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Air Quality Index Surveillance Using Mobile Devices

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Abstract: *Air quality monitoring through fixed-site stations has traditionally been the primary method for recording Air Quality Index (AQI) and pollution levels. However, fixed stations often face limitations due to their static nature, as readings can be heavily influenced by local factors such as nearby industrial activities or temporary construction, leading to data that may not represent the wider area's air quality accurately. To overcome these issues, mobile air quality monitoring solutions, including drone-based sensors, are being explored. Drones can collect real-time pollution data across multiple locations, offering a dynamic and broader view of environmental conditions. This mobile approach helps in minimizing localized biases, provides a more accurate regional AQI average, and allows for faster identification of pollution hot spots. By integrating mobile monitoring with traditional methods, authorities can achieve more reliable air quality assessments, enabling better decision-making for environmental management and public health protection.Moreover, mobile systems offer flexibility in tracking pollution trends over time and space, making them valuable tools for emergency response and long-term planning. As urban environments continue to grow and change, adopting innovative monitoring techniques becomes increasingly essential for sustainable development*

Keywords: Air Quality Index (AQI), fixed monitoring stations, mobile monitoring, drone-based sensors, real-time data collection, regional AQI measurement

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