

# Smart Sustainable Cities Powered by IoT: Improve Energy Efficiency on Buildings in Valencia, the European Green Capital 2024

Inspiring Air Quality Monitoring Solutions in Pilot Projects Lead to a Greener Future in Spain

Location: Valencia, Spain

Milesight Partner

Damal Redes, S.L.

Location

Valencia, Spain

Number of Devices Deployed

AM103L\*48 + EM500-CO<sub>2</sub>\*4

Applications

Indoor Air Quality Monitoring, Improved Occupant Health and Productivity

On 12th July, 2023, the Valencia City Council's Citizen School of Energy Renovation organized educational visits to a building site in Valencia, specifically at EBENTO's location on Avenida de Cataluña. The purpose of these visits is to provide firsthand experience and knowledge on energy renovation.

\*Source: Guided & free tour at the one of building sites in Valencia  
<https://ebentoproject.eu/2023/07/13/guided-free-tour-at-the-one-of-building-sites-in-valencia/>

Here, you can watch the video recorded during this visit in Spanish.

\*Video credit to Fundació València Clima i Energia (VCI)




## Background

Rapid urbanization brings increased challenges such as overcrowding, environmental pollution and related health problems. However, evolving technologies have created new, rich sources of data for energy consumption, environmental sensing and new management tools. This data is now being used to manage rapid urbanization and create smarter cities, helping cities make data-driven decisions. Damal Redes, Milesight's partner and a contractor for Fundació València Clima i Energia (VCI), has successfully deployed IoT solutions in Valencia, creating practical IoT solutions with promising results.

The Ebento project, launched in September 2023 in Valencia, is an innovative initiative aimed at enhancing the energy efficiency of buildings. The project focuses on pilot testing new thermal insulation techniques in two twin residential buildings to validate their performance.


VCI spearheads this project with a goal to involve a broad spectrum of stakeholders, including public institutions and utilities, to foster a collaborative approach towards sustainable urban development. This project is developed in collaboration with three other cities, including Athens (Greece), Tallin (Estonia) and Manchester (UK).



### 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](https://environment.ec.europa.eu/news/valencia-kicks-2024-new-european-green-capital-2024-01-11_en)




### About the EBENTO project

EBENTO enhances energy efficiency in buildings by developing an integrated one-stop-shop platform for all actors involved in building and renovation sector to better coordinate and manage Energy Performance Contracting (EPC), bringing together the needs from all actors involved in enhancing the building stock.


\*Source: <https://ebentoproject.eu/>

## Challenges




### Implementation of New Technologies

Integrating cutting-edge thermal insulation solutions into existing building structures.



### Stakeholder Coordination

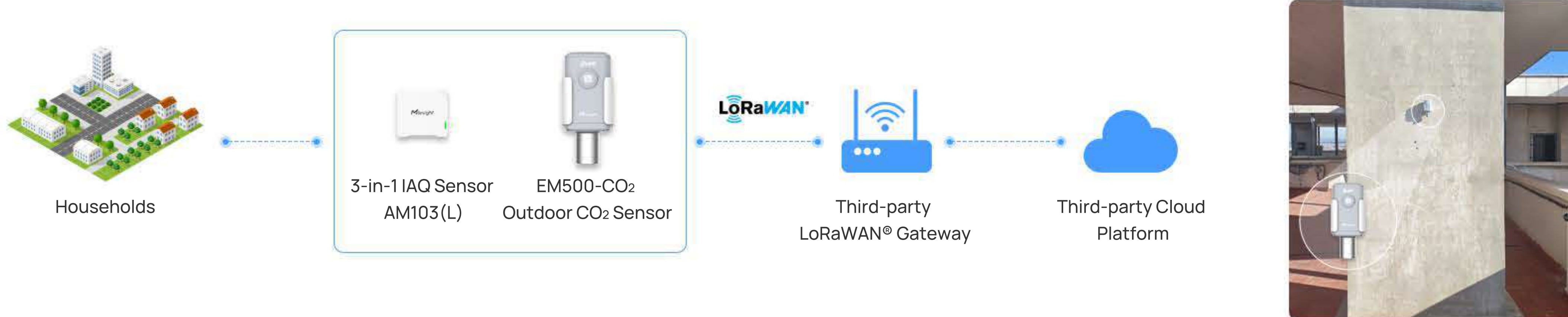
Ensuring effective collaboration among diverse project stakeholders.



### Performance Validation

The most serious problem encountered is demonstrating and ensuring that the new insulation methods meet expected energy efficiency standards and are suitable for broader application.

## Solution



The Ebento project employs advanced IoT solutions from Milesight to monitor and analyze the performance of newly implemented insulation technologies. 48 AM103L 3-in-1 IAQ Sensor and 4 EM500-CO<sub>2</sub> Outdoor CO<sub>2</sub> Sensor are strategically placed to collect data on thermal efficiency, which is crucial for assessing the effectiveness of the insulation under various environmental conditions.

Milesight sensors monitor various parameters such as temperature differences inside vs. outside and humidity levels. This data is crucial for assessing the thermal properties of the insulation. The sensors are connected to a central system that aggregates the data, allowing for real-time performance analysis and immediate feedback on insulation efficacy.

"During the tour, EBENTO partners (Fundació València Clima i Energia and ETRA) introduced the visitors to the sensors that will be installed in these houses to monitor temperature, humidity, and air quality. The residents showed a keen interest in witnessing how the sensors operate, and event participants gained a deeper understanding of the building renovation process and the EU's financial support to enhance energy efficiency in buildings. Some participants also expressed concerns about the challenges of convincing condominiums to invest in such renovation initiatives."

\*Source: Experience the Valencia building site visit!  
<https://ebentoproject.eu/2023/10/03/experience-the-valencia-building-site-visit/>

### Milesight 3-in-1 IAQ Sensor AM103(L)



- Detect CO<sub>2</sub>, Humidity and Temperature
- Traffic Light Status Indicator
- Hibernation Mode for Low Power Consumption
- Wireless Installation with Anti-Theft Protection
- Support Data Storage and Retransmission
- 2.13 -Inch E-Ink Screen (AM103)
- Vivid Emotion Indication (AM103)
- Battery Life up to 3 Years (AM103) / 4 Years (AM103L)

### Milesight EM500-CO<sub>2</sub> Outdoor CO<sub>2</sub> Sensor



- Measuring CO<sub>2</sub> Ranges from 400 ppm to 5,000 ppm
- 4 Sensors in 1 for Various Outdoor Usage
- IP65 Rated for Harsh Environment
- LoRaWAN® Wireless Deployment with Low Power Consumption
- Data Integrity and Easy Management
- Long-Lasting Battery Life of up to 10 Years
- Easy Configuration via NFC

## Results

"Working with Milesight's IoT solutions during the Ebento project has reaffirmed my belief in the power of smart technology to transform urban living. Their robust sensor performance and seamless integration with our systems have allowed us to deliver on our promises of enhancing energy efficiency and occupant comfort. Milesight's commitment to innovation and customer support has significantly contributed to the project's success." Jose Antonio Hernandez, IoT Technical Lead at Damal Redes.

### Energy Cost Reduction

The project aims to reduce energy consumption for heating and cooling, leading to lower utility bills for residents.

### Improved Comfort

Better insulation contributes to more stable indoor temperatures, enhancing comfort for building occupants.

### Environmental Impact

By reducing energy use, the project contributes to lower carbon emissions, aligning with broader environmental goals.



## Why Choose Milesight

- Technological Superiority**  
 "Milesight's IoT sensors provide precise measurements that are crucial for this project's focus on energy efficiency."
- Cost-Effectiveness**  
 "They offer the best balance of cost and performance, making large-scale deployment feasible."
- Reliable Support**  
 "Milesight's customer service has been exemplary, ensuring that any issues are swiftly addressed, thus minimizing downtime."

## Milesight Partner

# DAMAL REDES

### About Damal Redes

Damal Redes, a leading IoT integrator based in Valencia, Spain, as a trusted contractor for the Fundació València Clima i Energia (Valencia Climate and Energy Foundation)

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