The role of lighting and sensing in a Smart City

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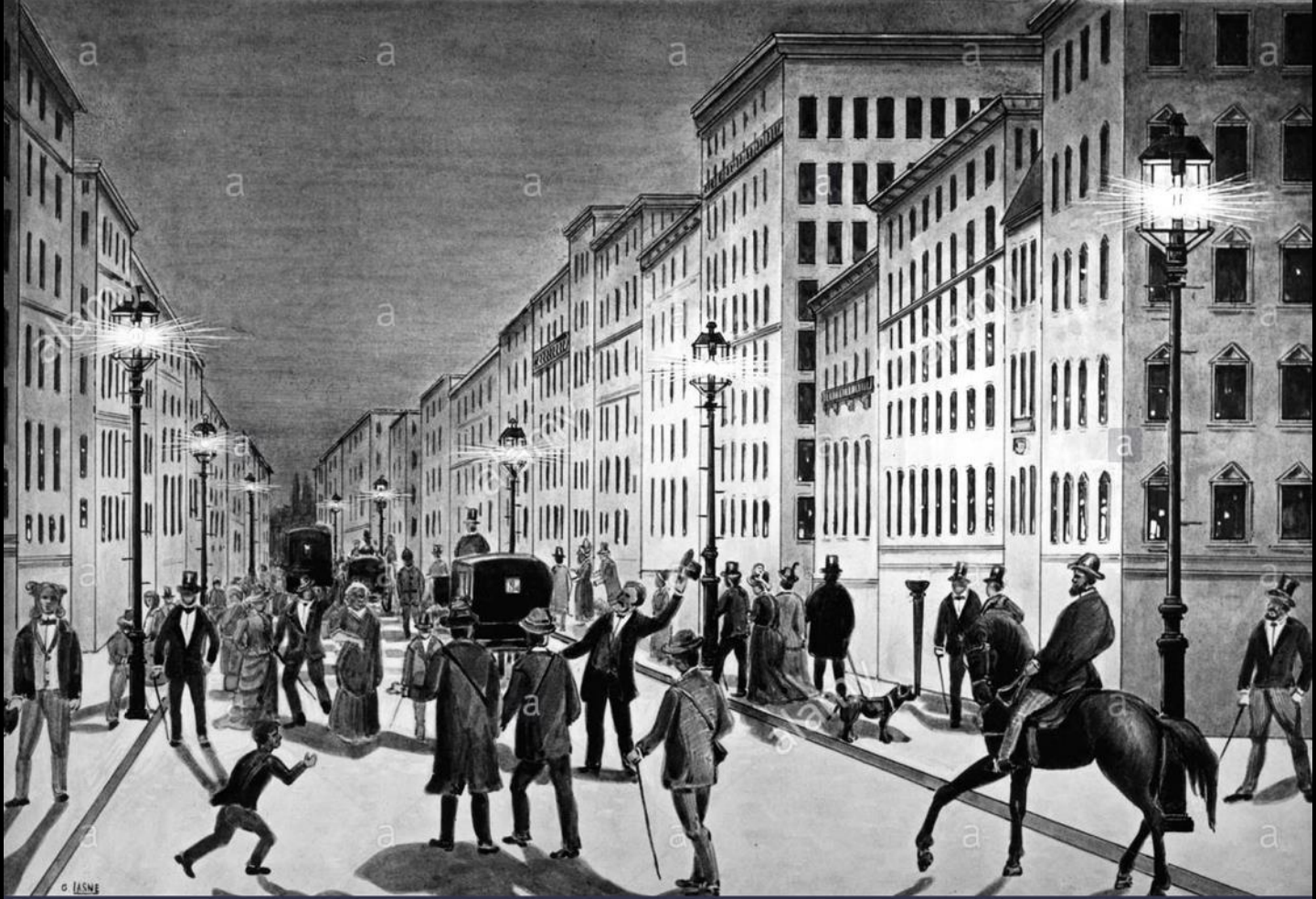
ANVERPIA



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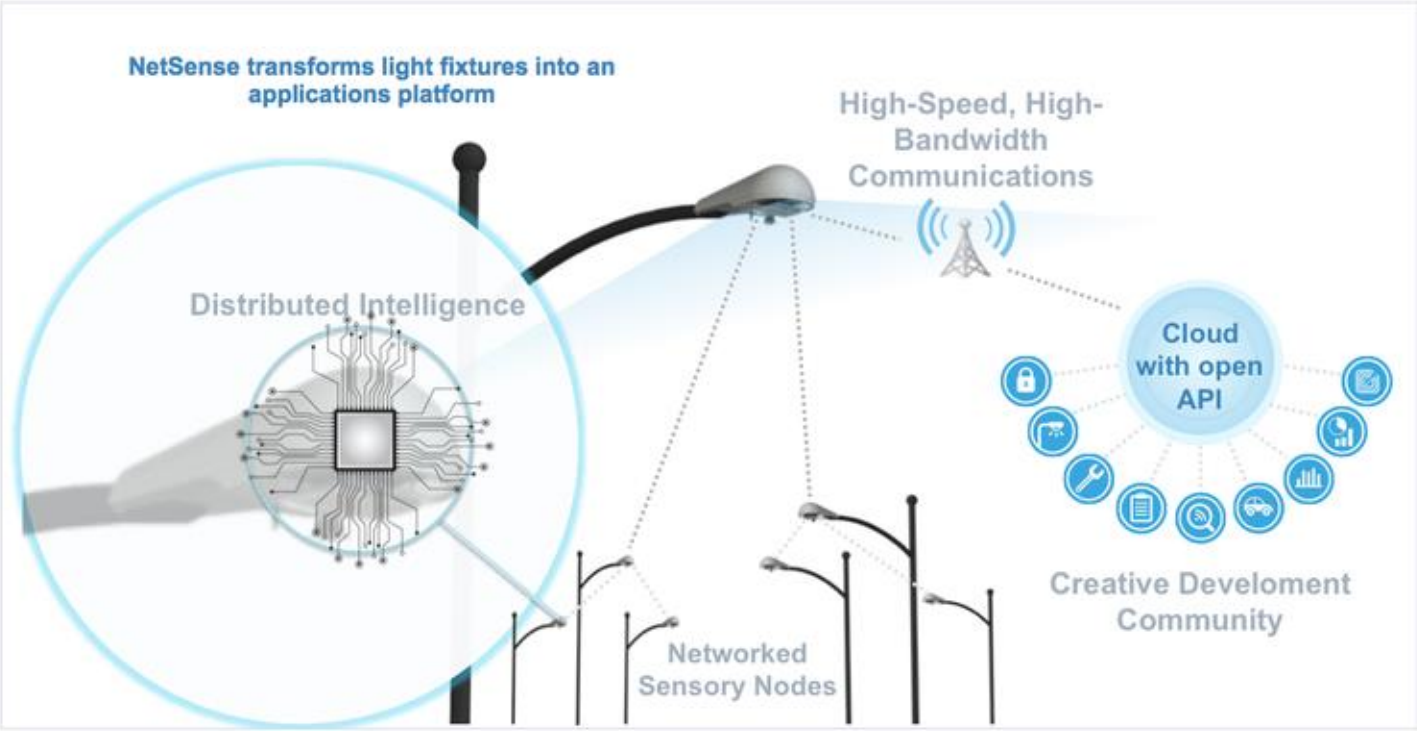
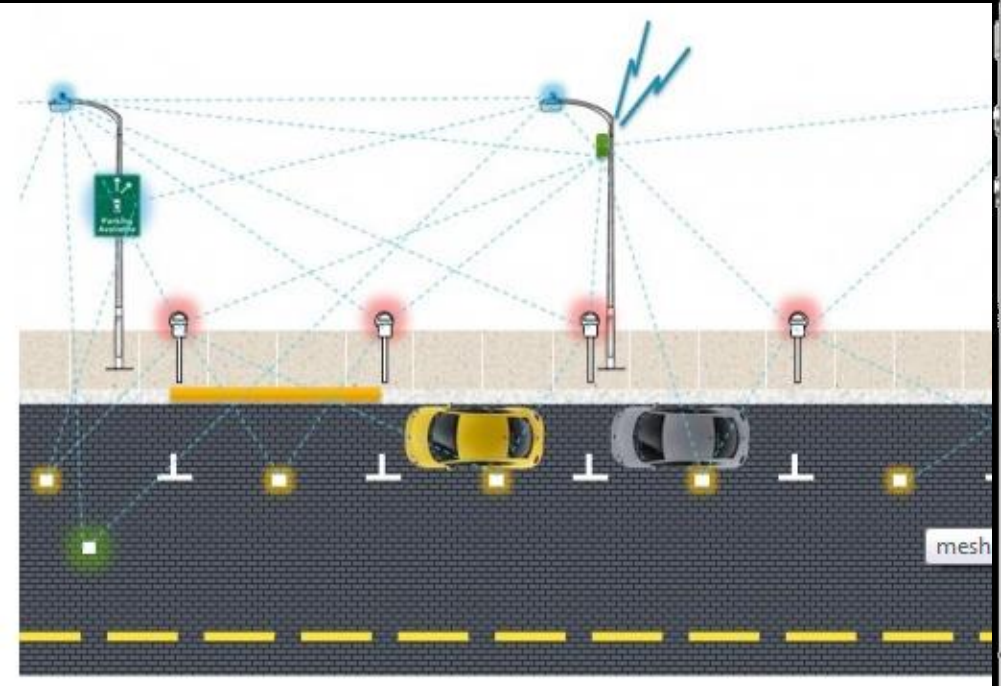
DOLL
Photonics GreenLab


NetSense transforms light fixtures into an applications platform
High-Speed, High-Bandwidth Communications
Distributed Intelligence
Cloud with open API
Creative Develoment Community
Networked Sensory Nodes

Smart Parking



Different types of sensors …

SENSING OUR WORLD…

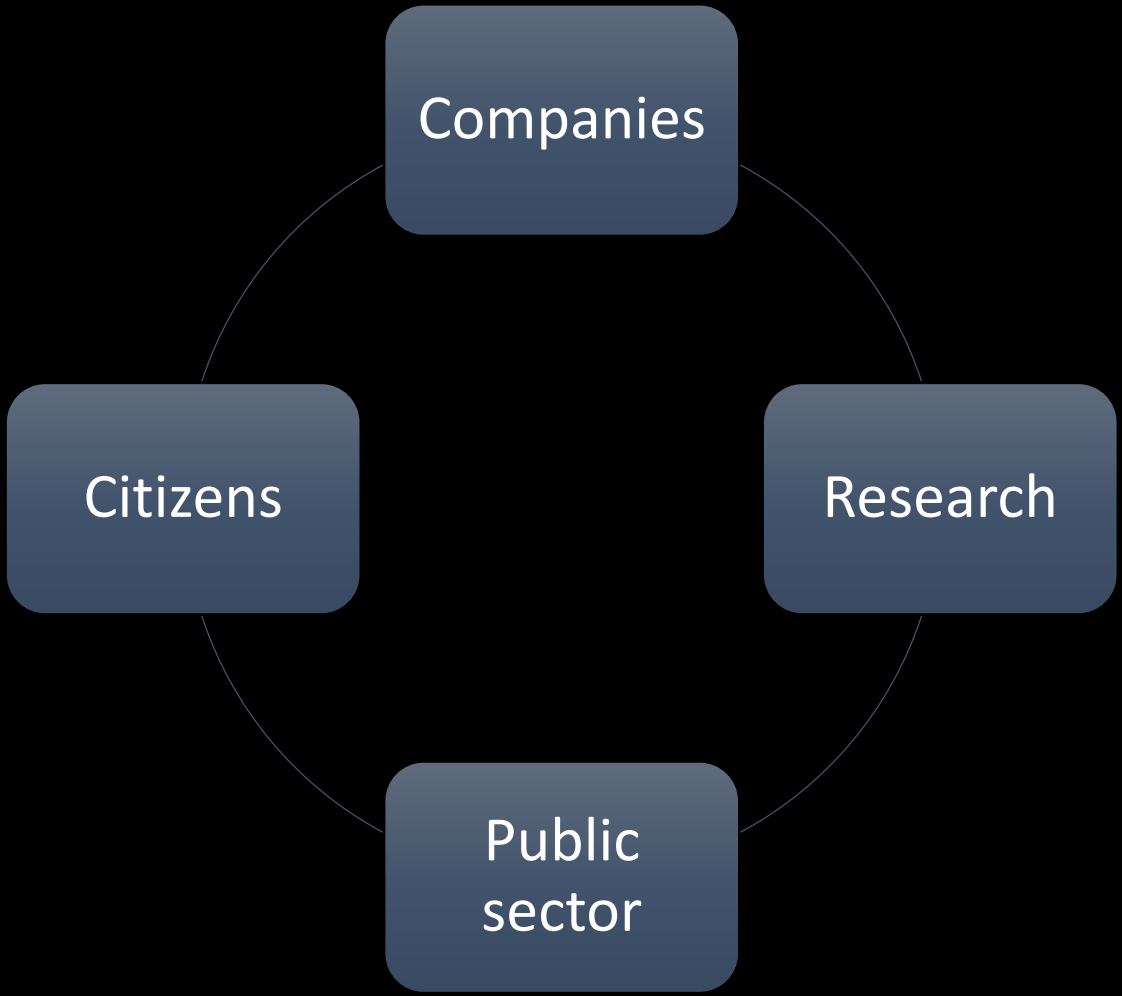
Temperature	Audio	RTLS
Humidity	Video	O2 & CO2
Seismic		UVA/UVB
Ambient Light		Ultrasound
Power Monitoring		Radiation
Motion		Rainfall
		Wind
		Particulate Matter

A clash of scales and timelines

2007

2005

INTERNET OF DATA
BROWSING
ANTWERPEN.BE
SMARTPHONE
CALLING
2min 03sec
INTERNET OF THINGS
SMARTWATCH
INTERNET OF HUMANS


Companies
Research
Public sector
Citizens

05 min 37 sec
BEFORE ARRIVAL
08 min 07 sec
SINCE DEPARTURE
1,214 KWH
GAINED
04 TABLES LEFT
FULLY BOOKED
SAVING
NLOCKED
17 HOURS
PARKING LEFT
432 METER TO THE
CHEAPEST DIESEL
04 RED LIGHTS
ON YOUR WAY
YOU WALKED
YOUR PACKAGE
WILL ARRIVE IN 15 MIN

© imec

Air Quality Monitoring

- Existing CoT project with two bpost vans to measure air quality
- Upgrading to 20 vans at low cost
- Mainly demonstrator purposes and air quality sensor assessment en benchmarking

Proactive Flooding Detection

- Together with Antwerp Fire department
- More frequent flash floods because of climate change

Challenges:

- 24/7 detection
- Learning patterns: prediction
- Combining sensor data with cloud data as e.g. detailed weather reports
- Reports to professionals but also to impacted house owners
- Suggesting appropriate measure to house owners and emergency response teams

Citizen Bike

- Large scale (1.000 sensors/bikes) monitoring of different aspects of bike use in the city
  - Air quality (some bikes)
  - Road quality (all bikes)
  - Trajectory monitoring (all bikes)
- Citizen engagement with City of Things
  - Crucial to get “co-ownership” of Antwerp citizens
  - Smart cities should not be just top down, but also heavily bottom up

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