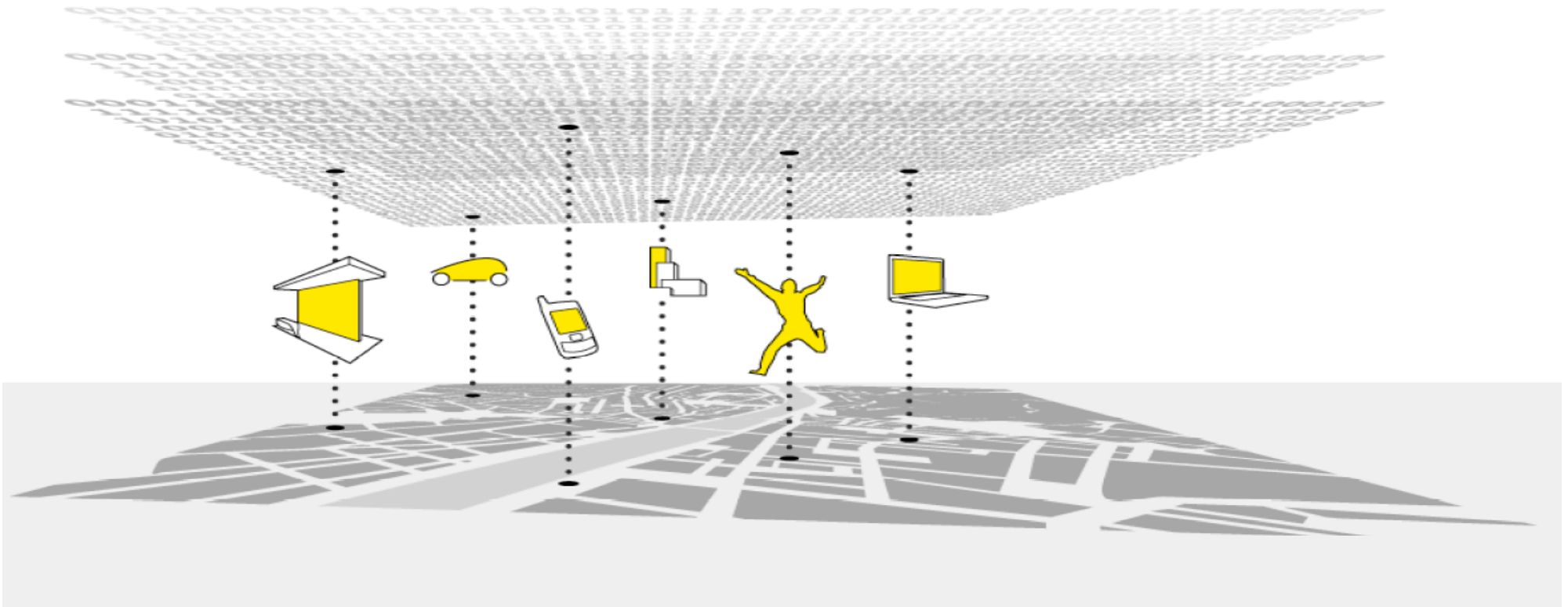


**RFID futures, connecting things to a shared context –
example of mobile "Tweet" Messaging System @ MIT**

**3rd European Conference on ICT for Transport Logistics
(ECITL), November 4-5, 2010 - Bremen**

**Stephen Miles
senseable city lab
Massachusetts Institute of Technology
s_miles@mit.edu**





senseable city lab:::

researching

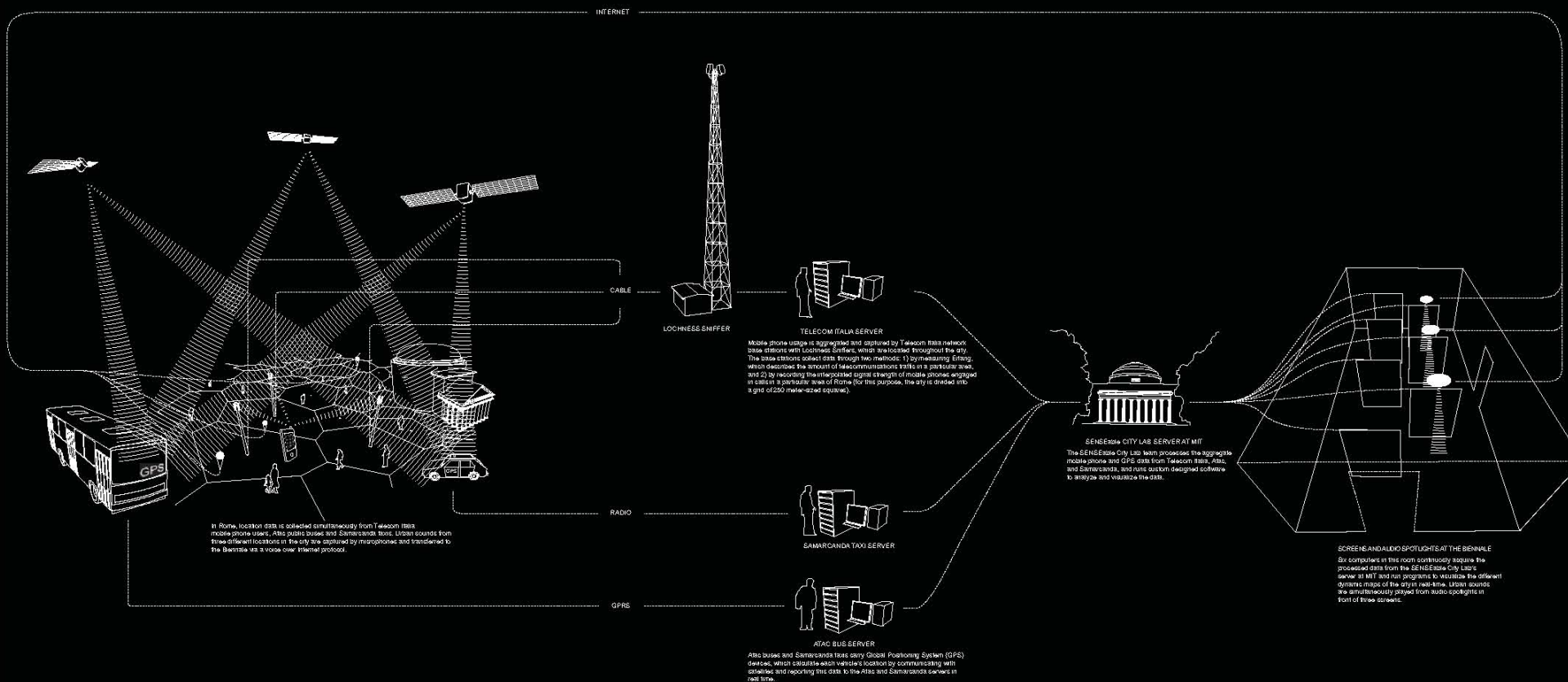
ubiquitous technologies

to capture, visualize, and deliver

real-time information

On **dynamic city processes**

real time rome

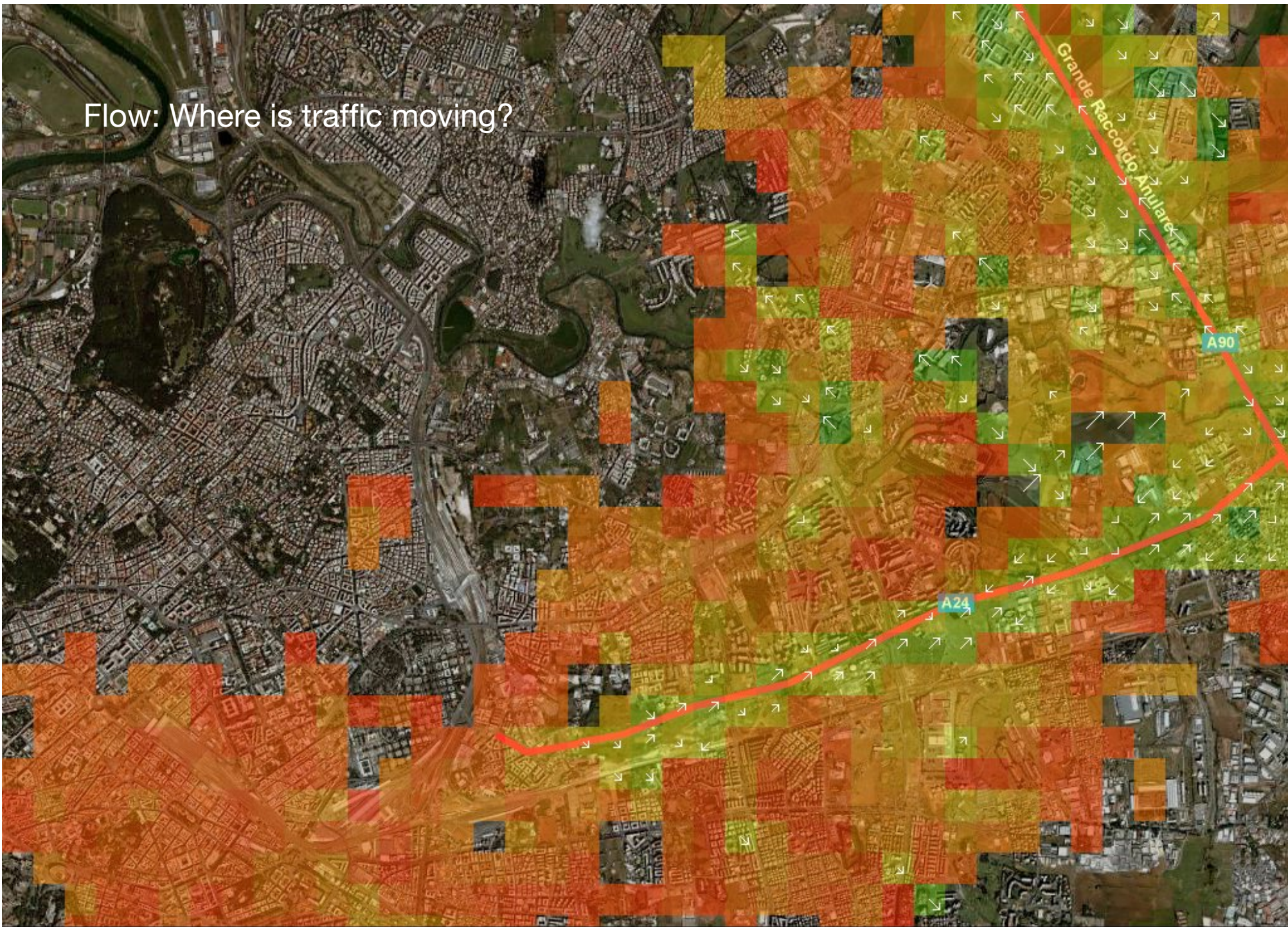


In Rome, location data is collected simultaneously from Telecom Italia mobile phone users, AT&T public buses and Samarcanda taxis. Urban sounds from three different locations in the city are captured by microphones and transferred to the Biennale via a voice over internet protocol.



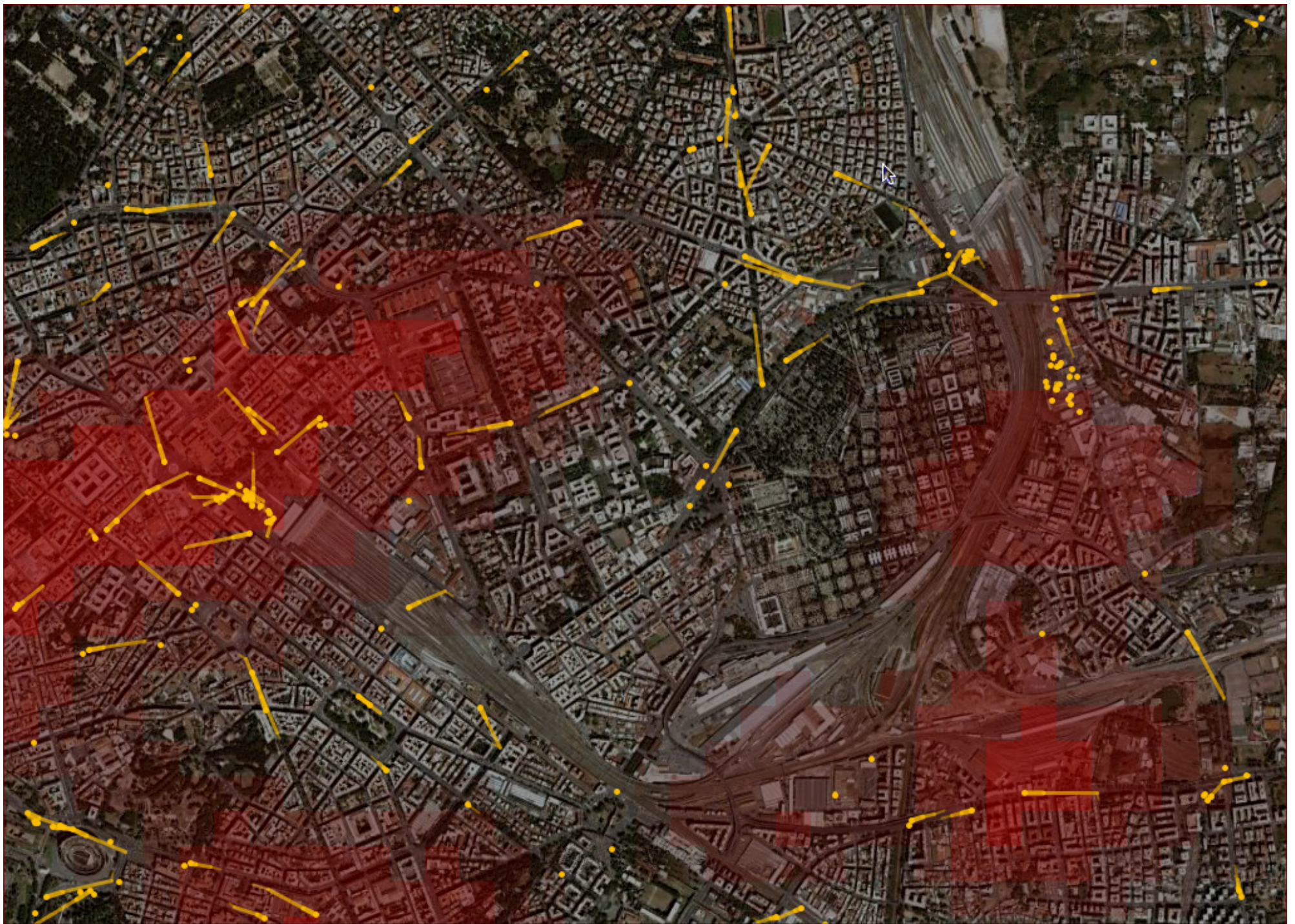
la Biennale di Venezia

Flow: Where is traffic moving?



REAL TIME 12:15

low high



REAL TIME 12:56

low high

Flow: Where is traffic moving?

Advances in Tracking Things

Automatic Event Data Collection (EPC-IS)

- Tracking trucks
- Tracking trailers
- Automated picking systems
- Tagging apparel
- RFID in ports
- Tagging events



Tracking Truck Drivers



- 1. Productivity - Optimize distribution of your inventory.
- 2. Safety & Security - Increase safety and security in your DC.
- 3. Maintenance – Increase up time of your fleet and reduce costs.

Truck tracking and route optimization

Qualcomm: tethered and untethered units

www.qualcomm.com

SkyBitz: GLS battery powered transmitter

www.skybitz.com

Thermo King: GPRS tracking and refrigerator control

www.thermoking.com

TMW/IDSC: fuel plans are generated using a unique algorithm to calculate all essential factors including current fuel prices, fuel level, vehicle fuel consumption, state tax implications, fuel network implications, out-of-route miles, route policies, terminal fueling policies, tank fill policies and driver amenities.

www.tmwsystems.com

"Highway, railway theft growth industry in Mexico"

Tuesday, May 18, 2010 By Tim Johnson | McClatchy

Newspapers

- TEPOTZOTLAN, Mexico — Highway robbers and railway bandits are riding high in Mexico, pulling off brazen daylight heists and inflicting serious damage on the national economy.
- "It's getting worse and worse every day," said Luis Alvarez Marcen of the Mexican Insurers Association. Train robberies occur an average of 4.5 times a day, and parts of Mexico are so rife with truck hijackings that one newspaper labeled them "Bermuda Triangles." Along some major highways, armed gangs take control of one fully loaded 18-wheeler after another. They unhitch the tractor-trailers and hitch them onto their own cabs, hauling the loot away. "They can do it in less than two minutes," said Gustavo Passa, the regional safety and security manager for Ryder System, a global transportation and logistics company with headquarters in suburban Miami.
- A highway cargo trade group in Mexico, known by its Spanish initials as Canacar, reported more than 10,000 highway thefts of cargo last year, a 40 percent spike over the previous year.

<http://www.mcclatchydc.com/2010/05/18/94384/highway-railway-theft-a-growth.html#ixzz11D19kvAP>

Tracking Trailers

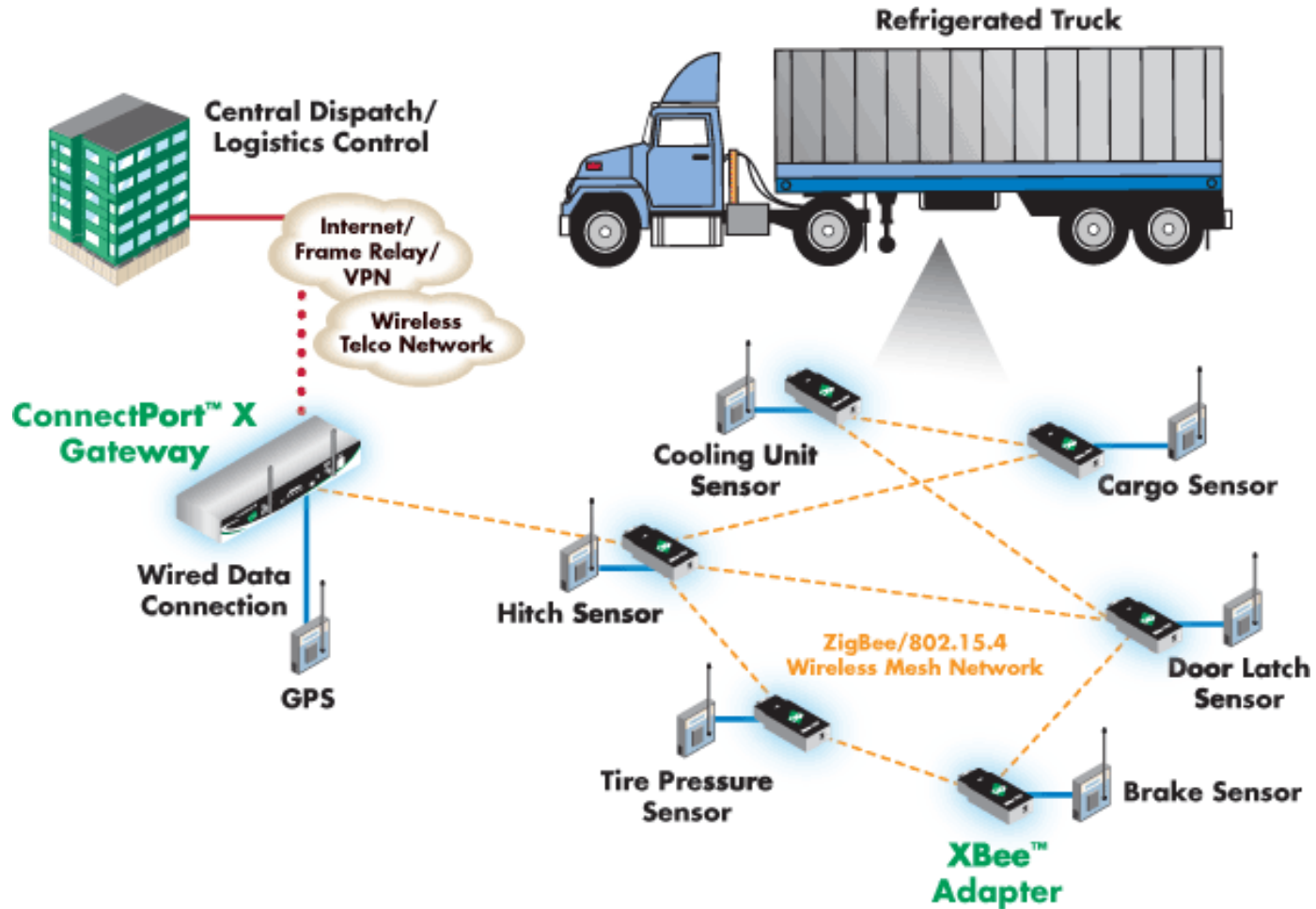


GE VeriWise: real-time tracking & maintenance

www.tip.ge.com/fleetintelligence/asset-intelligence/veriwise

- GE TIP Trailer Services, a sister company of GE Asset Intelligence (provider of GE VeriWise™), is an industry leader in transportation and logistics in Europe, with more than 75,000 trailer, tanker, intermodal and truck units. Since implementing the GE VeriWise™ system TIP Trailer Services identified that incorrect EBS brake coupling to tractors, overbraking by drivers and trailer overloading was driving a 10% increase in brake and tyre wear.

Tracking Trailers



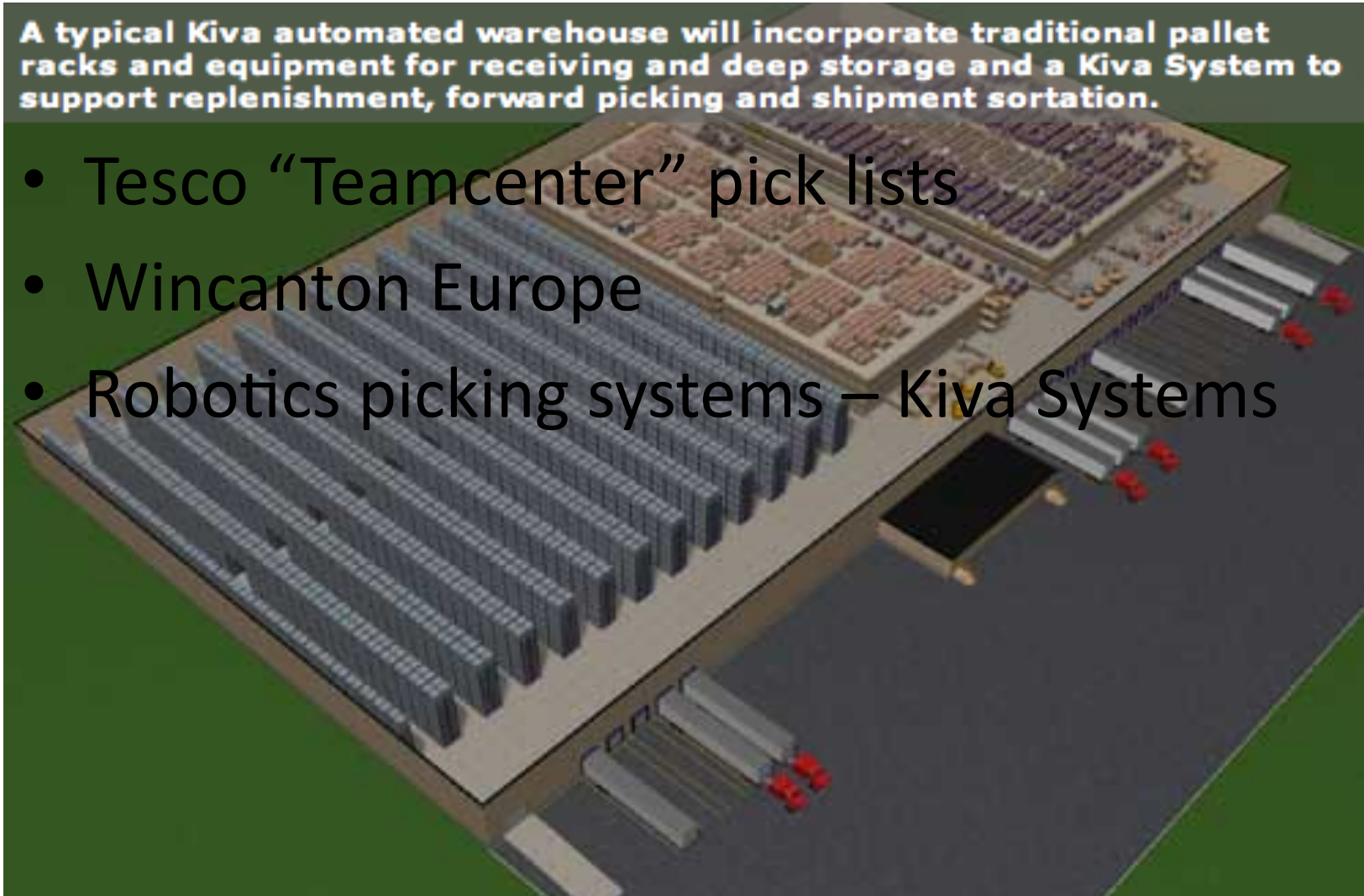
Picking Systems Lessons from Disaster Relief



Automated picking systems

A typical Kiva automated warehouse will incorporate traditional pallet racks and equipment for receiving and deep storage and a Kiva System to support replenishment, forward picking and shipment sortation.

- Tesco “Teamcenter” pick lists
- Wincanton Europe
- Robotics picking systems – Kiva Systems



Tagging apparel



Apparel supervisor Sonia Barrett uses a handheld scanner to read EPC labels on men's denim jeans on July 19, while checking inventory at the Walmart Supercenter Store No. 1 in Rogers, Ark.

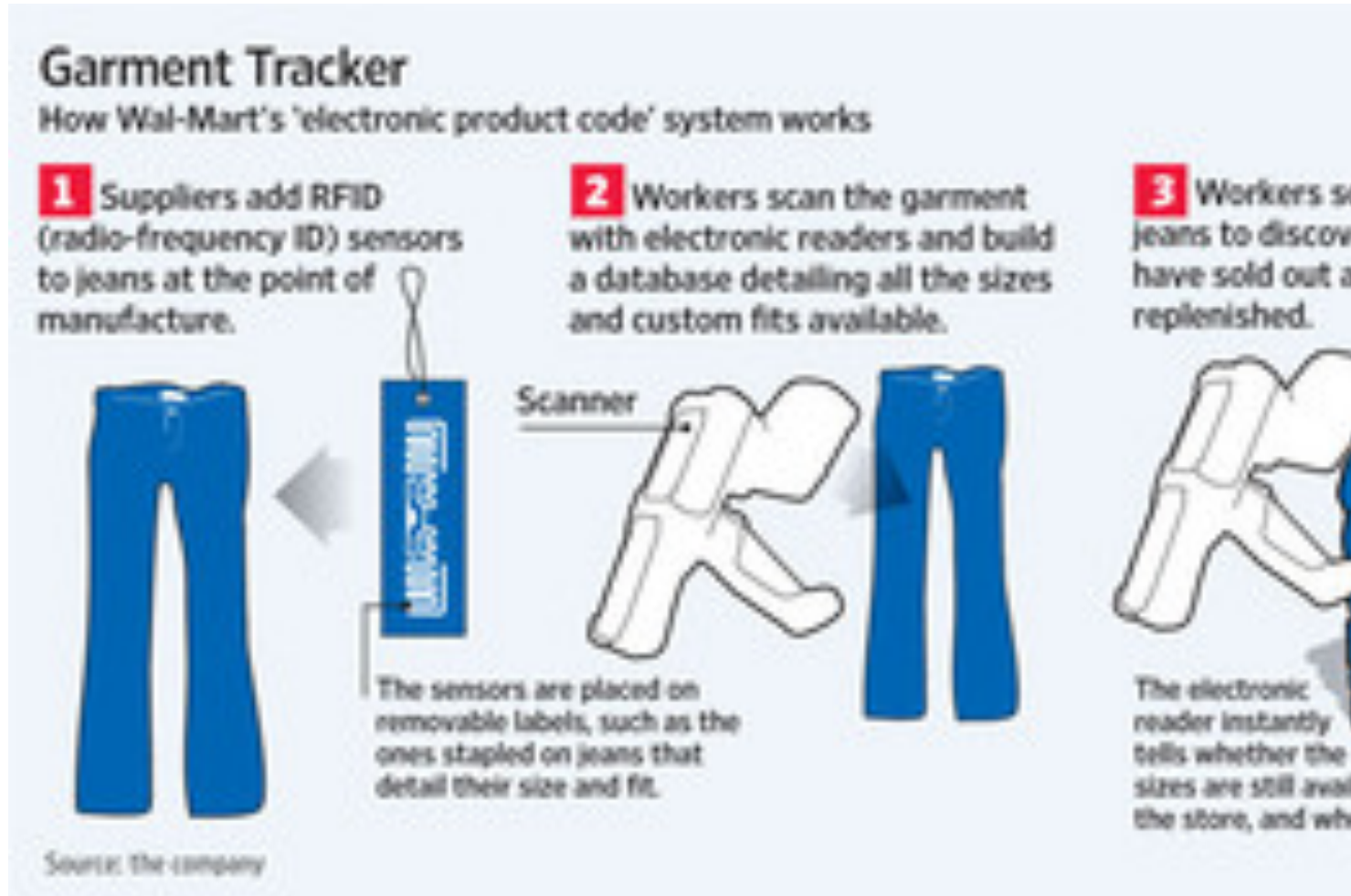
Read more: <http://online.wsj.com/article/SB10001424052748704421304575383213061198090.html#ixzz11D6sY18S>

Wal-Mart Radio Tags to Track Clothing

THE WALL STREET JOURNAL. **TECH**

BUSINESS TECHNOLOGY

JULY 23, 2010



Myron Burke, Wal-Mart – “Up to 250m items/annum.”

Wal-Mart Relaunches EPC RFID Effort, Starting With Men's Jeans and Basics; RFID Journal;
<http://www.rfidjournal.com/article/view/7753/3>

RFID & Wireless Technology In the Transportation Industry



APM Terminals Portsmouth, VA- Tagging Shipments

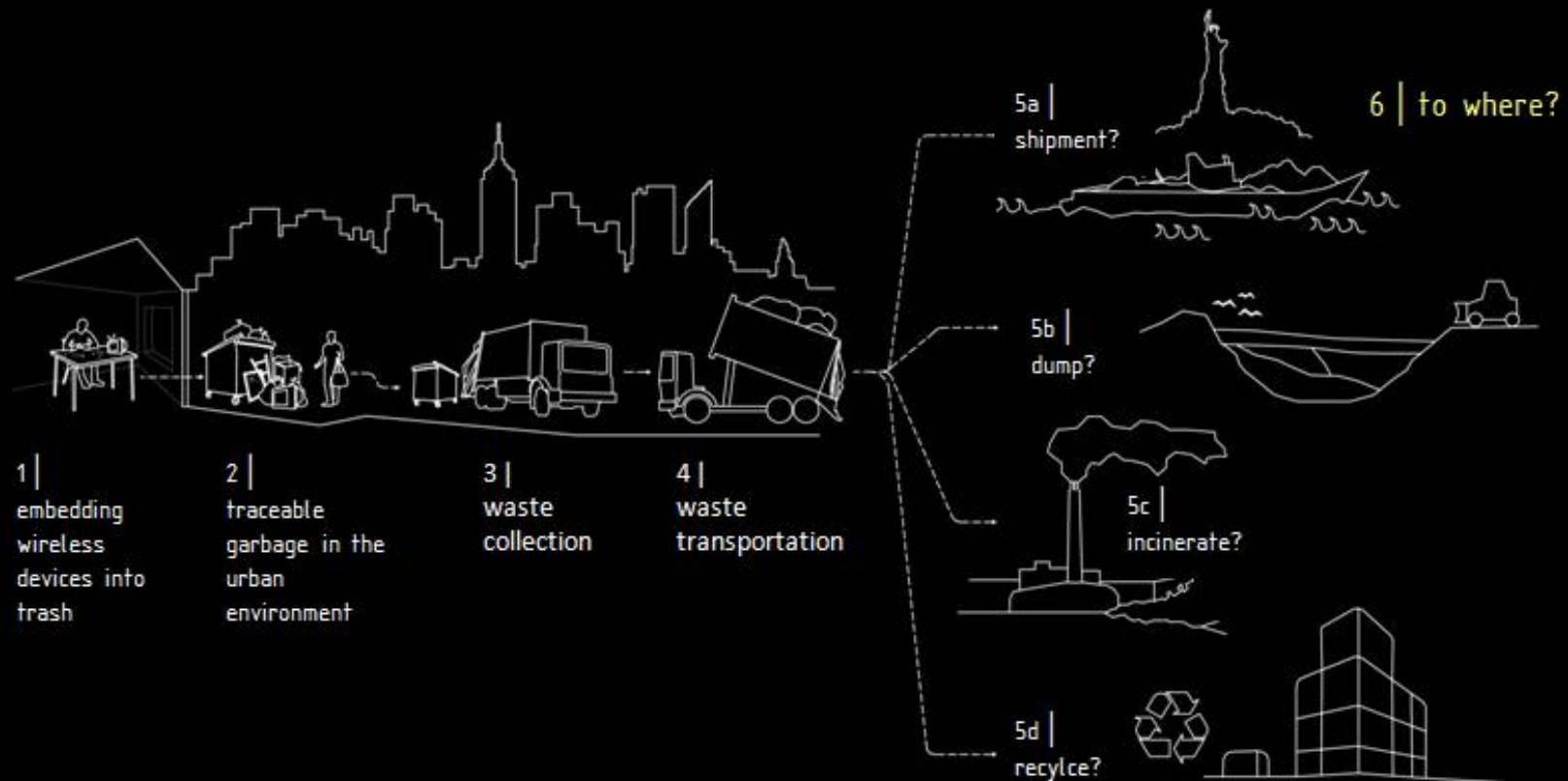


trash track

[new york architecture league, 2009]

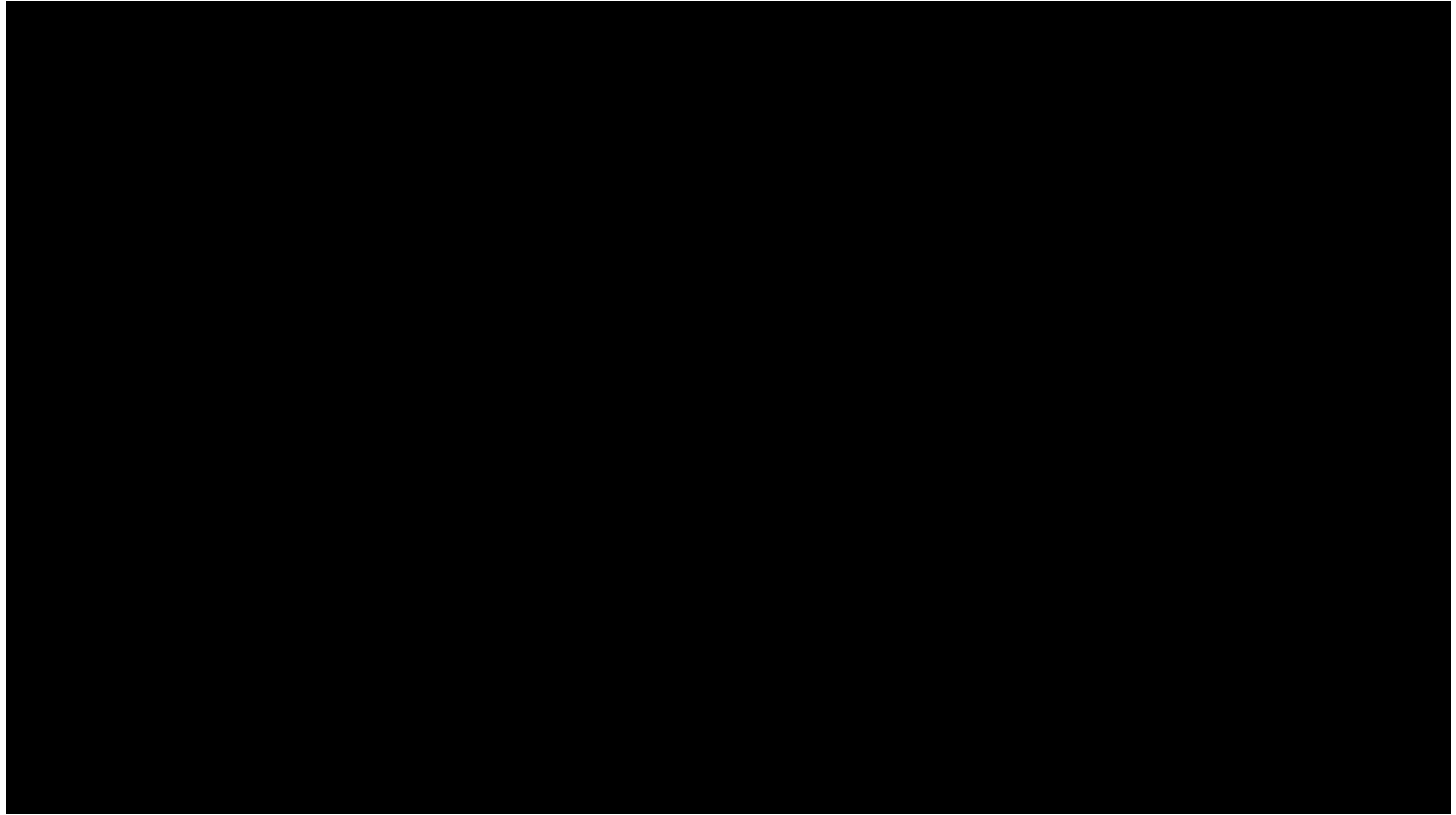
the performance: from my house to the street... to where?

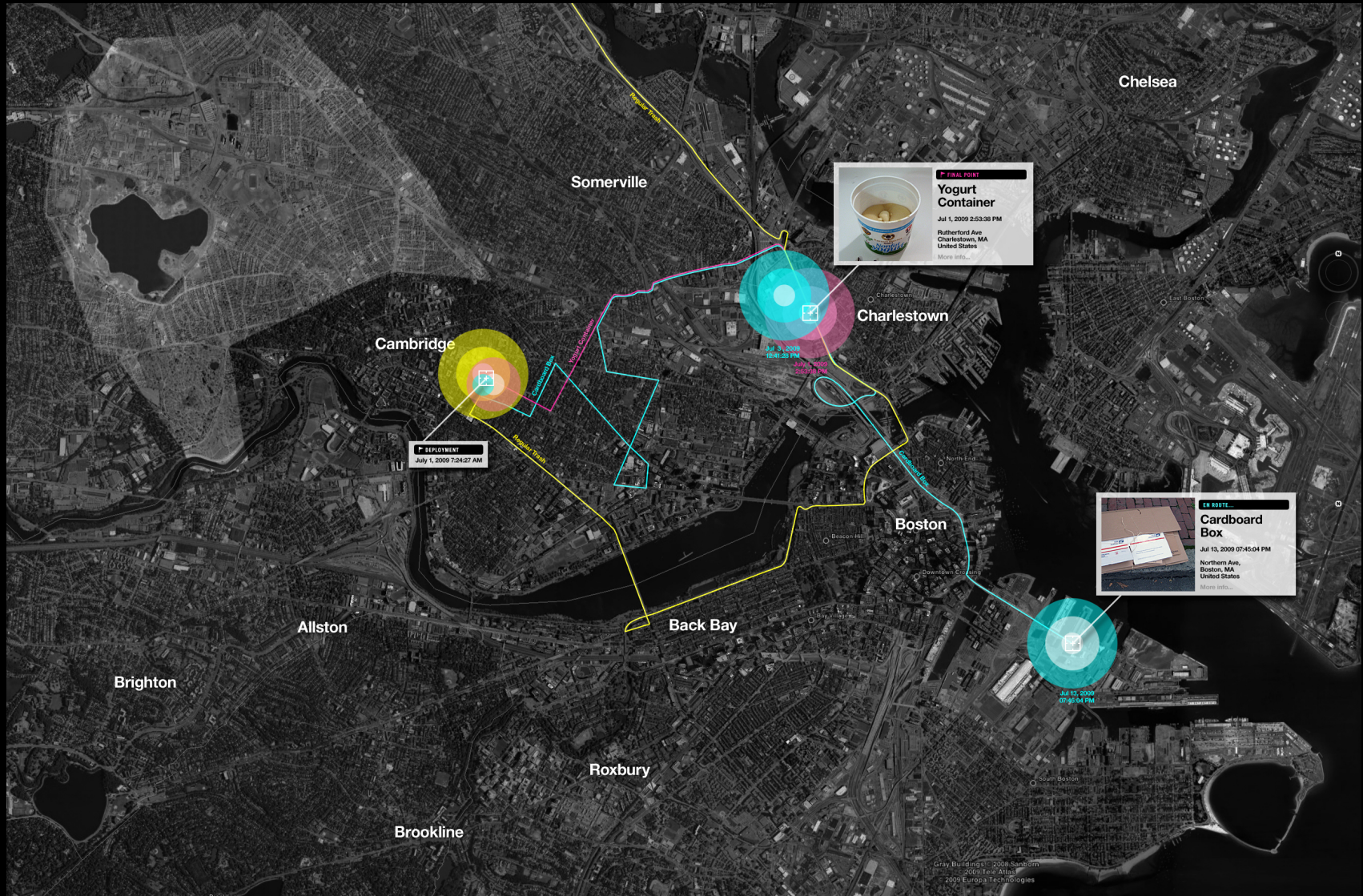
Disseminating tagged products into the city of New York
and following them in space and time



Method. Trash | Track

Trash Tracking





Future ENEL

[2010-2012]

Real Time Sensing

Development of ideas and strategies for real-time monitoring, sensing and visualization of the construction of a power plant - in particular how tracking technologies for people, assets and facility access/egress mechanisms could facilitate the development of top safety standards.

Features being evaluated for the wireless monitoring and sensing system include:

Communicates with wearable/mobile devices in mesh network

Serves as reference beacon for location system

Audio system with DSP

AVR32

Environmental Sensing

Motion

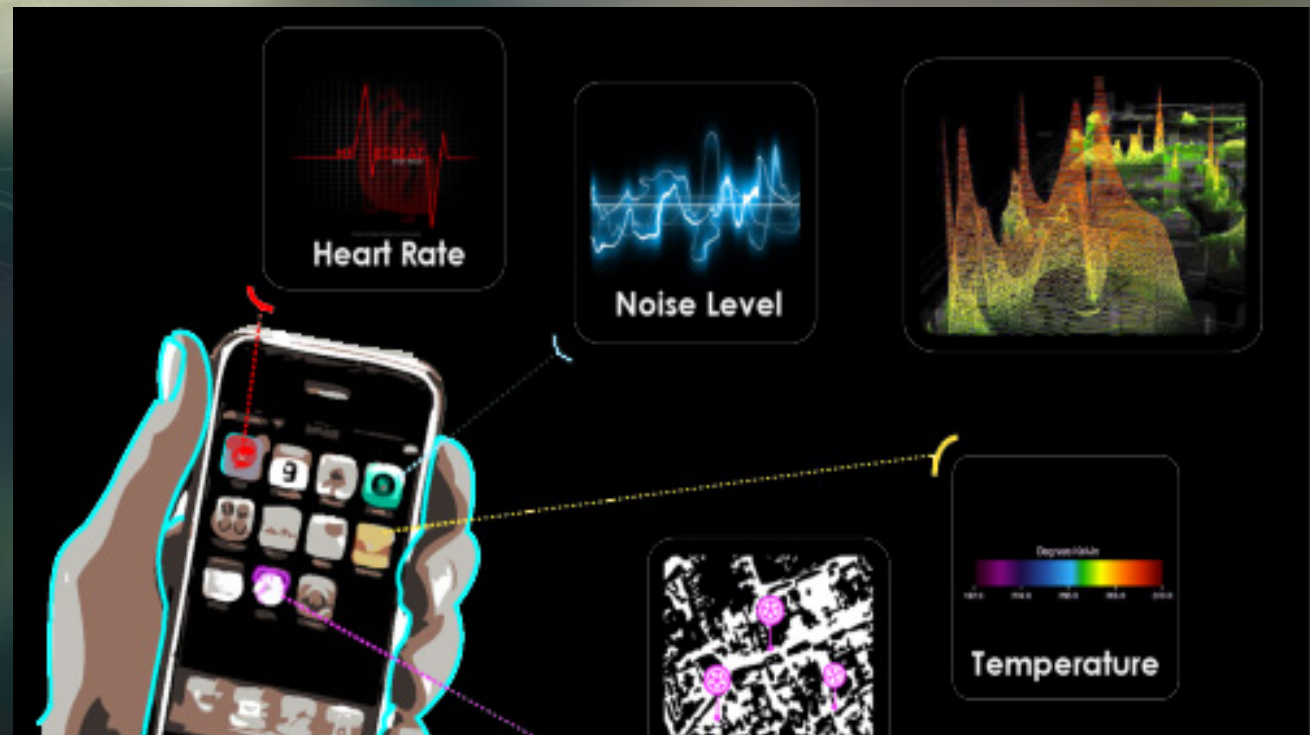
Humidity and Temperature

Light

Infrared Communication and Detection/Proximity

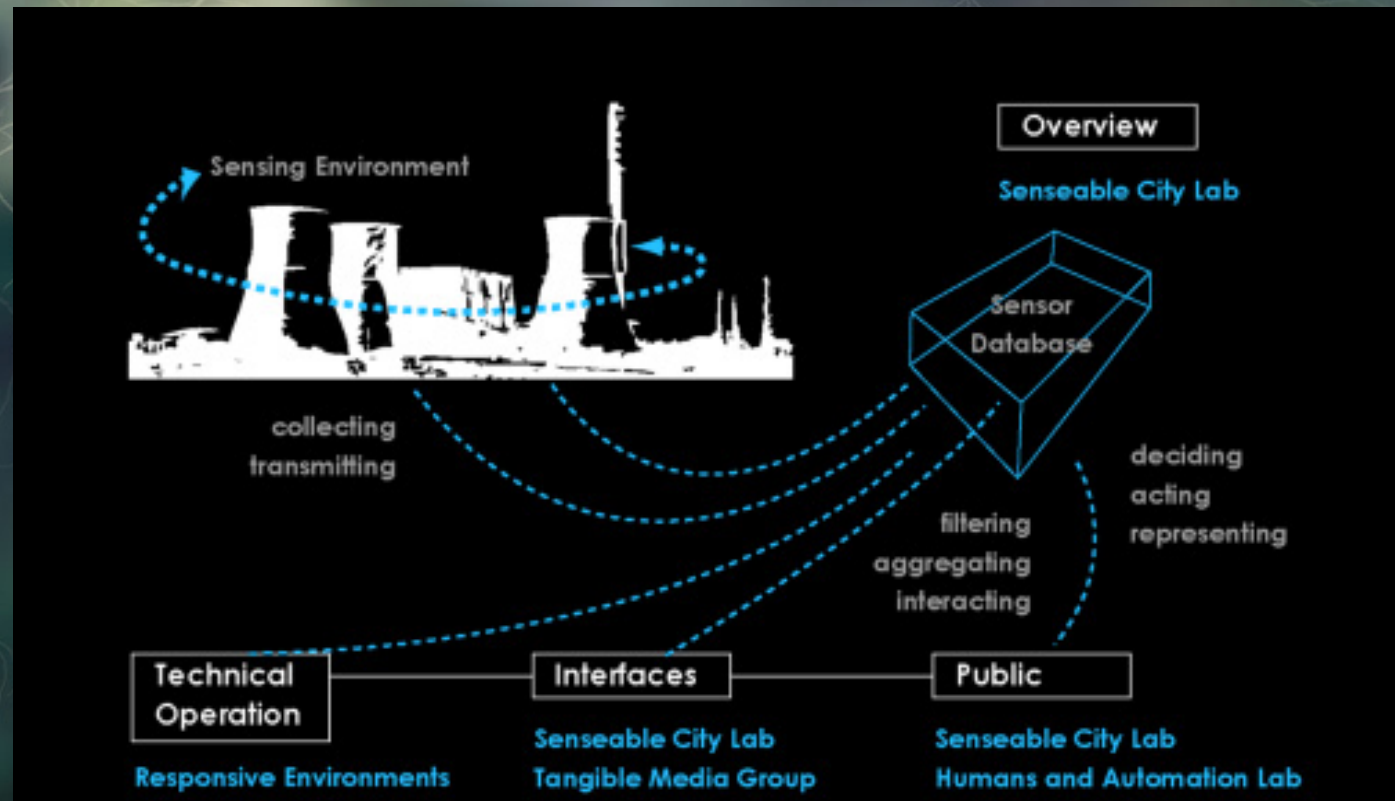
Talks to badge systems

Biometrics



Nervous System

Developing ideas and concepts for the senseable plant so as to enable a nervous system and self-healing capabilities for the plant using new sensors, tangible interfaces and visualization methods. Research use of real-time architectural space as interface for construction workers and supervisors. Ideas to explore include a new visual language to communicate about safety both locally and globally, analogous to the way in which human nervous systems function.



Safety Tweets

Safety Tweets is a mobile platform for safety management that allows users to annotate space collaboratively

IFC interoperable 3D model of MIT's building 10 was created using Autodesk Revit. Using the VB.NET application to load the model and convert selected geometry to GIS, the data is published into the SQL server later read by Google Earth. A PHP boundary detection algorithm was developed in reading BIM data describing the room and text message sender based on the GIS coordinates found in the mobile phone.

Safety metadata using this GIS translation application can be visualized to the resolution of a room. This offers added intelligence to the already data-rich 3D model aware of its geo-location and origin of smartphone's text message. Information such as owner, room, area, unique identifier, and associate task, risk, and time can now be visualized in real-time.



Tagging Events

