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REAL-WORLD PERFORMANCE OF LOW-COST SENSORS FOR MONITORING AIR QUALITY IN URBAN ENVIRONMENTS

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ABSTRACT

The majority of the population in Europe lives in areas where air quality levels frequently exceed the WHO ambient air quality guidelines. Air quality data at street level is currently scarce or non-existent. This undermines citizens' awareness of their environment, and consequently limits their ability to recognize and change both their contribution and their exposure to air pollution.

The emergence of low-cost, easy-to-use, portable air quality sensors allowing observations at high spatial resolution in near real-time, provides us with new opportunities to simultaneously enhance existing monitoring systems as well as enable citizens to engage in more active environmental monitoring (citizen science). However there are challenges in the use of sensor data, mainly data quality, comparability and derivation of information from the data sets.

This work presents initial results of an evaluation of the performance of low cost sensor platforms under controlled conditions in a laboratory and under real-world conditions by co-location with reference monitoring stations. The exercise has been conducted within the framework of two European projects, CITI-SENSE and Citi-Sense-MOB.