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

XYZ Cafe
Wait 30 mins
Forest Fire Alert

Alert when average temperature is above 80°C
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
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!