Milesight

Caring in Time, Creating Better Healthcare: Advanced Nurse Call Systems for Care Homes with IoT

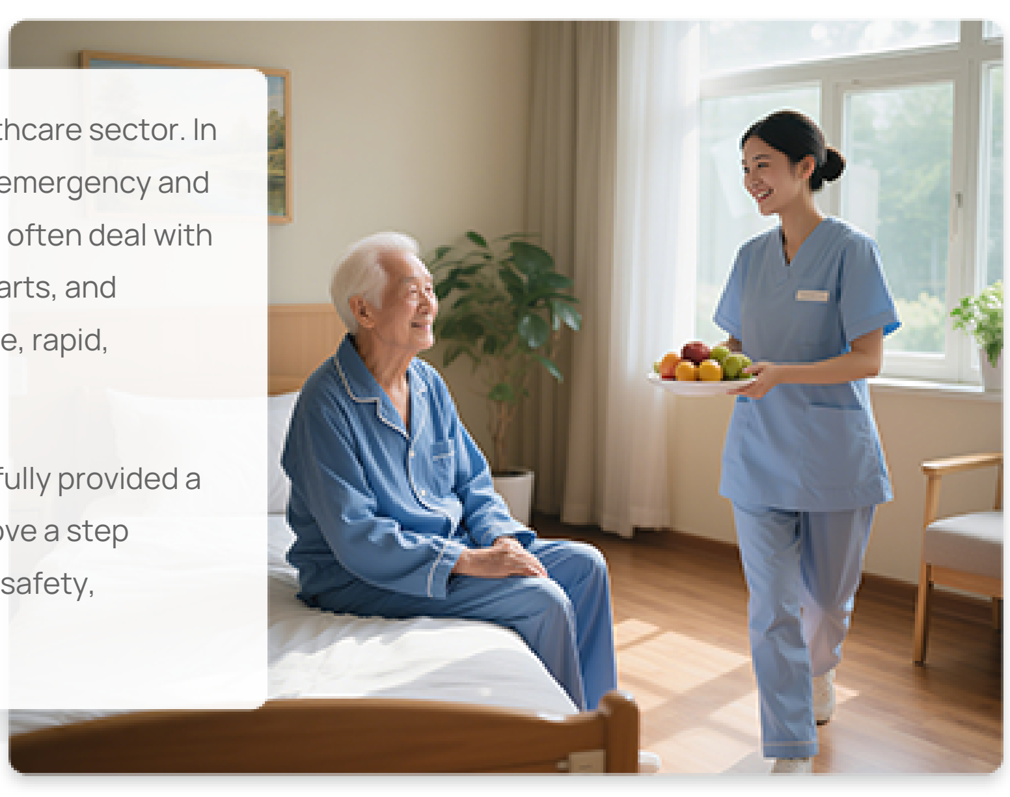
Location：Poviglio, Reggio Emilia, Italy

Milesight Partner	Location	Numbers of Devices Deployed	Applications
Spark, GYCO	Poviglio, Reggio Emilia, Italy	UC300*16, UG65*1, WS101*1	Smart Buildings, Smart Healthcare

Background

Technology has been crucial in revolutionizing patient care and hospital management in the rapidly changing healthcare sector. In care facilities such as nursing homes, hospitals, and similar environments, the rapid and effective management of emergency and assistance calls is fundamental to ensuring the safety and well-being of occupants. However, these environments often deal with outdated call systems that present various critical issues: component obsolescence, difficulty in sourcing spare parts, and prohibitive costs for replacement with wired solutions requiring complex and invasive structural work. An innovative, rapid, effective, and reliable solution is therefore needed.

By leveraging standard LoRaWAN radio technology, Milesight's partners, Spark and GYCO, together have successfully provided a IoT solution with reliability, security, and ease of use. Also, with this solution, the facility managers are now able move a step further, expanding functionality to meet the most specific and advanced needs. This is the power of IoT applied to safety, operational efficiency, and well-being in care environments.



Challenges & Needs Analysis

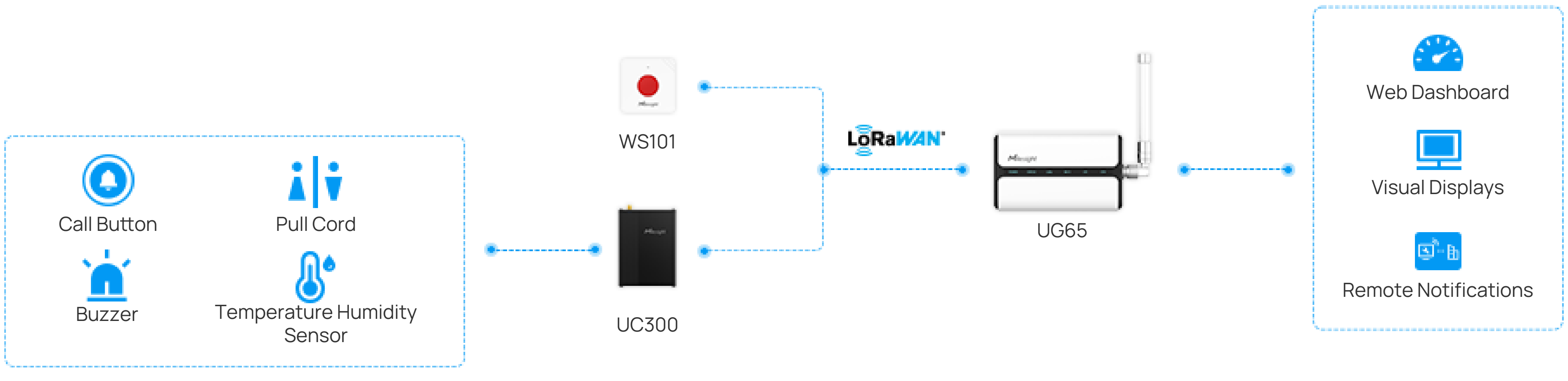
Replace an Old Unusable System

Avoid Invasive and Costly Work

Find a Reliable and Scalable Solution

Solution

Our partners, GYCO and Spark, addressed these needs via IoT solutions with an Advanced Emergency Call Management Platform, an innovative and highly effective solution based on LoRaWAN technology, developed for this project. The core of the solution is based on local devices and a LoRaWAN radio network. With a fully wireless system based on LoRaWAN devices, including Milesight WS101 Smart Button, Milesight UC300 IoT Controller and Milesight UG65 Semi-Industrial LoRaWAN Gateway, our partners have successfully provided solution designed to modernize assistance systems, offering modular, completely wireless, and extremely reliable approach.



A on-the-box solution was created. This stand-alone box with 220v socket is easy to install. It is equipped with custom MP3 sound alarm, light signals, 2 bed pull cords and bathroom pull cord. Also, to enhance timely and actual response, the box has a reset button that forces the operator to enter the room.

Milesight WS101 LoRaWAN Smart Button redefines emergency handling in assisted bathrooms. With one-touch or double-press triggers, it instantly sends distress signals to caregivers, while its IP-rated waterproof design withstands high-humidity environments. Battery-powered for years of maintenance-free operation and magnet-mounted for flexible placement near showers or toilets, this rugged button guarantees rapid distress alerts through its seamless operation.

Milesight UC300 IoT Controller is the perfect solution for remote monitoring and control. With rich interfaces, cloud compatibility, and a built-in IF-THEN Command system, it's your ideal choice for various applications. Users are able to set up 16 commands based on custom trigger conditions & actions to realize intelligent tasks like timing data collection. What's better, UC300 IoT controller can execute the commands autonomously even when the network is unavailable.

✓ Local Components (Controller / Stand-alone Box)

Each individual room or call point is equipped with a small controller UC300 (often configured as an easily installable stand-alone box) that detects the assistance call, typically via the press of a smart button or pull cord. This device autonomously and locally manages both audible (also customizable) and visual signaling (with indicator lights that can distinguish the type of call, e.g., bed/bathroom). It is crucial to note that the entire basic signaling management logic in the room occurs autonomously from the module, ensuring signaling even in the temporary absence of the radio network. A silencing/reset button, present on the device, allows staff to confirm intervention and cancel the signal in the room, requiring the operator's physical presence. The stand-alone boxes only require a 220Vac power supply.

✓ Wireless LoRaWAN® Communication

Information related to active calls, their silencing, and device status is transmitted wirelessly via LoRaWAN radio technology to one or more central gateways. LoRaWAN technology is known for its highly penetrating signal and extended coverage capability, allowing coverage of large areas, even in complex environments or across multiple floors (as demonstrated in various installations), with a reduced number of gateways. The solution is scalable: coverage can be expanded by adding gateways or creating "fleets" for data aggregation.

✓ Centralized Management and Notifications

The central UG65 LoRaWAN Gateway independently handles all user interaction and signal management functions thanks to its built-in Node-Red application. This integrated design eliminates the need for additional nodes or external platforms, enabling direct routing of notifications to end-user channels via a unified interface. These can include:

- Web Dashboard: For real-time viewing of active calls and system status from fixed locations (e.g., control room).
- Visual Displays: LED matrix displays or Digital Signage placed at strategic points (corridors, control rooms, reception areas) for clear and immediate visual signaling. These displays can show queued calls and provide additional information (e.g., facility name, time) when no calls are active.
- Remote Notifications: Push notifications via mobile App, email or SMS messages, or advanced integrations like Telegram chatbots, based on customizable criteria.
- Status Monitoring: The system actively signals any malfunctions or disconnections of local devices (e.g., a disconnected box).

Results

The assistance call and monitoring solution and platform is a complete solution: scalable, flexible, reliable, and easily integrable, adaptable to any type of facility. With this wireless solution, our partners were able to drastically reducing installation costs and times compared to traditional solutions. It allows for the "revamping" of outdated or partially/completely non-functional systems without the need for complex communication buses or impactful cabling.

Ease of Implementation and Cost Reduction

Requires no complex cabling or invasive structural work. Ideal for modernizing existing systems with reduced costs and timeframes.

Modularity and Scalability

The system is fully scalable and easily configurable or re-modulable to adapt to any size or need, including the creation of temporary or provisional solutions.

Reliability and Security

Wireless communication is robust and secure. Local devices ensure basic signaling even in temporary network absence. Mandatory in-room reset ensures intervention verification.

Flexibility and Portability

The wireless nature and simple 220Vac power supply make devices easily movable and usable for fixed or temporary installations.

Extended Coverage

LoRaWAN technology ensures excellent signal penetration, effectively covering structures across multiple floors or with thick walls.

Remote Monitoring and Control

Ability to access signals and telecontrol the system remotely.

Expanding Functionality: Beyond Emergency Calls

Supports the integration of a variety of sensors to realize diversified applications such as monitoring and security solutions that go far beyond emergency calls.

Why Choose Milesight

" I chose Milesight because, as I began to explore the features of your products, I increasingly appreciated the outstanding quality across the board — from design and construction to documentation and support.

Moreover, your commitment to LoRaWAN technology plays a significant role in advancing this innovative and transformative application paradigm."

——Michele Casolaro, Founder of GYCO IoT Platform,
External Consultant for Spark

About Spark

Spark designs and manufactures AI-powered cameras in Italy, handling the entire process from product concept to production. Through its business unit, Omnieye Security, the company provides high-end solutions for video surveillance, smart intercom, IoT, and voice alarm systems. Spark is a long-term partner of Milesight in Italy and is part of TTM, an Italian group with integrated expertise in smart vision systems.

About GYCO

GYCO was born from Michele Casolaro's personal vision of bringing IoT technology into direct contact with real-world challenges—by designing and developing sustainable solutions and applications that are practical, useful, functional, and long-lasting.

The collaboration with Spark arose naturally, fostering strong synergy and a shared vision that enabled the swift development of impactful applications. Together, they continue to attract interest from businesses exploring the possibilities of IoT, and look forward to future successes driven by cutting-edge technology.

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