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NEC

Smart City Solutions
A solution for implementation on the Kite platform

Air Quality Sensing

Solution available January 2017

Target Sectors

- Local and Central Government
  - To assist with city planning and design
  - To assist with emissions monitoring

Challenges

- No current means of measuring air quality at granular, street levels
- Current air quality devices are large, expensive
- Air Quality data is manually recorded and analysed
- Current data sharing opportunities are limited

Solution

- Small, cost effective sensors recording air quality
- Sensors installed on Kite Flexible Sensing Platform (wireline or wireless)
- Low engineering cost for sensor installation
- Data backhauled through Kite Flexible Sensing Platform
- Data easily shared with agencies through Smart City Backbone API

What is Air Quality Sensing?

Air quality sensors are designed to monitor the quality of air in a surrounding area. While once prohibitively expensive, over the last decade the cost of sensors has dramatically reduced, allowing for much more widespread implementation.

Air quality sensors are useful for detecting changes in air pollution – including levels of hazardous substances such as nitrogen dioxide and nitrogen oxide - and for monitoring the overall quality of the air we all live in every day.

Air Quality Sensing Solution

NEC has developed the Air Quality Sensing Solution to provide cities with the ability to significantly increase the number of trusted air quality measures in a city. Through the use of small, inexpensive air quality sensors on the Kite Flexible Sensing Platform, NEC can offer cities an improved granular geospatial and temporal air quality data set in near real-time.

A small, unobtrusive air quality sensor is implemented on a street light, pole or wall in a city and is connected to a network, such as the Kite Flexible Sensor Platform. Different air quality sensors can be implemented depending on what needs to be measured, such as Particle Matter detecting air pollution and Nitrogen Dioxide and Nitrogen Oxide sensing to detect pollution levels at major arterial roads, bus corridors and urban canyons. Air Quality data is then backhauled to NEC's Cloud City Operations Centre for analysis and sharing among associated parties.

Enabled by Kite

The key enabler to the air quality solution is NEC's Kite Flexible Sensing Platform. The air quality sensors are either directly connected to a Kite Gateway, or connected via wireless mesh network through Kite 'Motes'. Kite Motes relay sensor data to the Kite Gateway, which backhauls sensor data to the Cloud City Operating Centre or any other Smart City cloud platform. Kite not only provides the necessary backhaul for a city, it allows for rapid implementation of future sensors without restrictive civil engineering and communication costs.

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