Messina demonstrates how to build an intelligent, healthy, open digital city for its citizens

An intelligent solution collects [environmental](#) and [water quality](#) data from Libelium sensors along with geographic information and other public data sources to apply artificial intelligence and dump them into open applications to its neighbours.

Messina is a metropolitan area in the region of Sicily, Southern Italy. Yes, the island being kicked by the boot. It has a population of 626,000 people and an area of more than 3,000 kilometres, located between a mountain range and 218 kilometres of coastline.


Location of Messina (Italy)

To build a city where technology lives in symbiosis with the urban pulse, **a Smart City project was designed** involving the state authority for land management ([Pon Città Metropolitane](#)), the city hall of [Messina Città Metropolitana](#) and the temporary business union formed by [PWC](#) and [Almaviva](#). With a budget of € 5.4 million, of which € 1.6 million is dedicated to sensors. The project is funded by the EU in its quest to make European cities healthier and less harmful to the environment.

Although the project has a final date of December 2021, Almaviva and PWC have an eye on the future and have designed a **solid IoT Big Data solution to enable new features, integrations and applications**. Thus was born **MEsM@RT**, an ecosystem of infrastructures, sensors, IT solution and open application for the digital transformation of Messina.

[MeSM@RT](#) covers four verticals: territory, environment, surveillance and water. After scouting for a technological solution, the consultant company supporting the Municipality selected [Libelium](#) as the best vendor for the area of environmental control and water quality **because it met its demanding KPIs**.

They installed the following Libelium Plug&Sense! and their probes:

- [Plug&Sense! Smart Water Xtreme](#) (4G and WiFi)
- [Plug&Sense! 4-20](#) (4G and WiFi)
- [Plug&Sense! Smart Environment PRO](#) (4G and WiFi)
- [Plug&Sense! Smart Cities PRO](#) (WiFi)
- [Plug&Sense! Smart Agriculture PRO](#) (4G)
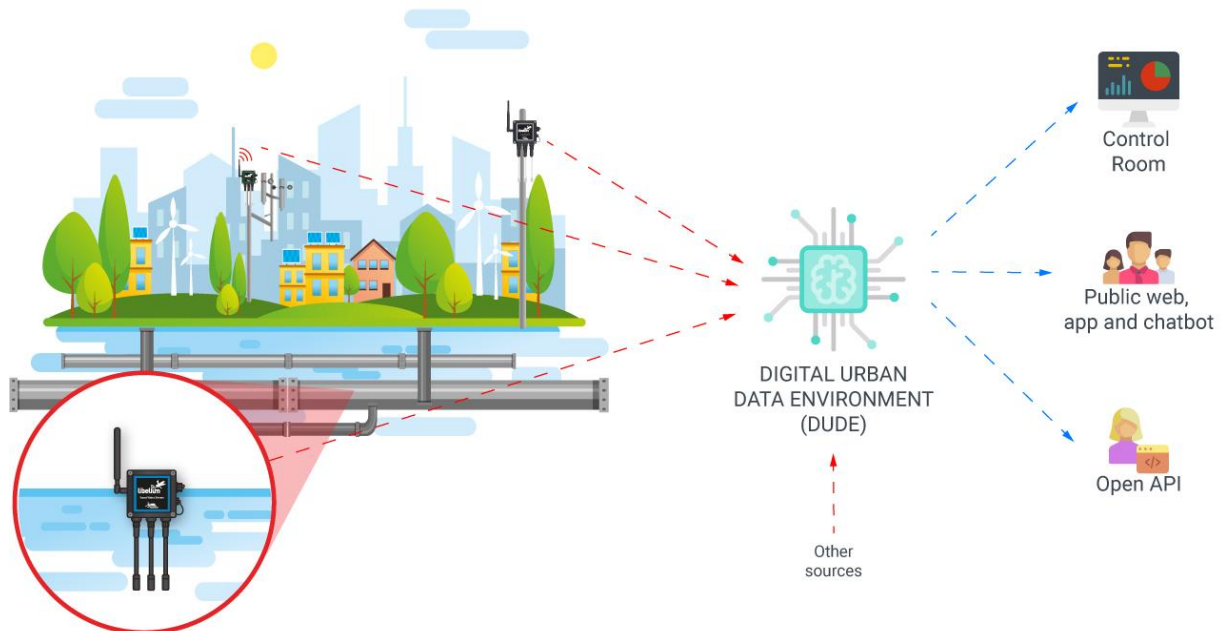
MEsM@RT project diagram-

So, Messina can control almost everything that may occur in a city in real-time which increases the efficiency of urban services, from air pollutants to water leakage, and make decisions to address any issue. **Different KPIs and indicators prompt alerting functionalities** in case of unexpected or suspected values.

The communication protocol is **via a mix of NB-IoT, Wi-Fi, 3G/4G and optical fiber (with an experiment in 5G in roadmap)** and the sensors used to get all the data are:

- Weather Station
- Air pressure
- Air temperature
- Air humidity
- Luminosity
- Noise Level Sensor
- CO
- NO2
- O3
- Particle Matter
- Water pH
- Water ORP
- Water temperature

The project also provides a Control Room that, once fully operational, will allow **interaction with all components of the city's digital ecosystem**, providing real-time multichannel info mobility services also for the benefit of the citizens (web, SMS, message panels).
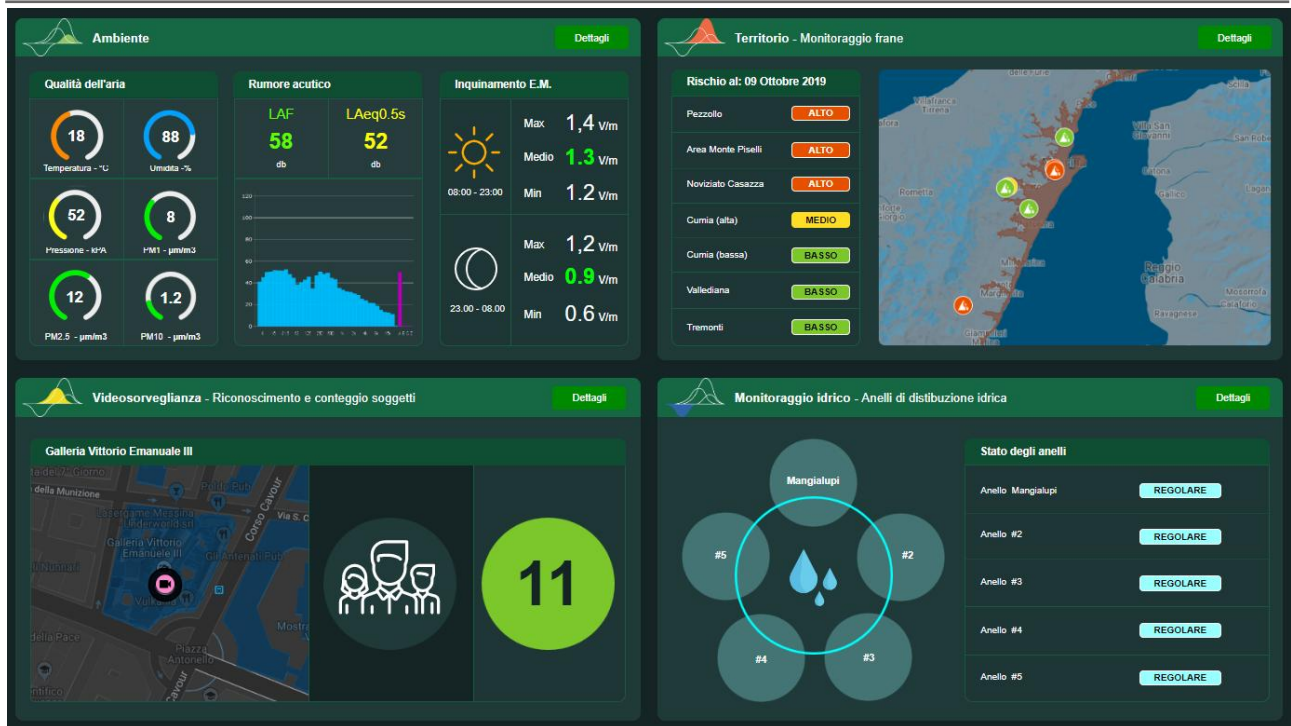
MEsM@RT dashboard-

This digital transformation also speeds up Messina's neighbours access to public services through an open website and application that shows the same information as the Control Room. Following this open and transparent policy, data and interface are plenty accessible with **a public API to enhance all the capabilities of the architecture**.

In the Control Room all the data is displayed

This is complemented by constant communication with regional departments and other interested agencies. Additionally, MEsM@RT is integrated with the new Geographical Information System (GIS) of Messina Municipality and generally in Messina IT environment and **in the next milestone the intention is to integrate additional services**, both existing (e.g. Civil Protection assets) and new (based on funding availability) and **align with European and Italian standards** in terms of official indicators.

"Working with Libelium has been one of our top project priorities in **guaranteeing stability** and assurance on the data acquisition phase from IoT sensors," said Placido Accolla, responsible for this great project with the philosophy that the digitalizing is not the solution, it is a foundation part of it.

Contact Libelium Sales Department for more information about our products.

This case study helps to achieve the following Sustainable Development Goals:

More info:

- For technical details on Plug & Sense! Smart Cities PRO: Waspmote Plug & Sense! Smart Cities PRO Technical Guide. Waspmote Plug & Sense! Smart Cities PRO Technical Guide, Plug&Sense! Smart Water Xtreme Technical Guide, Plug&Sense! 4-20 Technical Guide, Plug&Sense! Smart Environment PRO Technical Guide, and Plug&Sense! Smart Agriculture PRO Technical Guide.
- Lea más sobre las líneas de productos de sensores Libelium en las páginas de Waspmote, Waspmote Plug & Sense! Sensor Platform y Meshlium Gateway.
- 4G Networking Guide: libelium.com
- WiFi Networking Guide: libelium.com
- NB-Iot Networking Guide: libelium.com

Discover Smart City solutions in The IoT Marketplace.

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