

# AQSens data platform - an overview

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# You can buy anything 'able' to measure air pollution!


















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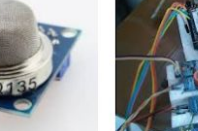


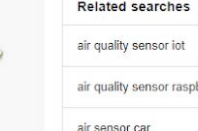


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 <p>€17.80 3560 - Adafruit Industries LiC Digi-Key Italy</p>	 <p>€17.84 110-407 - Spec Sensors, LiC Digi-Key Italy</p>	 <p>€10.46 101020012 - Seeed Technology Co., Ltd Digi-Key Italy</p>	 <p>€20.07 3660 - Adafruit Industries LiC Digi-Key Italy</p>	 <p>€15.61 2479 - Adafruit Industries LiC Digi-Key Italy</p>	 <p>€17.84 110-102 - Spec Sensors, LiC Digi-Key Italy</p>	 <p>€20.75 BME680 Breakout - Air Quality, Amazon.it</p>	 <p>€31.35 Banggood Portable Air Quality Monitor</p>	 <p>€80.53 VHNVHN Rilevatore AQI PM2.5</p>	 <p>€24.73 Sensor Gas Adafuit SGP30 Air Quality</p>	 <p>€14.34 CJMCMU-S11V1 CCS811 Module</p>	 <p>€83.42 Riveleratore PM2.5 Monitore Xiaomi</p>	 <p>€24.73 Sensor Gas Adafuit CCS811 Air Quality</p>	 <p>€189.99 PerfectPrime AO9600, PM</p>	 <p>€60.57 CO2Meter RAD-0301 Mini CO2 Monitor</p>	 <p>€170.26 IIC-1003s - Air Quality detector</p>	 <p>€16.00 Sensore rilevatore di gas - Grove Air</p>
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 <p>Grove - Air quality sensor v1.3 - Sees seedstudio.com</p>	 <p>Grove Air Quality Sensor - SODAQ shop.sodaq.com</p>	 <p>Mq135 Mq-135 Air Quality ebay.com</p>	 <p>Laser PM2.5 Air Quality Se amazon.com</p>	 <p>Mq135 Air Quality Sensor at Rs 350 indiamart.com</p>	 <p>Mq135 Air Quality Sensor Modul makerlab-electronics.com</p>	 <p>Mq135 Air Quality Sensor linkersphere.com</p>	 <p>Air Quality Sensor for PM1 smart-prototyping.com</p>	 <p>Mq-135 Air Quality/Pollutio konga.com</p>	 <p>CCS811 Air Quality Sensor tinytronics.nl</p>	 <p>Air Quality NH3,NOx,Smoke Gas Sensor shop.controllevrthing.com</p>	 <p>Air Quality Sensors for Smart libellum.com</p>	<p>Mq135 Air Quality Sensor cytron.io</p>
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 <p>Mq-135 Air Quality Sen creatronic.com</p>	 <p>Grove - Air Quality Sensor :: Solarbo solarbotics.com</p>	 <p>Aideepen 3pcs Mq135 MQ amazon.com</p>	 <p>Raspberry Pi / Arduino shop.switchoo.com</p>	 <p>SainSmart Mq-135 Gas S sainmart.com</p>	 <p>Seedstudio Air Quality Se deal-dx.net</p>	 <p>Buy Generic Mq-135 Air industrybuying.com</p>	 <p>Outdoor Portable Air Monitors- Aeroqual aeroqual.com</p>	 <p>Mq135 Air Quality Contr indiamart.com</p>	 <p>Air Quality Sensor for PM2 smart-prototyping.com</p>	 <p>Indoor Air Quality Sensor indiamart.com</p>	<p><b>Related searches</b></p> <ul style="list-style-type: none"><li>portable air quality sensor</li><li>air quality sensors icon</li><li>air quality sensor arduino</li></ul>	 <p>Personal air quality sensor monitors smart2zero.com</p>
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 <p>Raspberry Pi Air Quality &amp; Gas Detecto hackster.io</p>	 <p>Grove Air Quality Sensor for A protecentral.com</p>	 <p>Baconet / Modbus Iaq Air alibaba.com</p>	 <p>PM2.5 Air Quality Sensor Box and antratek.com</p>	 <p>IAQ.CORE C ams   Air Q export.rsdelivers.com</p>	 <p>Temperature Humidity Pressure doubestore.com</p>	 <p>In ZIVUN Dust Sensor Adapter f amazon.it</p>	 <p>TGS3870-B00   Figaro ie.rs-online.com</p>	 <p>Air Quality Sensor alphaomega-electronics.com</p>	 <p>SGX MEMS Micro electro mechanical aliexpress.com</p>	 <p>Air Quality Sensor estuning.com</p>	 <p>How Dirty Is Your Air? - MIT Technology technologyreview.com</p>
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 <p>Easy Plug MQ-135</p>	 <p>MQ-135</p>	 <p>MQ-135</p>	 <p>MQ-135</p>	 <p>MQ-135</p>	 <p>MQ-135</p>	 <p>MQ-135</p>	 <p>MQ-135</p>	 <p>MQ-135</p>	<p><b>Related searches</b></p> <ul style="list-style-type: none"><li>air quality sensor iot</li><li>air quality sensor raspberry pi</li><li>air sensor car</li></ul>	 <p>MQ-135</p>	 <p>AIR QUALITY SENSORS MARKET</p>
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# Performance is variable

## Example of uncertainty estimation at Limit Values



	<u>CairClip</u> NO2	NO2-B4	NO2-3E50	<u>Cairclip</u> Ox	O3-B4	O3-3E1F
Cal. (LoD)	1.7	1.8	2.4	2.6	1.5	2.2
<u>Hysteresys</u>	-	-	-	-	-	-
r, Short term	1.7	2.9	0.8	3.3	0.4	0.6
Long term	4.0	45	7.9	1.7	3.0	5.8
Interference	1.4	39.1	37.1	5.9	5.6	5.0
Air matrix	3.0	14.2	5.0	1.1	1.0	
Temperature	1.7	8.3	2.2	1.9	1.5	7.4
Humidity	2.2	5.1	2.1	1.4	16.3	1.7
<b>Combined uncertainty</b>	12.7%	124.0%	77.0%	15.8%	35.3%	22.0%
U	+/- 25%			+/- 32%		

# The AQSENS project

**Partners:** DG ENV, JRC

## High level objectives:

- Supporting the development of AQ Sensor Networks in Europe
- Integrating smart sensors and modelling for air quality monitoring in cities



# Tasks

1. **Compare the capability and performance** of lower-cost sensor systems to measure air pollution with conventional monitoring and modelling;
2. **Develop a traceable calibration technique** for lower-cost sensor systems;
3. Elaborate on a potential **way to integrate** lower-cost sensor systems in existing **monitoring** networks and **modelling** systems;
4. Develop a **platform for integration and visualization** of data from sensors;
5. Establish **guidance** on the use of lower-cost sensor systems and their interrelationship with already existing conventional monitoring and modelling systems.

# AQSens platform

- **Objective:** establish, maintain and document a re-usable data platform
  - Assignment with 52N
  - Planned mass deployment of lower cost sensor systems in two/three European cities (cities tbc)
  - Fusion with other data sources

# Planned activities

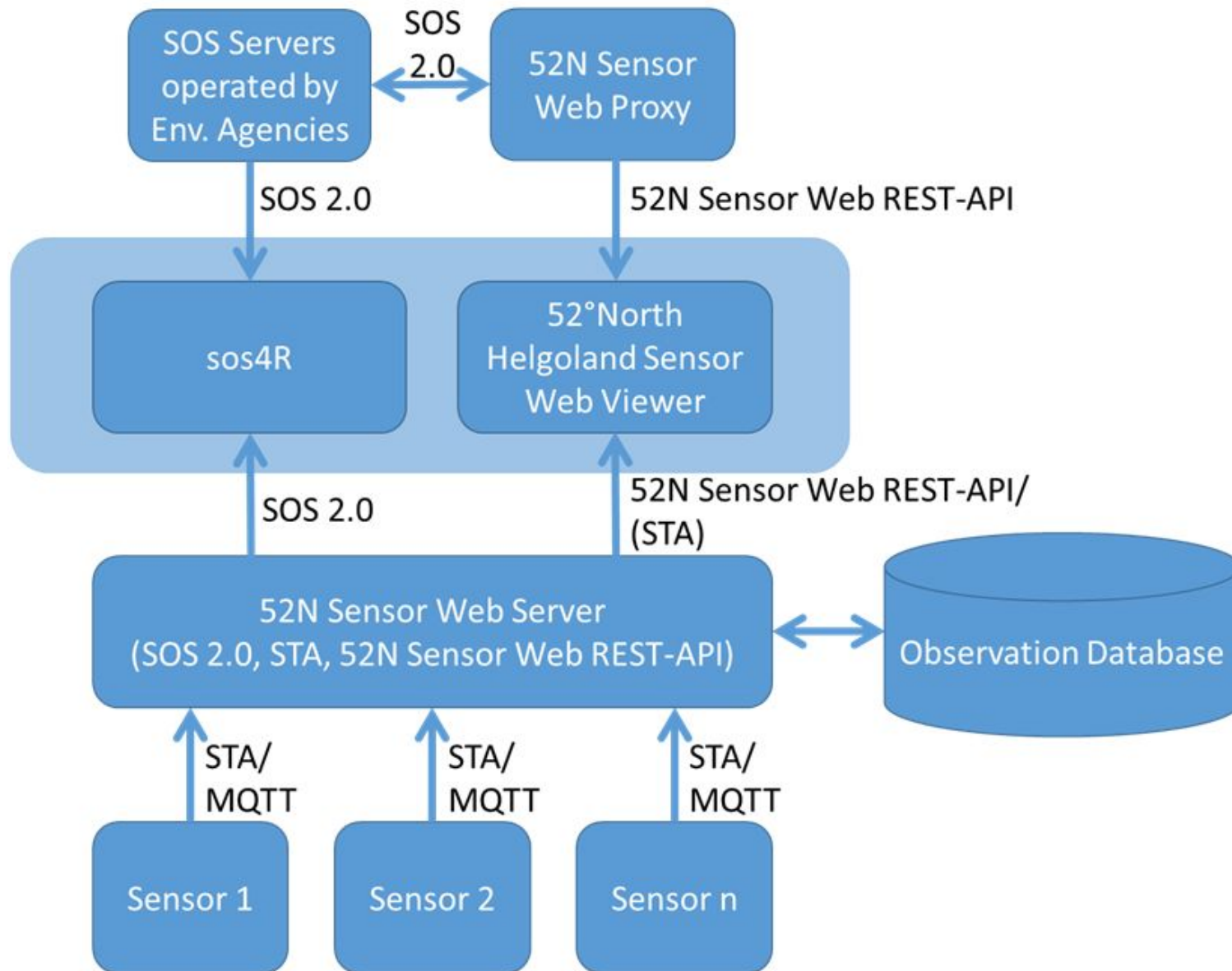
- **Task 1. Conceptual design:**
  - Standards to be considered - SOS, STA
  - Functionalities: receiving, maintaining, processing, visualising and distributing observation data.
- **Task 2. Deployment**
  - Handles data from 85 sensor systems with high temporal variability
  - Scalable cloud-based solution
  - Fully open source
- **Task 3. Training**
  - For data providers on deployment and maintenance
  - For users
- **Task 4. Support**
  - Dedicated helpdesk
- **Task 5. Maintenance and sustainability**

# Schedule

- **Total duration: 24 months, start in August/September 2019**
- **Task 1. Conceptual design:**
  - End of October 2019
- **Task 2. Deployment**
  - End of March 2020
- **Task 3. Training**
  - April 2020
- **Task 4. Support**
  - End of July 2021
- **Task 5. Maintenance and sustainability**
  - End of July 2021



# Approach



# Thank you for your attention!

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- Simon Jirka: [jirka@52north.org](mailto:jirka@52north.org)