Sensors, Networks and Apps: How Technology is Redefining the Way We Park

www.streetlinenetworks.com
PARKING: THE GREAT UNSOLVED URBAN PROBLEM

For Cities
- Parking revenue loss
- Severe congestion - 30% of traffic
- (45% in Brooklyn – Fortune Magazine)
- Inefficient resource allocation
- Major environmental impact

For Consumers
- Significant waste of time
- Economic cost
- Ineffective pricing
- Major source of frustration

For Merchants
- Loss of business due to lack of parking
- Customer frustration
- Limited ability to influence – no data
PARKING CHALLENGE CAUSES 30% OF TRAFFIC IN CITY

*Based on 2007 UCLA Study by Prof. D. Shoup*
SMART PARKING ECOSYSTEM’ DATA TO ACTION

- Private Parking Providers
- City & DOT
- Sensors & Apps
- Enforcement & Parking Management
- New Sources of Data
- New Insight for Action
- Meters & Smart Payment
- Consumers & Motorists
- System Integrators
- Merchants
THE FUTURE IS HERE: GUIDED PARKING

Consumer is quickly guided to the most convenient and cheapest parking spot and can easily make a parking transaction.

We tried out the (Parker) app and wish it were already available in every city we’ve ever driven. (Dec. 2010)

“Real-time parking search is something of a holy grail for drivers in big cities--and now it’s available… by Streetline” (Dec. 2010)

Experience of Consumers in Los Angeles, CA

Experience of Consumers in Fort Worth, TX
IT ALL STARTS WITH THE SENSORS....
LOW POWER MESH NETWORK

- Ultra-low power sensors
- Mesh canopy of repeaters and gateway
- Gateways backhauled via redundant cellular
SMART PARKING TO ACTION

Parking Applications

- Guidance & Payment
- Enforcement & Citation Mgmt
- Meter Management
- Policy & Planning
- Audit & Revenue Mgmt

Third Party

Data Exchange

Internet

Data Center

- Signal Processing & Data Fusion
- Network Management & Service Operations

Backhaul to the Internet (e.g. Cellular Data)

Gateways: Solar or Line Powered

Ultra-Low Power Wireless Sensor Networks
## SMART PARKING IN ACTION ......

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<th>NYC (Roosevelt Island)</th>
<th>WMATA</th>
<th>Los Angeles</th>
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<td>Enforcement &amp; Guidance</td>
<td>Deployed at station parking lots</td>
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<td>Digital meter integration</td>
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<td>Embedded for snow conditions</td>
<td>Mobile payments</td>
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