Smart Cities

Dr Paul Martin

CTO
Established 1989
Privately owned
Based near Cambridge
150 people
Launched spin-outs

1989 - Wireless and electronic design services to companies in defence and Comms
Now – System and product innovation, value creation and delivery in four primary markets; defence, automotive, medical and industrial
2003 Blighter ground surveillance radar company spin-out
2006 Telensa Internet of Things company spin-out
2011 Redtail vehicle tracking company spin-out
Contents

• Background and IoT
• Smart Streetlighting
• Smart Parking
• Competitions setup and running
• Trials taking place
• Business models being sought
Example Business Models Found

• One Example

Telensa
The most widely deployed Internet of Things technology

- Telensa invented Ultra Narrow Band (UNB) 18 years ago
  - Millions of devices shipped, 50 networks
  - Now the de facto standard approach to wide area IOT
  - UNB is active today in over 30 countries

- Applications
  - Smart lighting – over 50% of the UK’s smart street lights have a Telensa controller
  - Smart parking in Moscow, St Petersburg, Shanghai
  - Social housing monitoring
  - Modules to help local app companies join the IOT

Telensa technology is standards based and British
UK areas with UNB already deployed
PLANET – Lighting Central Management System

1. Telecells (on streetlamps, road signs and in bollards)

2. Base station
   - light sensor
   - antenna
   - radio/ controller

3. Central system

4. User interface

internet / intranet
Reasons for Success

• Business Model
  – Money Saving
    • Dim streetlights on an adjustable cycle
    • Repair streetlights in the light
  – Duty of Care
    • Maintenance staff now don’t have to work shifts
  – Inventory
    • Just in time delivery of lamp fitments possible
  – Rollout
    • Cellular plus mesh extension allows full flexibility in rollout
  – Politician friendly
    • Individual streetlights have their own schedule
Savings enabled by trimming
Moscow’s parking system

- 70,000 on-street parking spaces to be monitored – the largest system in the world
- 800 signs showing free spaces
- Congestion reduced by 27%
- Average traffic speeds increased
How it works

1. Magnetic sensor buried in road detects car

2. Sensor sends message to base-station

3. Message forwarded to Central System

4. Information for signs and consumer mobile app
Sensor

- Sensor buried in each parking space
  - 5 minutes per install
- Magnetometer avoids problems of optical sensors, works under rain or snow
- 5 to 7 year battery life
- Recyclable plastics, sensor electronics removable during road resurfacing
How to Enter Industry

• Take opportunities for “extended interview”
  – Summer working (paid)
    Usually interesting and challenging work (companies are trying to attract you)
    Get a feel of what it is to work for a particular market sector and company
  – Early career
    • Grab opportunities
    • Spot opportunities as they arise and offer to contribute
  – Gain experience in different environments
    • Large company vs small company
  – Take opportunities to speak externally
  – Business is more than technology
Thank You

Dr Paul Martin

CTO

Plextek Consulting

paul.martin@plextek.com