- Avoid leaks or excess use through alerts

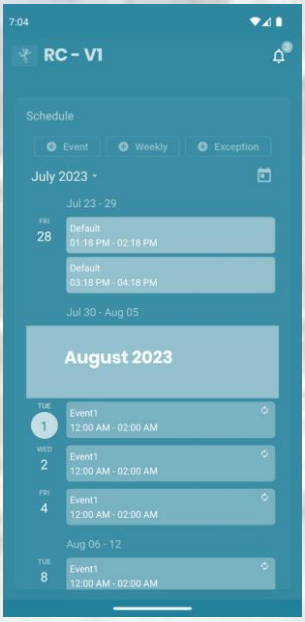


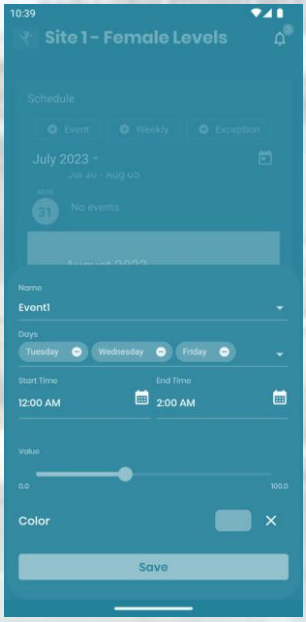
Mobile App Monitoring



Remotely Monitor Your Entire Asset Portfolio

- Log into multiple buildings across a large geographical area from one remote login
- Access your data on your phone, laptop or tablet with no software to install
- Fully customizable with multiple skin designs
- Analyze data using a highly visual dashboard
- Stay on top of the BMS performance with daily updates and alerts
- Scheduling and trending
- Manage setpoints and thresholds





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