Urban Scanner: High-Resolution Air Quality and Traffic Sensing, Using an Innovative Mobile Platform

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Introduction / Overview

Exposure to traffic-related air pollution has been associated with **adverse health effects**.

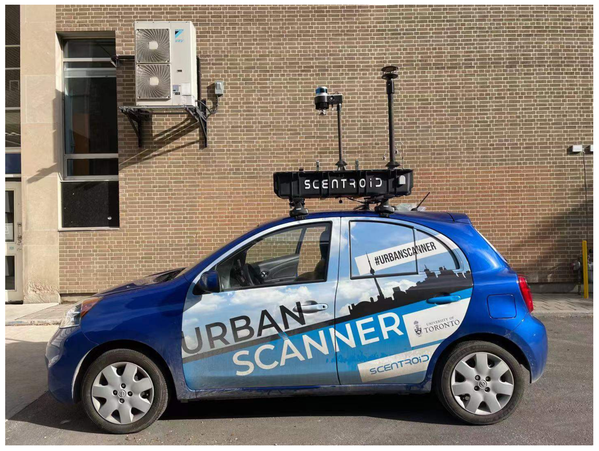
Near-road air pollution **varies sharply** over a short distance depending on:

- ❑ Surrounding built environment;
- ❑ Traffic patterns;
- ❑ Downwind distance from pollution sources.

The **Urban Scanner** is an integrated platform that provides high-resolution spatiotemporal air quality information within urban environments.

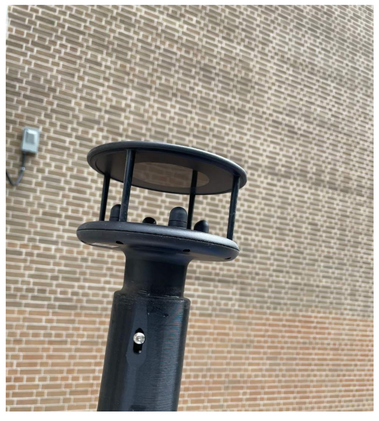
It collects and combines **a variety of information** such as air pollution concentration, a 3D map of the city, traffic conditions, micro-weather patterns, etc.

Data Collection and Methods

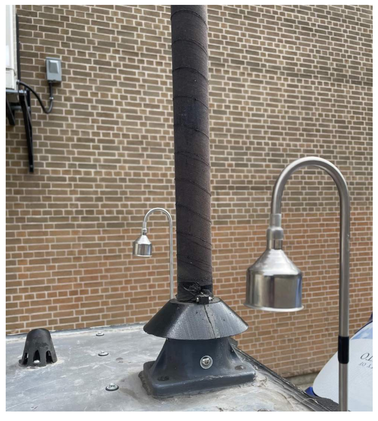


LiDar & 360° Camera

Aethalometer & DiSCmini
(measuring black carbon & ultrafine particles (UFPs))



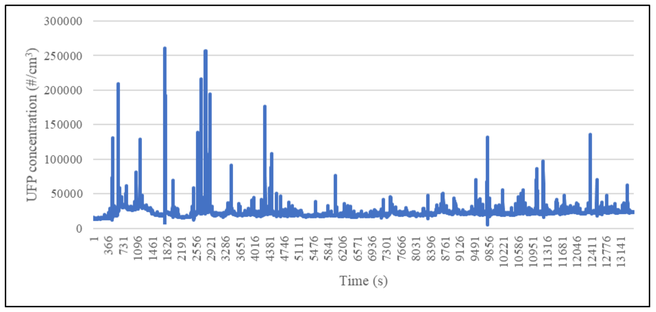
Wind probe

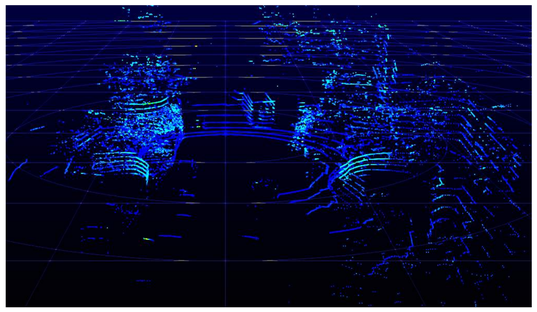


Airflow inlets
(measuring particulate matter (PM), NO2, O3, CO, etc.)

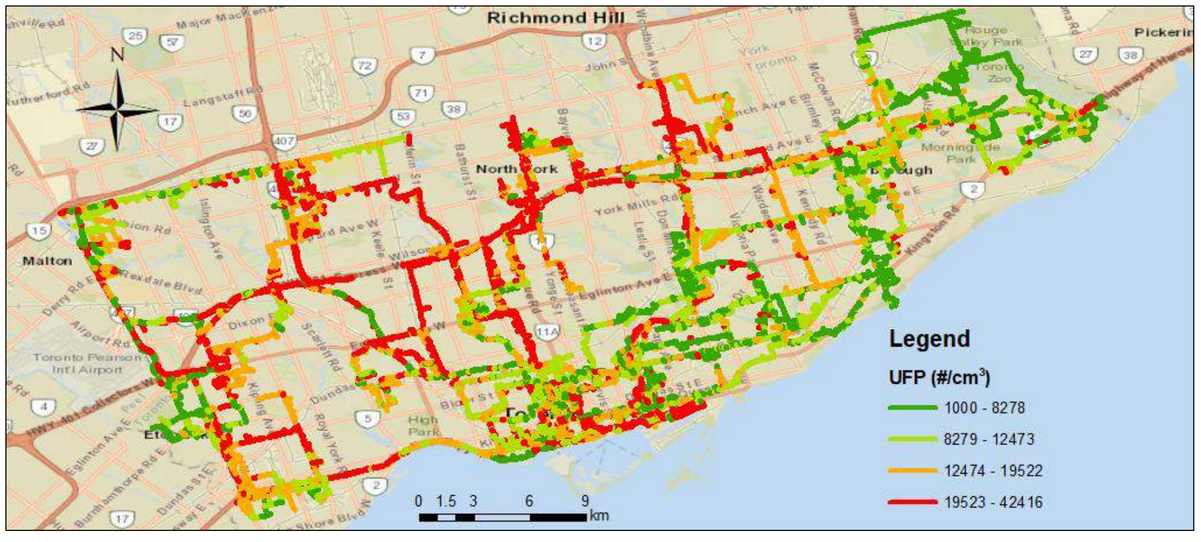
Preliminary Findings

Time-series of air quality and identifying high emitters (in cloud points and object-detected images)





High-resolution air pollution mapping and modelling



Acknowledgements

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