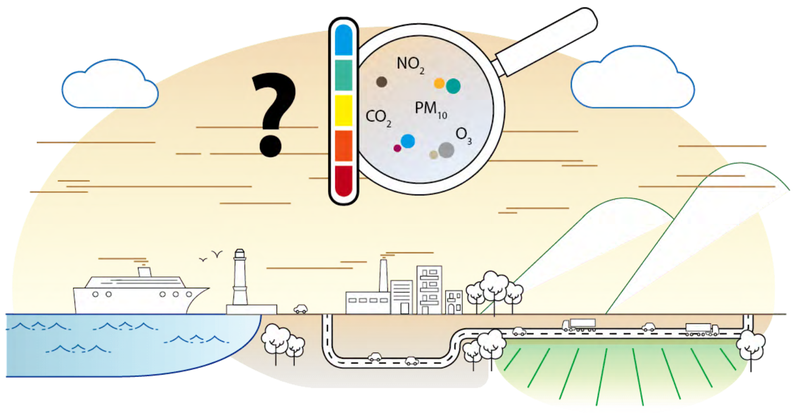
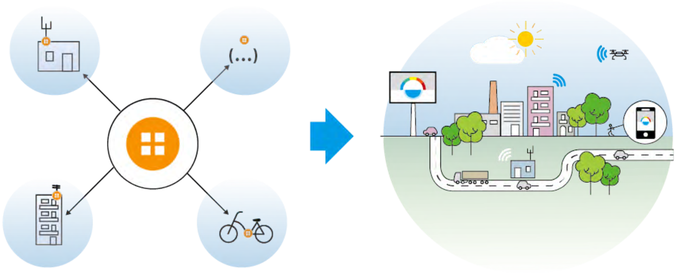
NanoSen-AQM: Development and field validation on an electronic system based on low cost, low consumption nanosensors for real-time air quality monitoring

Interreg Sudoe
NanoSen-AQM
European Regional Development Fund
EUROPEAN UNION

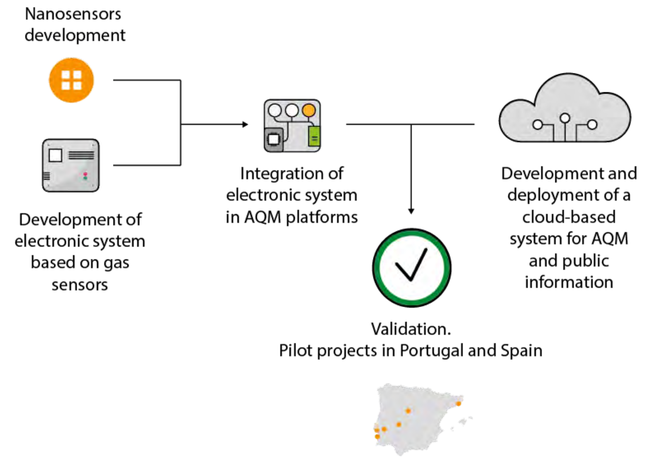
THE PROBLEM:



THE SOLUTION:



THE PROJECT:



SCENARIOS:

Drones

Scenario	AQM platform	Pollutant
Natural environment		
Monfragüe National Park	Reference station Drones	O_3, NO_2 PM_{10}, $PM_{2.5}$
Sierra de Gredos Regional Park	Reference mobile unit	O_3
Rural environment		
Olivenza Small town in rural area	Reference mobile unit Drones	O_3, NO_2
Ávila Mid-sized city in rural area	Reference station	O_3, NO_2 PM_{10}
Évora Mid-sized city in rural area	Mobile unit of UÉvora	O_3, NO_2 PM_{10}
Urban environment		
Barcelona	Reference stations Cargo bikes	O_3, NO_2 PM_{10}, $PM_{2.5}$
Lisbon	Mobile unit of UÉvora	O_3, NO_2 PM_{10}, $PM_{2.5}$
Industrial environment		
Sines Small port town in industrial area	Mobile unit of UÉvora	O_3, NO_2 PM_{10}, $PM_{2.5}$

Mobile AQM stations

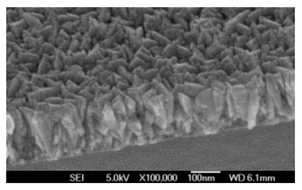
Fixed AQM stations

Cargo bikes

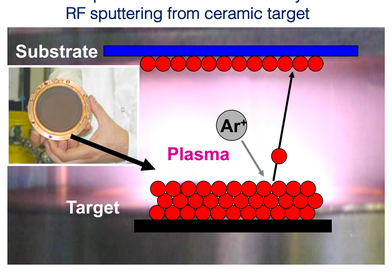
SENSORS

Sensitive films:

Scanning Electron Microscopy view of the cross-section of an oxide thin film

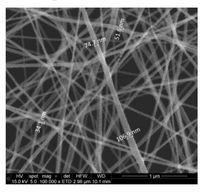


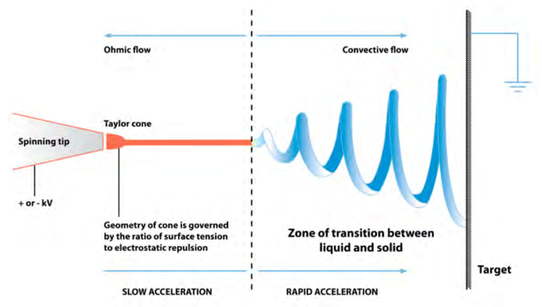
Deposition of oxide thin films by RF sputtering from ceramic target



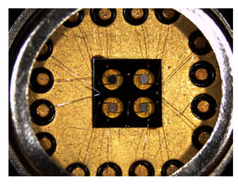
Electrospininng technique

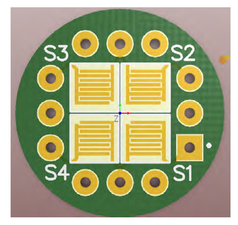
SnO_2 + Au NP Nanofibers





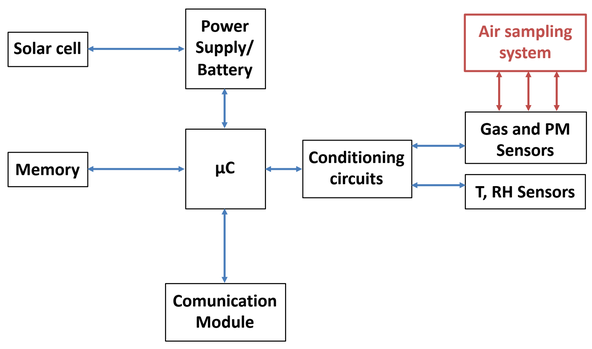
Substrates:





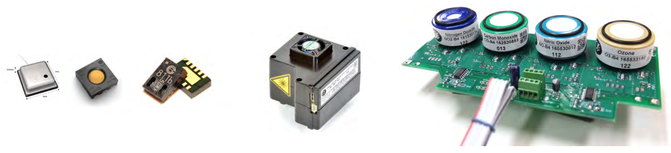
ELECTRONIC SYSTEMS:

Block diagram:

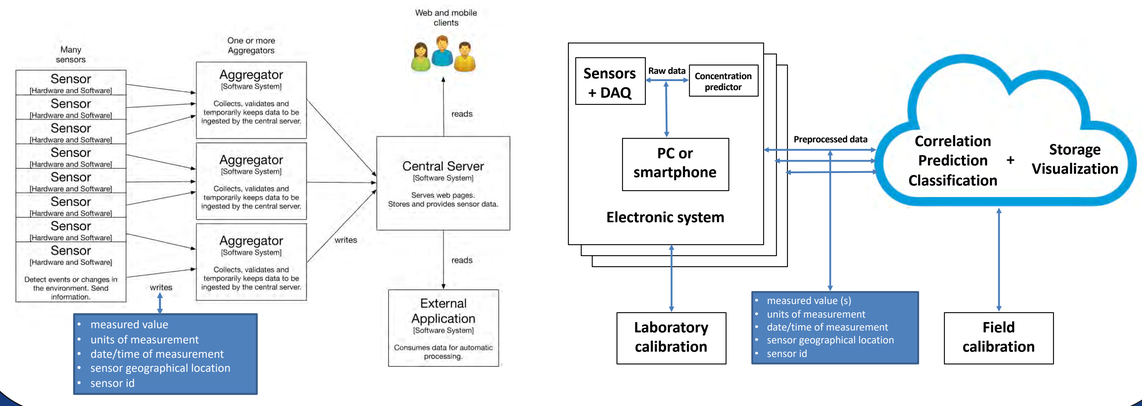


Commercial systems:

Sensors used:



CLOUD SYSTEM & DATA PROCESSING:



FIELD VALIDATION:

Reference instruments

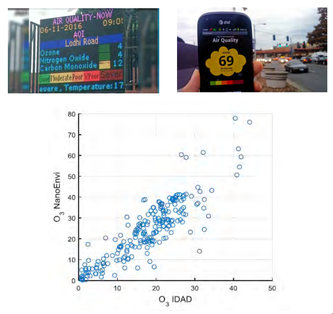
+

NanoSen-AQM

+

Commercial sensors

=



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