Spatial routing of mobile sensors in participatory air quality monitoring with motorcycles in a developing city.

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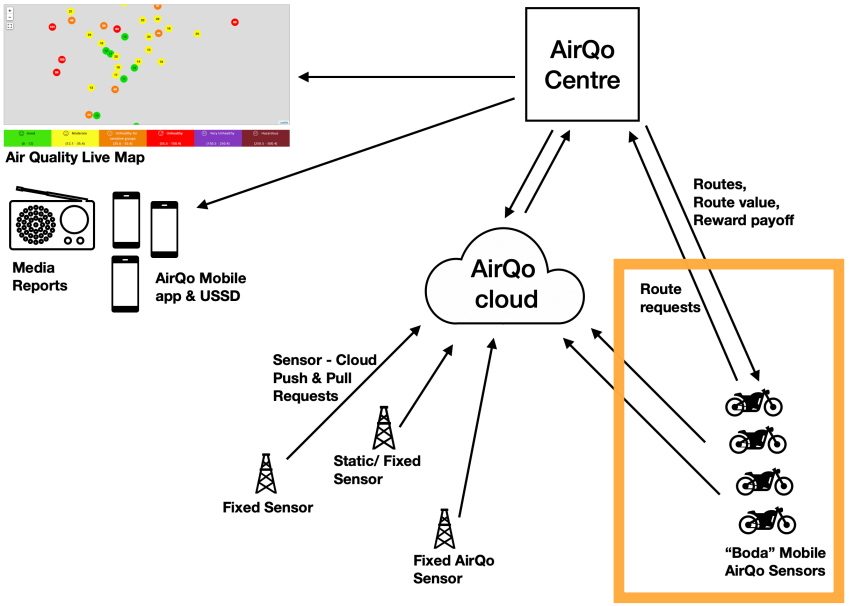
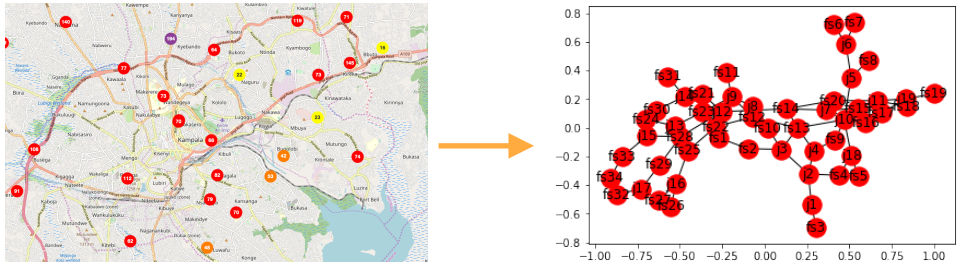


Step 1: Abstracting city map into sensor-road network graph



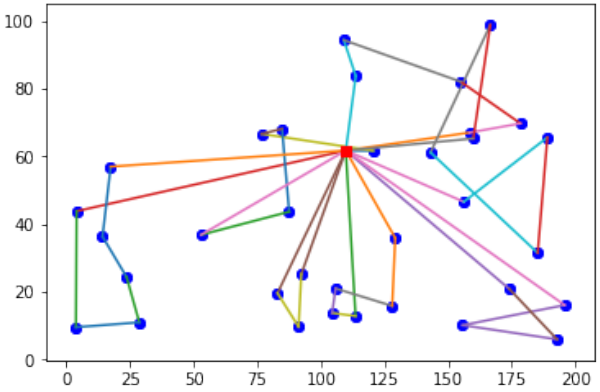
Step 2: Defining the routing problem

Let $G = (V, E)$ be the symmetric complete undirected graph. The vertices set $V = \{v0, v1, ..., vn\}$ is made up of station $\{vo)$ and n fixed sensor points $\{v1, ..., vn\}$. Each of the vertices requires a sensing time T_i that should be non-negative and is bounded to an upper limit time or cost. Several other constraints include; routing through fixed sensor locations for calibration, route through places with large last visited latency times, constraints on number of sensors per route or per region of interest.

Single objective optimisation vs multi-objective optimisation.

Objectives include; minimise the total cost of sensing, minimise the number of *BodaBoda* motorcyclists needed to cover all the fixed sensor areas, or maximise the sensing time at each sensing point as required by air quality monitoring centre.

Step 3: Simulated results



Ongoing Directions:

Mechanism design for route choice and rewards schemes and Gather more empirical data on how motorcycle taxi riders view these mechanisms to better approximate their utility functions.