

Smart City solutions at work for Piovene Rocchette, Italy

June, 2018 | Version 1.0

"Every city, big or small, can now take steps to become a real Smart City, leveraging technologies to benefit both the environment and citizens, while managing expenditures. The IoT is driving this major change, and that's why this project is important: it is putting new technologies and devices at the service of the community, where citizens and municipal managers can look together towards a future of improved services."

Enrico Cascioli, CEO of Telemar spa.



Company name: Telemar

Headquarters: Vicenza, Italy

Year founded: 1995

Industry sector: Internet and Telecom
Service Provider



Wirnet iBTS Standard in Vicenza

Challenge

Piovene Rocchette, an Italian town of about 8,000 people at the foot of the Vicentine Prealps, needed to monitor environmental conditions in its numerous public buildings. The need was especially strong in winter, when maintaining comfortable temperatures and managing energy consumption inside buildings are essential. As in most buildings around the world, temperature management typically was entrusted to simple room thermostats, which were not up to the performance expected by a smart city.

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As a result, room temperatures often were a distraction for occupants and the city's buildings were using too much energy, which impacted its energy-use budget. To overcome these challenges, city managers chose to evaluate new IoT technologies proposed by Telemar in a proof-of-concept (PoC) installation.

"This project with Kerlink was created to put IoT connectivity to work for cities, spread the smart-city concept across our territory and streamline its cost to support its economy while enticing citizens to improve the way they are using public installations."

Enrico Cascioli, CEO of Telemar spa.

Requirements

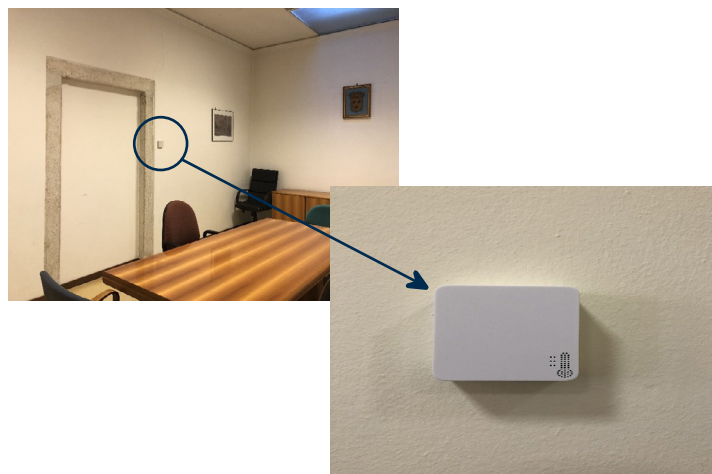
The solution had to meet the following conditions:

- **Cost-efficiency:** as a public body, Piovene's administration had to control costs during both the initial implementation and the subsequent operation of the system.
- **Low energy consumption:** the installed, standalone devices must have two fundamental characteristics: reduced energy consumption and long lifetimes.
- **Security:** the network had to be completely secure and hardened against unauthorized access.

- **Long range:** Piovene's rural and undulating setting also required a system with a minimal amount of infrastructure, which helped to lower installation costs and ongoing operations, while granting the best permanent coverage, inside and outside the buildings.

Solution

Telemar's IoT LoraWAN™ solution met all these requirements, concretely demonstrated in the field during the proof-of concept period. An advanced smart system was installed in two city buildings, without invasive construction work or modification of electrical connections, to monitor air temperature and heating and cooling systems and demonstrate how the system would work in additional city buildings.



Benefits

With new smart thermostats from Telemar in every room, the system generates data relating to surrounding air temperature and allows remote management of air-conditioning and heating systems. The customized deployment also includes several Kerlink Wirnet™ iBTS Standard outdoor and Wirnet™ iFemtoCell indoor LoRaWAN gateways, 17 temperature sensors and 14 actuators. Occupants can predefine thresholds and select each room's temperature, including turning heat on or off, using an intuitive smartphone application. The wireless system requires no electrical connections, all sensors and actuators being battery-powered and easy to install.

"The new LoRaWAN system is meeting our expectations: a cost-efficient sensor and actuator in each room provides greater information and control over temperatures, which keeps room occupants comfortable and helps manage our energy costs. Consequently, we expect to quickly recover our global investment for this initial deployment."

Erminio Masero, Mayor of Piovene.

Next steps

Capitalizing on the PoC demonstration and considering the upcoming Italian regulation, a pilot project was developed for a dozen additional buildings with the same goals of maintaining comfortable room temperatures and reducing public heating and cooling costs. This second phase of the project includes a day-care center, a nursery school, a warehouse and an indoor athletic facility, as well as the city library and middle and elementary schools. In this phase, each room in the different buildings will have a smart thermostat to monitor humidity and airflow, as well as temperature. Water temperature in the school canteen will also be monitored. Telemar, is targeting the whole Veneto region for smart city applications.

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