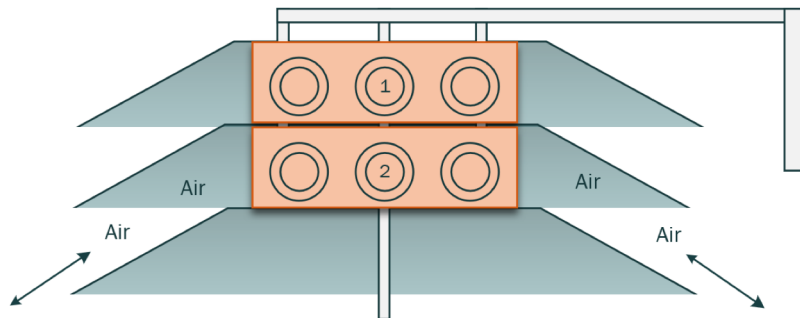




Environmental Monitoring Scheme – Madeira

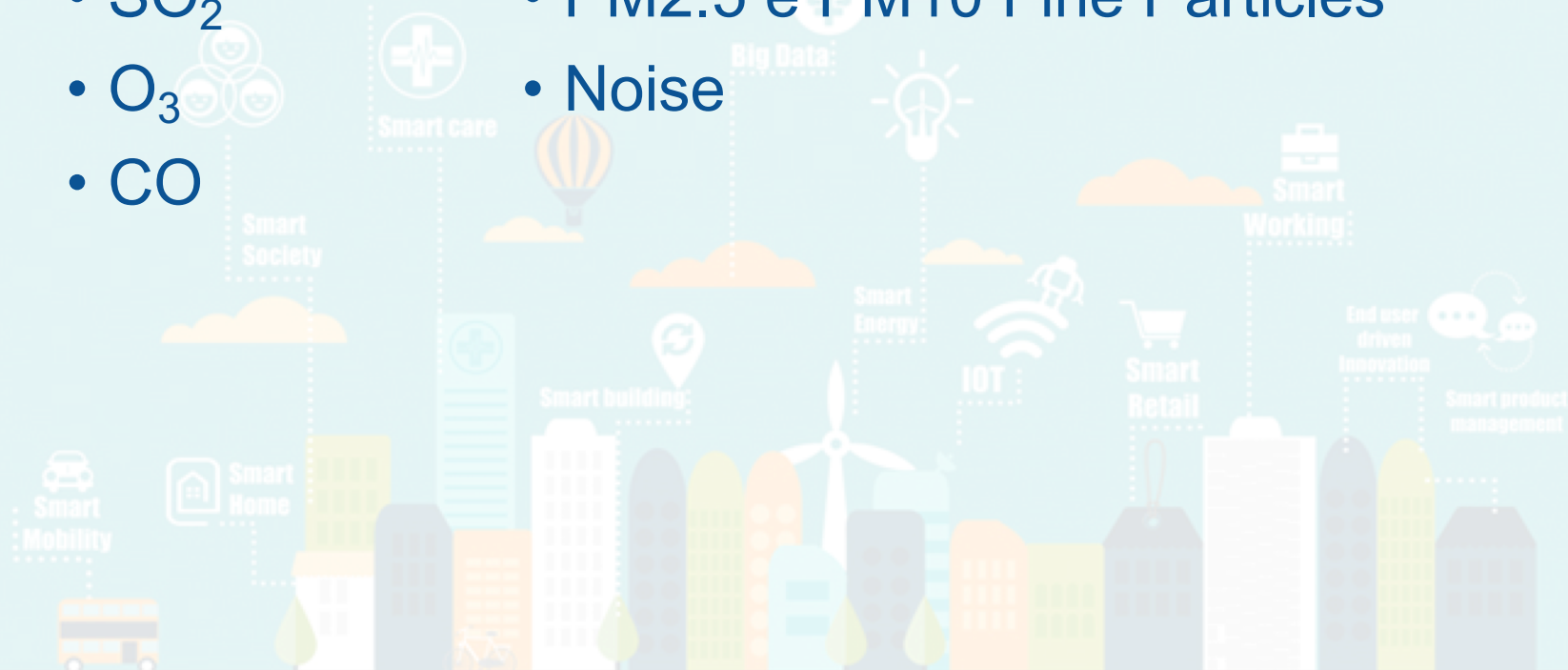
MADEIRA - MAD 2.2

- Modular Design
- USB Components
 - Sensors and intermediate modules
- Embedded System
 - Data transmission in real time to the server
- Small and Light
 - Possibility of mobile usage

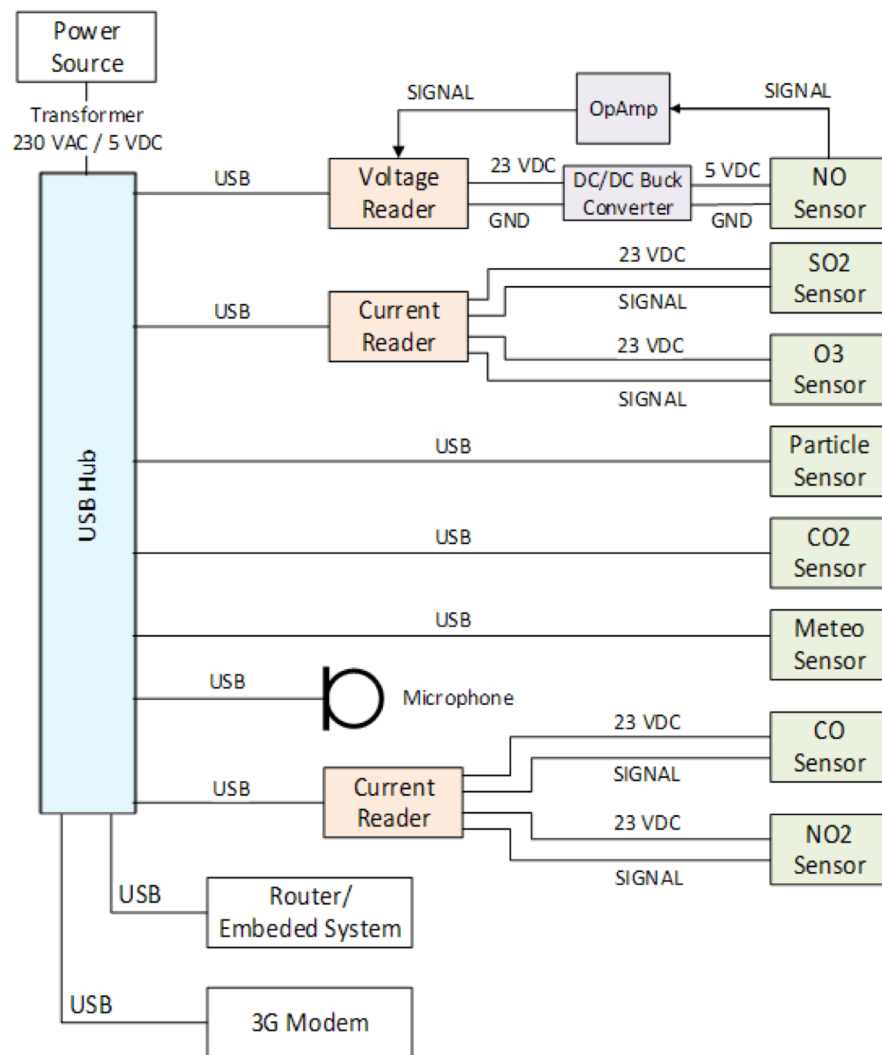


Madeira - Sensors

- NO
- NO₂
- SO₂
- O₃
- CO
- CO₂
- Temperature/Humidity/Atm. Pressure
- PM2.5 e PM10 Fine Particles
- Noise



Madeira - Hardware



Madeira - Prototype

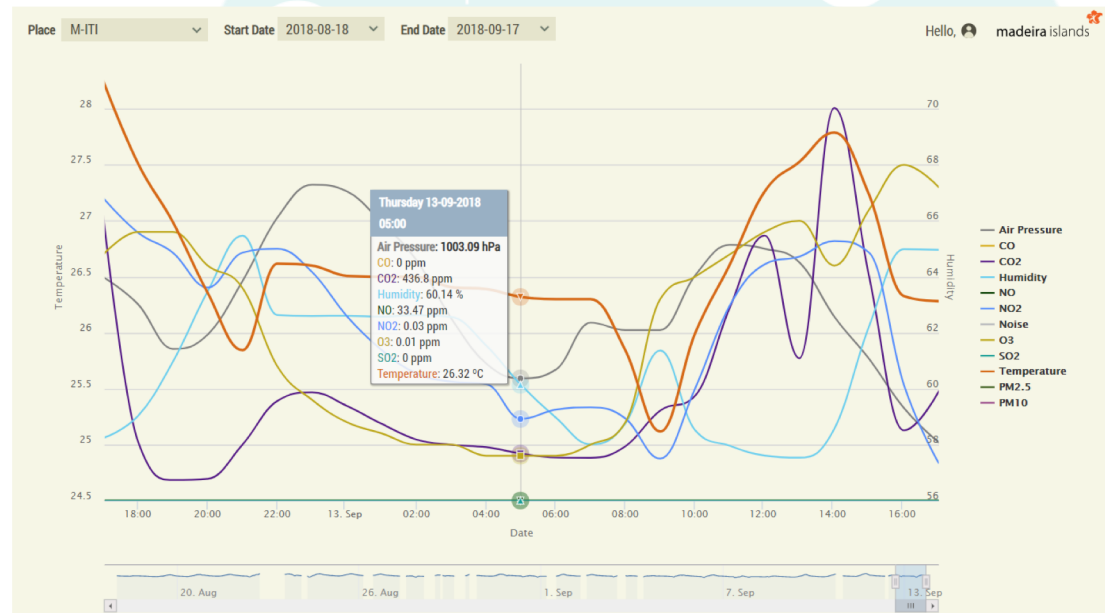


Deployment in Funchal - 8 Locations



Madeira - Backend and Webpage

- Remote device configuration via VPN
- Real Time data platform
 - Analysis and data extraction
- Alert definition
- Mapping
- Communication
 - 3G
 - Ethernet
 - Wi-Fi
 - Hotspot Access
 - Client (connecting to existing networks)
- Possibility of LoRaWAN (connected with existing gateways)



- i) Evaluate the **impact** on the indicators **before and after** the CiViTAS measures and others are applied to the cities.
- ii) Establish **correlations** between the values measured and the traffic intensity/counts measured initially in the sensor stations.
- iii) Serve as a **decision support tools** for the municipalities in the scope of mobility and environment;
- iv) Make the information relative to the indicators **available to the citizens** (after the testing phase)

Recommendations

- This work provides an efficient, reliable, replicable, low-cost, continuous view of the urban environment
- Creation of sustainable, environmentally friendly and low carbon mobility policies
- Allows urban planners to locate congestions and analyse the environmental impact of transportation
- Collection of data leads to effective evaluations
- Possibility of correlation between environmental measurements and people or traffic counts

