

# Fight against Energy Poverty: Empowering Smart City with IoT Solutions in Valencia, the European Green Capital 2024

CO<sub>2</sub> Level, Temperature and Humidity Monitoring in Households in Spain

Location: Valencia, Spain

Milesight Partner  
Damal Redes, S.L.

Location  
Valencia, Spain

Number of Devices Deployed  
AM103L\*130

Applications  
Indoor Air Quality Monitoring,  
Improved Occupant Health and Productivity

## Background

With rising energy costs, changing usage patterns, and growing concerns about greenhouse gas emissions, many organizations are under pressure to meet net-zero emissions targets while accommodating continued growth with improved operating costs. While smart buildings have been a reality for many years, advances in networking, artificial intelligence, IoT, cloud computing and cybersecurity technologies, as well as innovations in the building sector, are driving dramatic change.

The Wellbased project, initiated in Valencia in September 2022, focuses on tackling energy poverty and improving the health and wellbeing of vulnerable households. The project is set within the urban and residential environments of Valencia, leveraging the city's status as the European Green Capital for 2024. It utilizes advanced IoT technologies to monitor and manage indoor environmental conditions, aiming to empower citizens and facilitate a sustainable energy transition. The project encompassed 6 cities around Europe which were: Valencia (Spain), Heerlen (The Netherlands), Leeds (UK), Edirne (Turkey), Budapest (Hungary) and Jelgava (Latvia). In Valencia, Damal Redes, Milesight's partner and a contractor for Fundació València Clima i Energia (VCI), has successfully deploy IoT solutions across a variety of homes, improving energy efficiency and make cities smarter and better.

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


WELLBASED

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/>

## Challenges




**Data Accuracy and Reliability**

Ensuring the IoT sensors provide accurate and reliable data in varied residential environments.



**User Engagement**

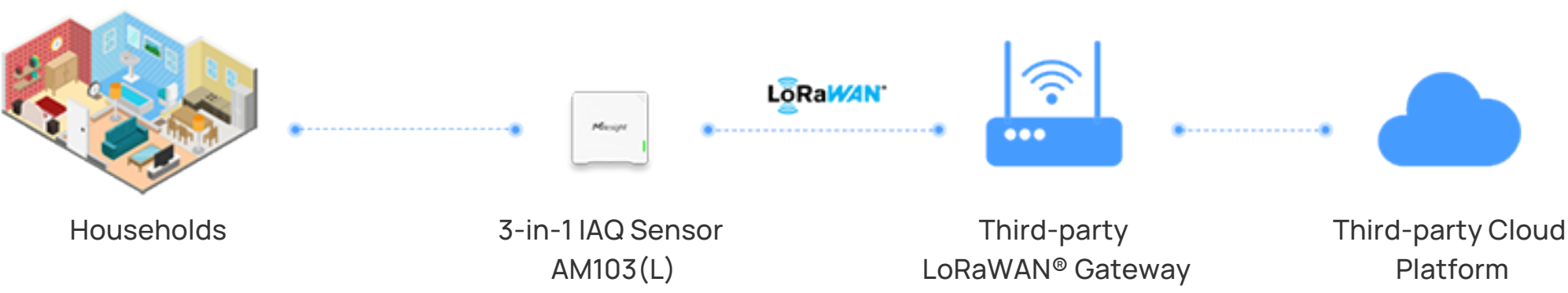
Encouraging active participation from residents in utilizing the technology for energy management.



**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.

## Solution

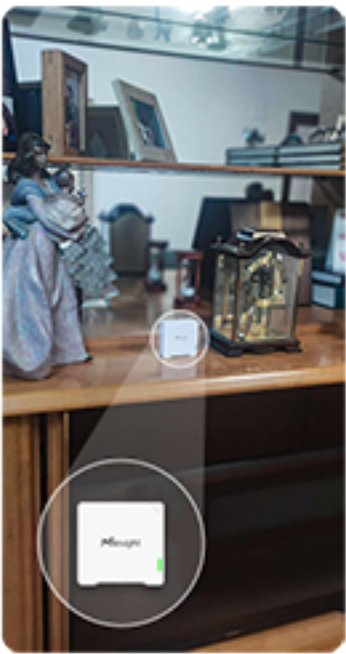
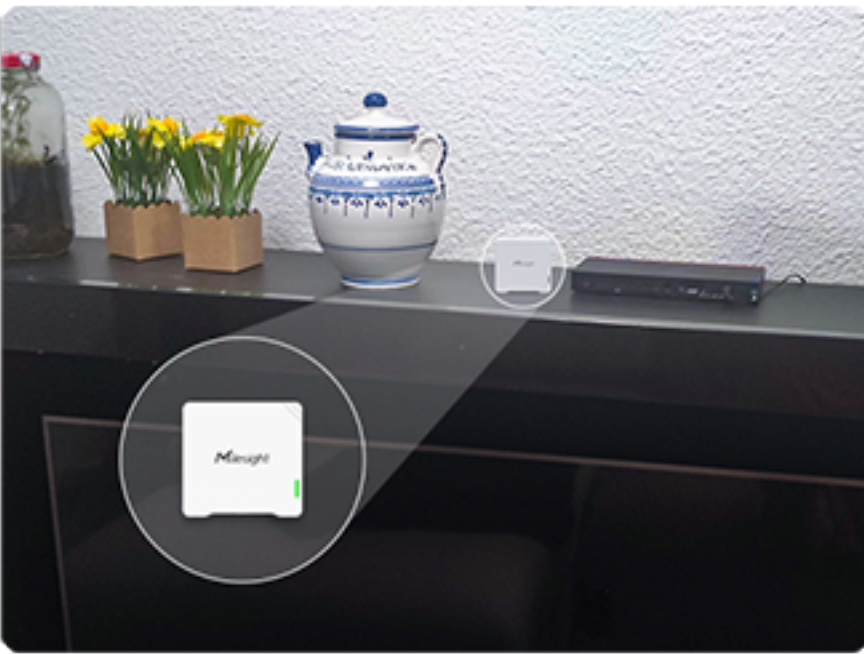


Damal Redes deployed 130 AM103L 3-in-1 IAQ sensors across multiple households to monitor key environmental parameters such as CO<sub>2</sub> levels, temperature, and humidity. The network topology designed for this project ensures that data from these sensors is relayed in real-time to a central system where it can be analyzed to provide actionable insights to both residents and energy advisors.

Milesight IoT sensors collect environmental data which is then transmitted via a secure network to a centralized data ingestion partner, aggregating data for 5 other partner cities for a total of 6 cities. This system analyzes the data to provide insights on energy usage patterns, potential savings, and areas needing attention for health improvements.



- 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 Emoticon Indication (AM103)
- Battery Life up to 3 Years (AM103) / 4 Years (AM103L)



## Results

“From a technological standpoint, Milesight’s sensors have not only met but exceeded our operational expectations at Damal Redes. Their devices are durable, efficient, and provide the kind of precise environmental monitoring we need to drive impactful decisions. The data collected by Milesight products has been instrumental in advancing our project goals, particularly in enhancing the health and well-being of Valencia’s residents through smarter energy use” Jose Antonio Hernández, IoT Technical Lead at Damal Redes

### Energy Cost Reduction

By monitoring and managing energy usage, residents can significantly reduce their energy bills.

### Health Improvements


Improved indoor conditions lead to better health outcomes, reducing healthcare visits and associated costs.


### Educational Impact


The Citizen School on Right to Energy educates and empowers residents, enhancing community engagement and knowledge on sustainable practices.



## Why Choose Milesight

-  **Price Competitiveness**

"Milesight offers cost-effective solutions that make large-scale deployment feasible."
-  **Product Quality**

"High reliability and accuracy of the sensors ensure dependable data collection."
-  **Service Excellence**

"Milesight provides robust support and service, ensuring minimal downtime and swift resolutions to technical issues."

## DAMAL REDES

## Milesight Partner

### 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)