

Cleantech Invention

City-Scale Remote Sensing for Air Quality Models

Air pollution in cities is a societal problem. It affects the quality of life and it causes premature death, especially in megacities such as Beijing and New Delhi, but also in many European cities. Effective air control measures are extremely challenging from a scientific point of view, but essential to convince inhabitants to change behavior and/or accept new regulation. A network of low-cost spectral cameras - to be developed in this project - combined with an air quality model can be used by air pollution control authorities to evaluate their policies.

Low-cost easily operated camera

The idea is to develop a multispectral camera that measures air pollution (nitrogen dioxide) not only at the surface, but also throughout the atmospheric boundary layer (vertical column measurement). The camera should be a relatively low-cost (~1k€), easily operated camera. The ideas are based on research experience with essentially similar scientific instrumentation. The project group is convinced of the added value of this technique when deployed in a citywide network.

Climate impact

Reduction of air pollution is of primary importance to improve quality of life and health of city inhabitants. However, air pollutants also influence climate in the city and on the global scale. Specially anthropogenic emissions of particulate matter (aerosols) have a major and complex impact on global climate.

Target market

The target market is (Governmental) environmental agencies of city regions worldwide that are willing to invest in new sensing techniques in addition to existing (traditional) pollution monitoring networks with limited capabilities. Once this project can demonstrate the added value of a sensor network (combined with an air quality model) for one or two cities (e.g. Rotterdam in the Netherlands, and New Delhi in India), we can expect growing demand from other cities.

Who is Air Quality Control looking for?

- Entrepreneurs with technical expertise about sensor development (optics/electronics/software) and a strong focus on simplification and cost reduction.
- Entrepreneurs with expertise to sell new technology to governmental agencies.

What does Air Quality Control has to offer?

- Concrete ideas how to develop low-cost sensor (multi-spectral camera) for an air pollution monitoring network.
- Scientific expertise to interpret data.
- Scientific expertise to provide embedding in air quality model.
- Network of potential stakeholders / potential customers.
- Contribution to innovation and implementation via student projects (master students 'Geoscience & Remote Sensing', TU-Delft).

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