

SenseWeb: Browsing the Physical World in Real Time

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Motivation

- Increasing # of live data sources
 - Govt., commercial, research, personal, ...
- Search engines ignore most of them
 - Restaurants with small current waiting time?
- **SenseWeb**: A web portal of live data
 - Collect live data
 - Index data and enable search
 - Enable new apps on top of the data

RestaurantFinder++

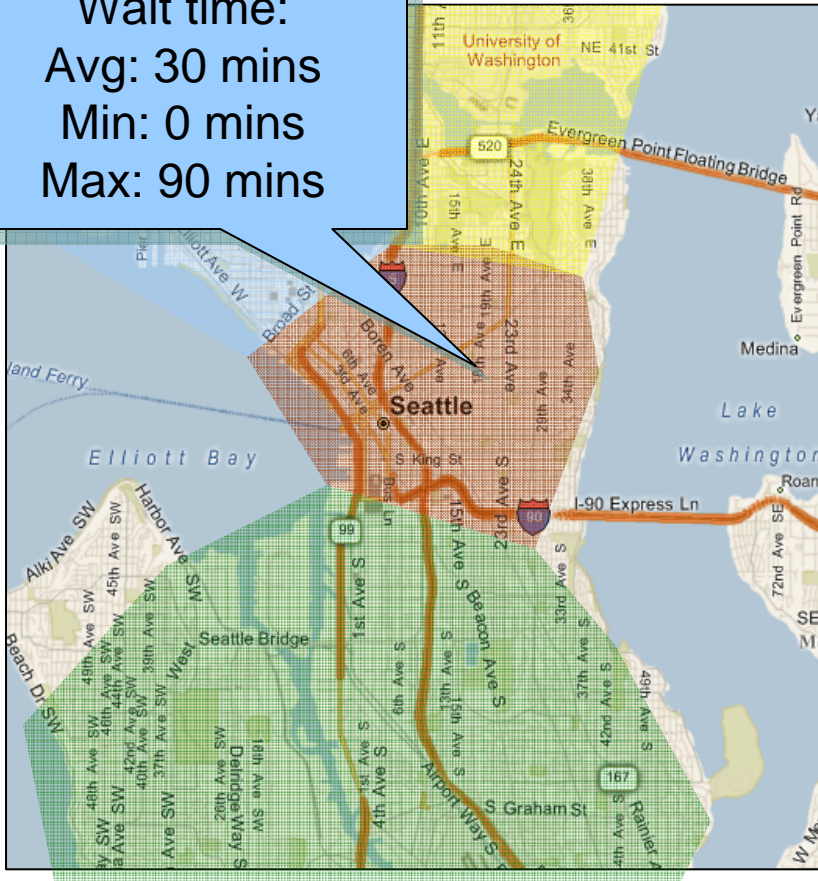
35 restaurants

Wait time:

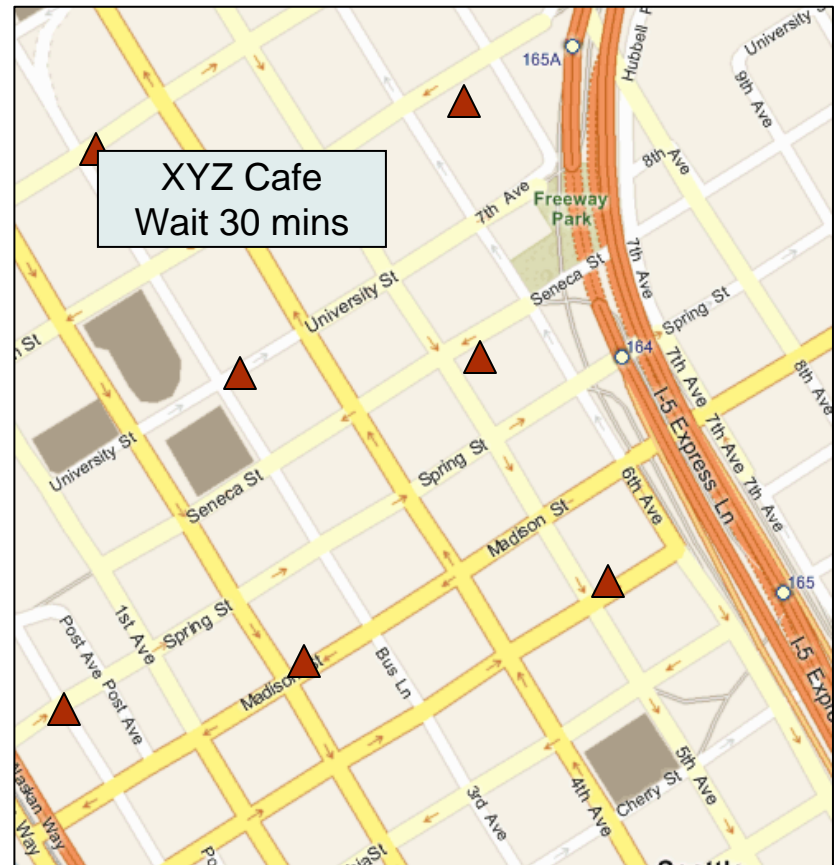
Avg: 30 mins

Min: 0 mins

Max: 90 mins

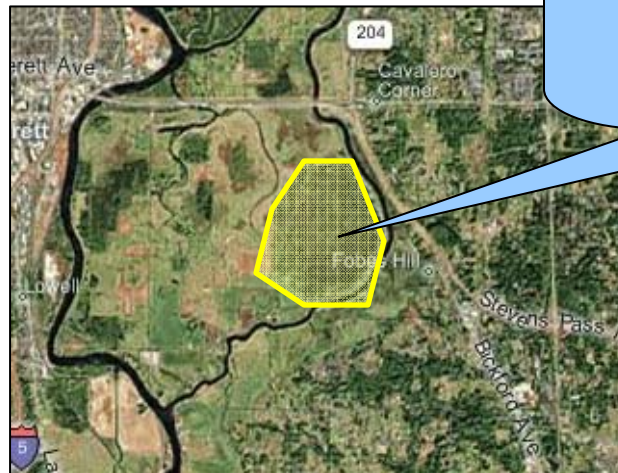


Zoomed-out view



Zoomed-in view

Forest Fire Alert



Alert when
average temperature
is above 80C

SensorMap Features

- Toolkit (MSRSense) to easily publish sensor data
- Search sensor data by geographic region, by type, by text keywords
- Cluster and aggregate at different zoom levels
- Archive historical data
- Add/edit/delete sensors

Demo

<http://atom.research.microsoft.com/sensormap>

Challenges

- Challenges similar to IrisNet, PIER, HourGlass, Hi-Fi, SkyServer, etc.
 - Scalability
 - Data processing
 - Programming abstraction
 - Privacy
 - Broken sensors, etc.

Challenges

- Lack of (or, too many!!) standards
 - Sensor interface, ontology, data format, data semantics, etc.
- Sensor Discovery
 - A crawler to automatically discover sensors and metadata
- Programming toolkit
 - Extend SensorMap, add new processing, add new sensor types, mash-up with other apps
 - Debugging!