

AirQuality SenseBox

Citizen Science with an Air Quality Sensor Network

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AirQualityEgg

Concept

"The Air Quality Egg is a sensor system designed to allow anyone to collect very high resolution readings of NO₂ and CO concentrations outside of their home. These two gases are the most indicative elements related to urban air pollution that are senseable by inexpensive, DIY sensors."

— airqualityegg.com

"Community-led sensing network"

AirQualityEgg

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— airqualityegg.com

Project founded by kickstarter campaign:
927 Backers; \$144,592 pledged of \$39,000 goal, currently delivering units to the backers; costs per unit: 185\$

AirQualityEgg

Technology

- outdoor sensors
 - NO_2
 - CO
 - temp. / rel.hum.
 - O_3 / voc
- egg base station
 - internet access
- internet component
 - cosm.com
 - store and visualize



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<http://airqualityegg.wikispaces.com/AirQualityEgg>

AirQualityEgg

Challenges

- limited precision and accuracy
- cross-sensitivity of sensors
- where are the sensors currently?
- what kind of sensors are used?
- calibration?

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“Impossible. We cannot build a consumer-focused product that requires regular maintenance/calibration of the sensors.”

—Ed Borden @ kickstarter.com

AirQualityEgg

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device has a low value

network is expected to be of high value

AirQualityEgg

Challenges

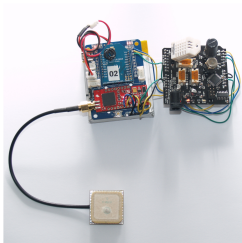
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AirQuality SenseBox

Concept

sensor

sensor platform: autonomous,
location aware, mobile, wireless

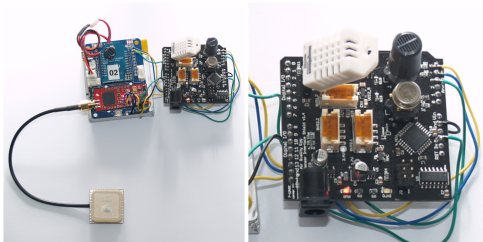


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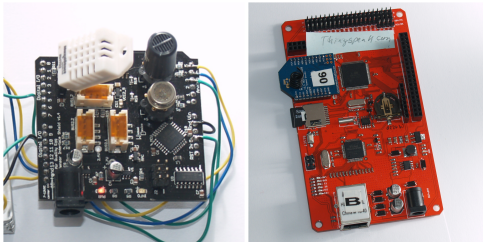


AirQuality SenseBox

Concept

gateway

receives data wireless, identifies sensor platform, converts and forwards data to a service



AirQuality SenseBox

Concept

logging platform

interfaces for inserting and querying of data, stores data, visualize data if possible

Sensor Observation Service



AirQuality SenseBox

Improvements

- outdoor unit is autonomous
- gateways can identify the sensors
- more powerful gateways allow data processing and the use of more sophisticated services
- logging platforms can be OGC compliant

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SOS, WFS, etc...

Citizen's Sensor Network

Chances and Challenges

Challenges

- massive amount of data
- data fragmentation, inaccuracy
- how to work with citizen sensed data?
- organization of the CS communities
- training of those communities

Citizen's Sensors

Chances and Challenges

Chances

- include citizens into the scientific process
- increase understanding of sc. processes
- raise environmental awareness
- find hotspots which had fallen through the grid
- change the monitored environment to the better

thank you



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appendix

images

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