AirQuality SenseBox

sensor platform

sensor

the sensor node contains low-cost gas sensors for NO² and CO and observes temperature and relative humidity. The sensor interface was developed by the citizen science initiative *AirQualityEgg*. Sensors are read with an *Arduino* compatible microcontroller. Readings are transmitted as raw data and enhanced with an unique identifier and the current location, which is retrieved by a GPS chipset. Solarpanels can charge the batteries which are powering the sensor platform.

gateway

convert

after a transmission is received, it is split into its components. At the same time, raw data is converted into data with significance, by using the specifications of the sensor manufacturer.

identify

each time a transmission is received, the gateway uses the transmitted identifier to find information on that node on an inserted sd card. This information can contain the *url* to the logging platform which should be used, an *api key* to access the logging platform, and an *id* which identifies the instance of the transmitting node on the logging platform. To be more generic, *templates* can be used to format the data.

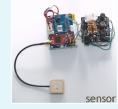
publish

interfaces.

when the transmission is identified successfully, measurements can be published to a logging platform. To do so, *api key*, *url* and *id* are inserted into a message defined by a *template*. The gateway opens a connection to the logging platform's *url* and sends the message. If necessary, data can also be stored on the gateway's sd card.

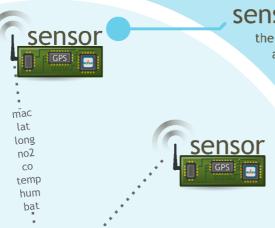
logging platform

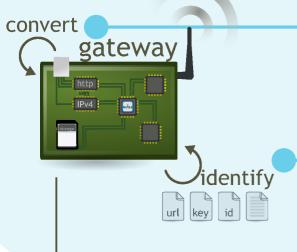
a logging platform receives the message from the gateway. Popular logging platforms are cosm.com and thingspeak.com, but more standardized services such as the OGC compliant SOS are also possible and should be preferred. To auth-enticate the gateway and identify the node, *api key* and *id* are required in most cases. The logging platform processes the received message and stores the submitted data. From now on, data can be accessed via the platform's











platform

logging

publish

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