HWCommunications

Accuracy & Reliability for E112

21st May 2014

Building Foundations

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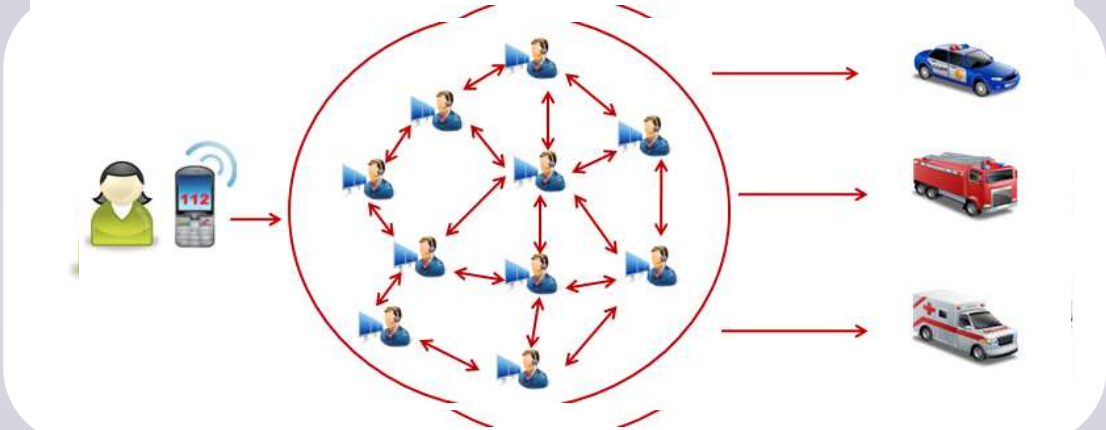
Harmonising E112

HeERO – Harmonised eCall European Project



Mobile Phone Operators - Sweden

SOURCE: http://www.91mobiles.com

Positioning technologies…

Positioning Technologies: GNSS

GNSS:

- Requires additional power-hungry hardware

- Poor performance indoors and within urban environments

- Takes a long time to provide a location-fix from a cold start

- Susceptible to low-level radio interference

Positioning Technologies: Cellular Positioning

Cell ID:
- **Poor accuracy (as low as 10km in rural areas)**

Network Triangulation Strategies:
- **Requires changes to Network Infrastructure**
- **Requires changes to Mobile Devices**

Cellular Data Scavenging:
- **Risk of spectacular failure (Changes to the Network)**
- **Unreliable (Accuracy determination issues)**

Positioning Technologies: 802.11.x

Wifi Data Scavenging:

- Risk of spectacular failure

- Poor rural coverage

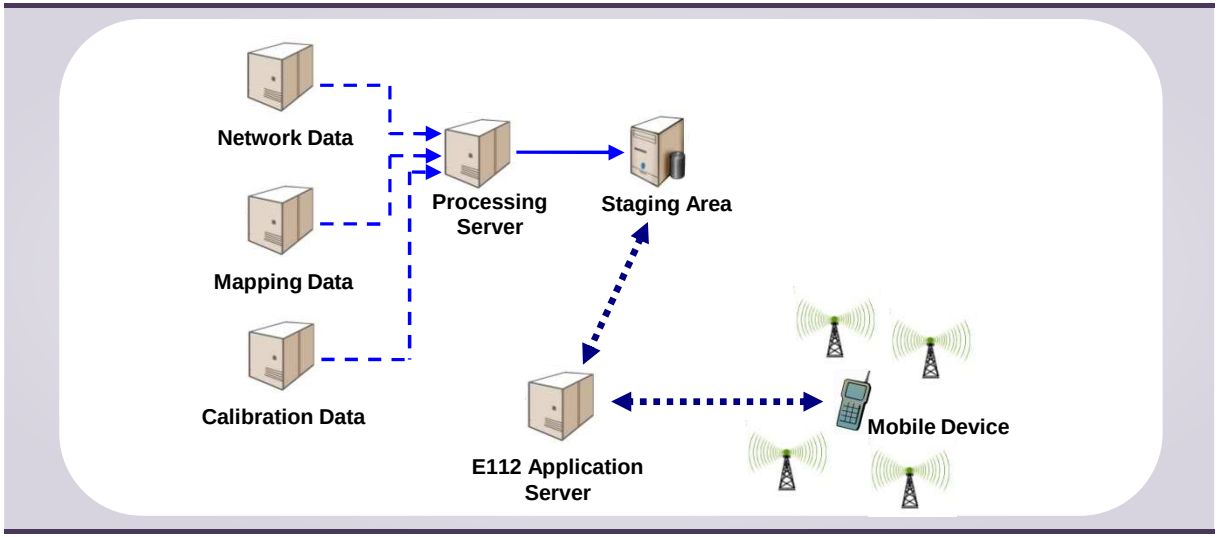
Enhanced Cellular Positioning…

Improving Conventional Network Cell ID

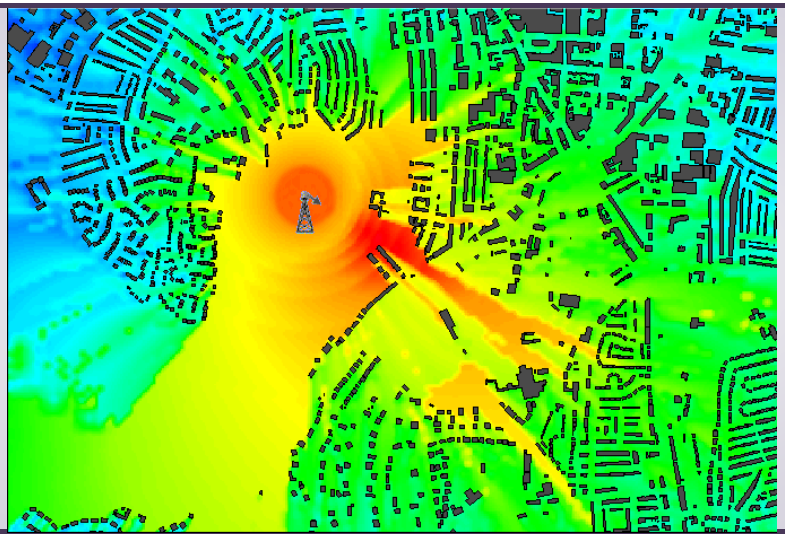
FROM:

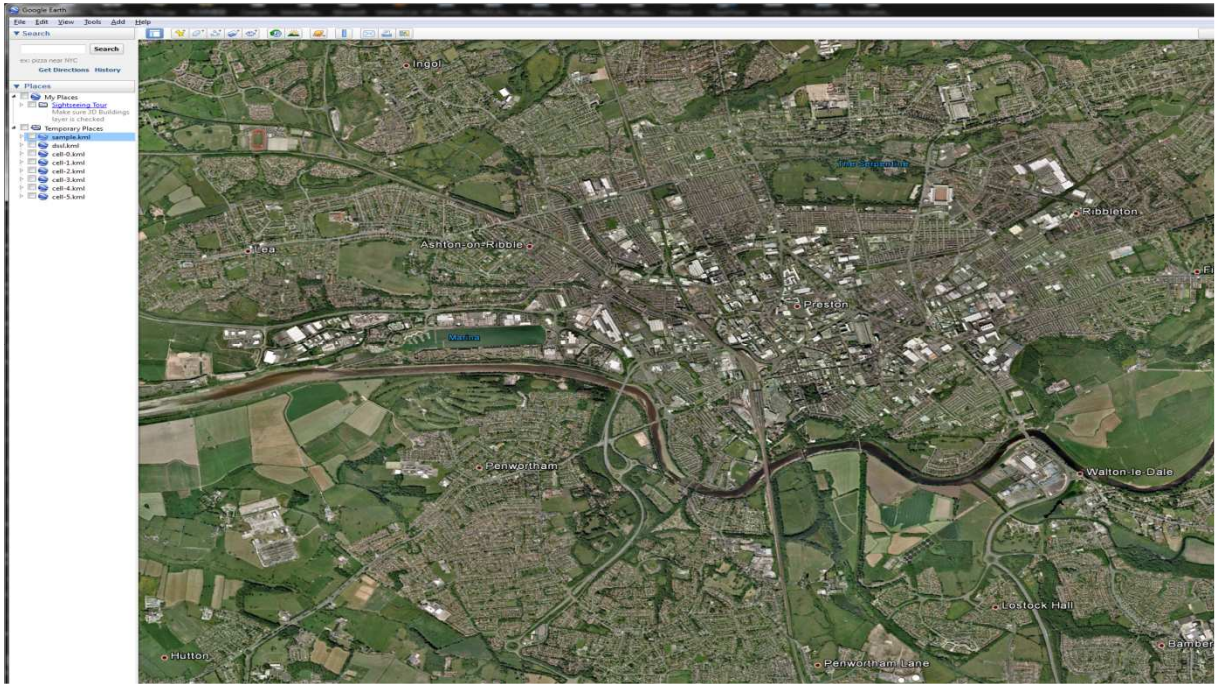
RESULTS FROM TEST ON UK ORANGE NETWORK 2012

System Architecture



Digital Signal Strength Layer (DSSL)

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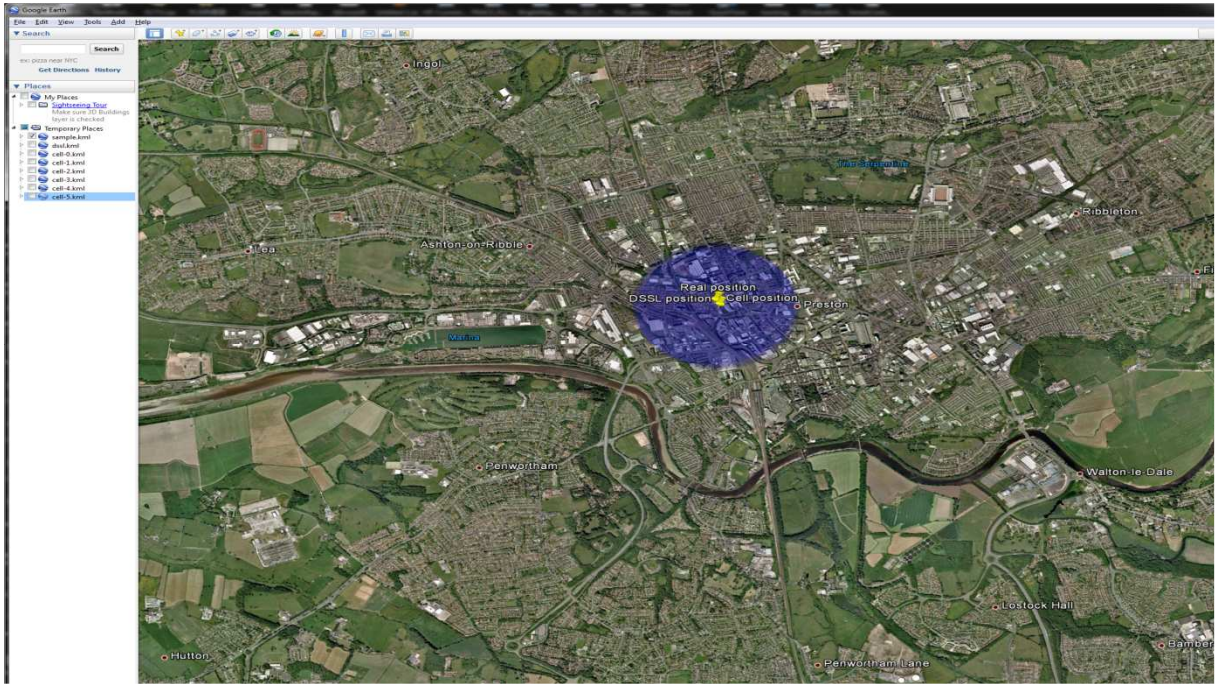
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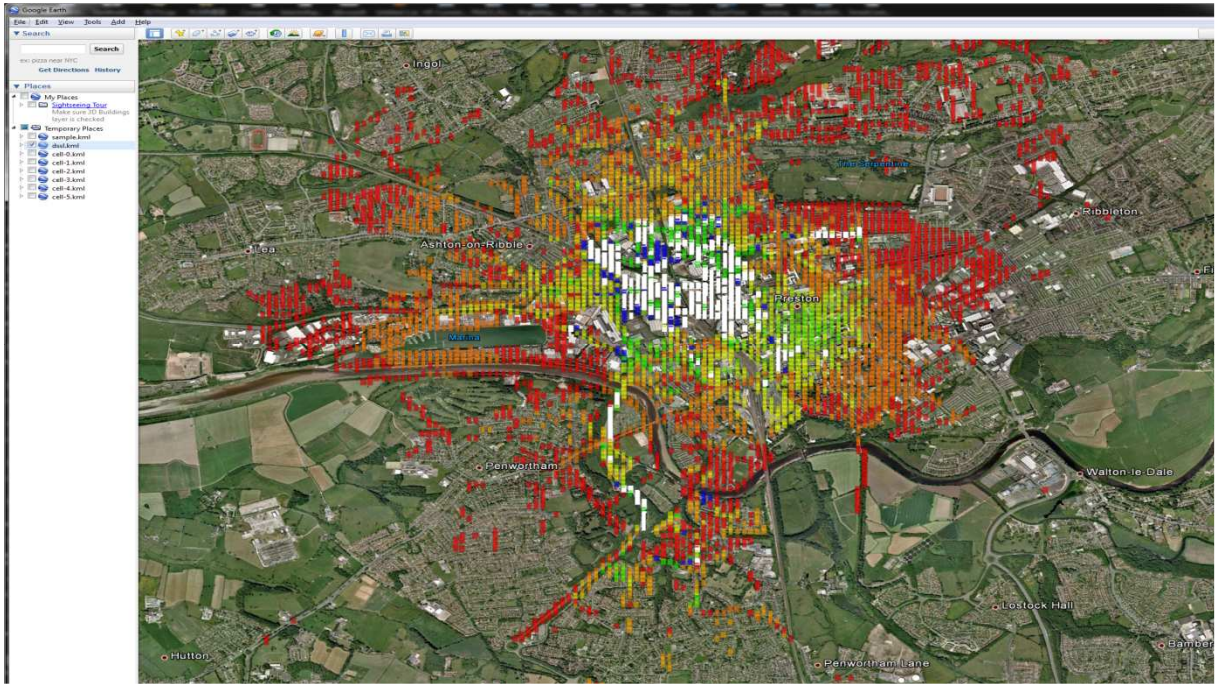
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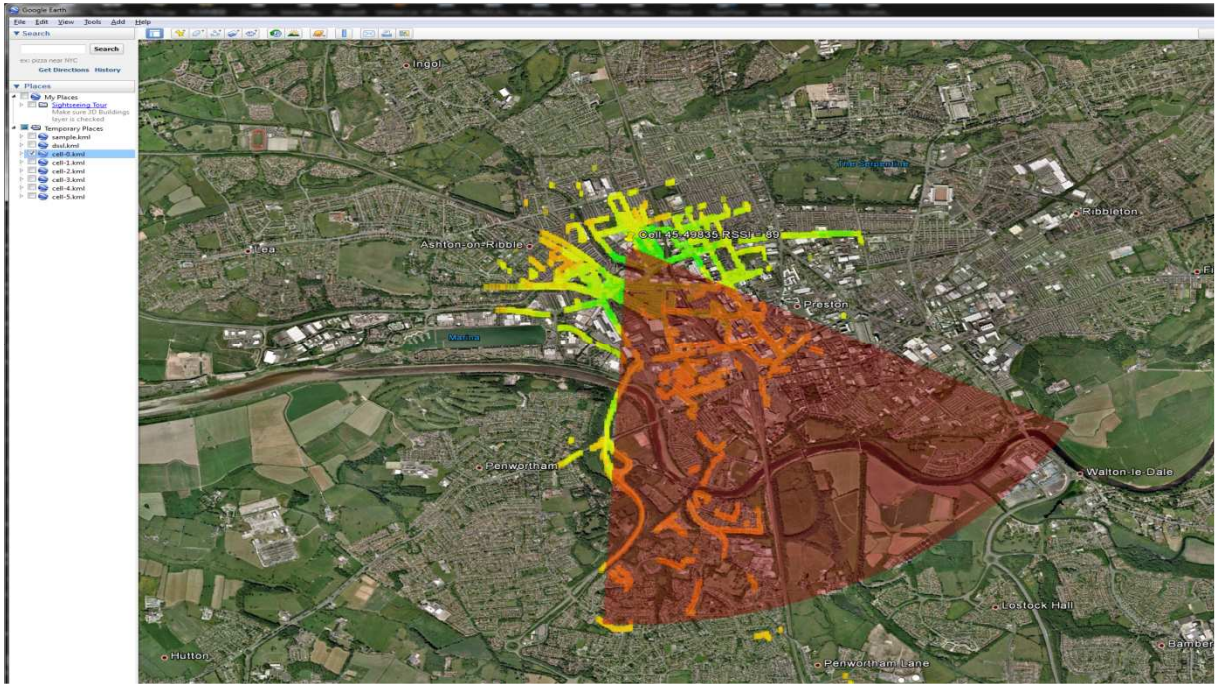
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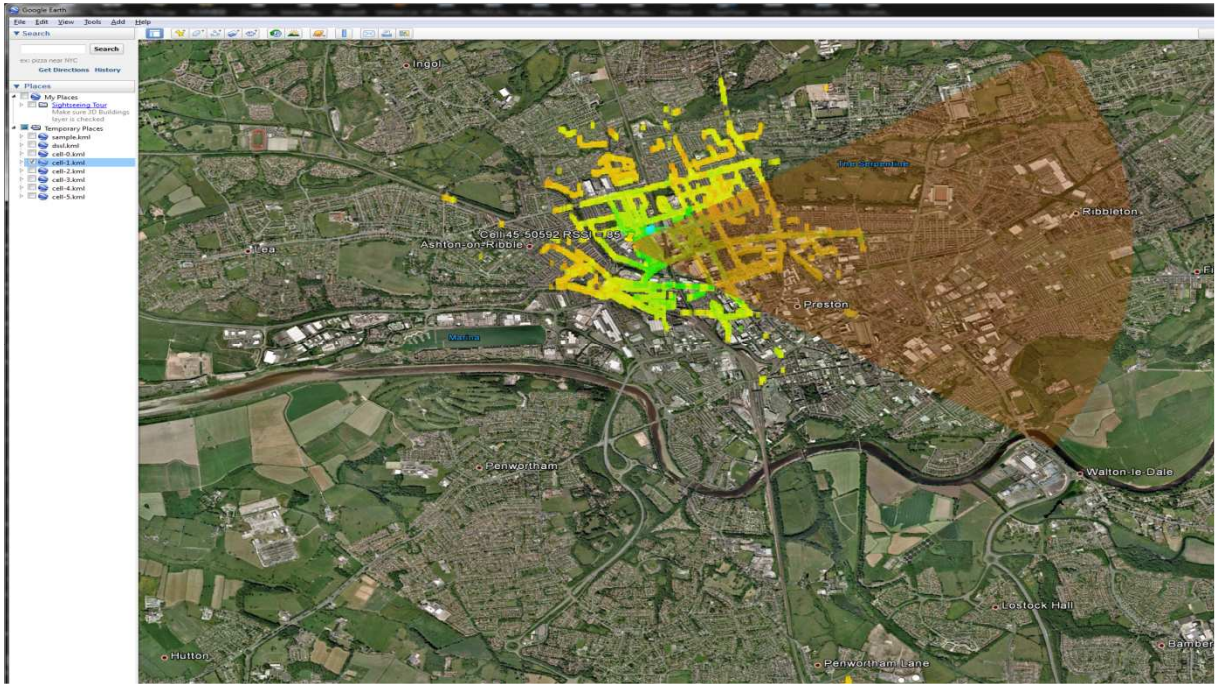
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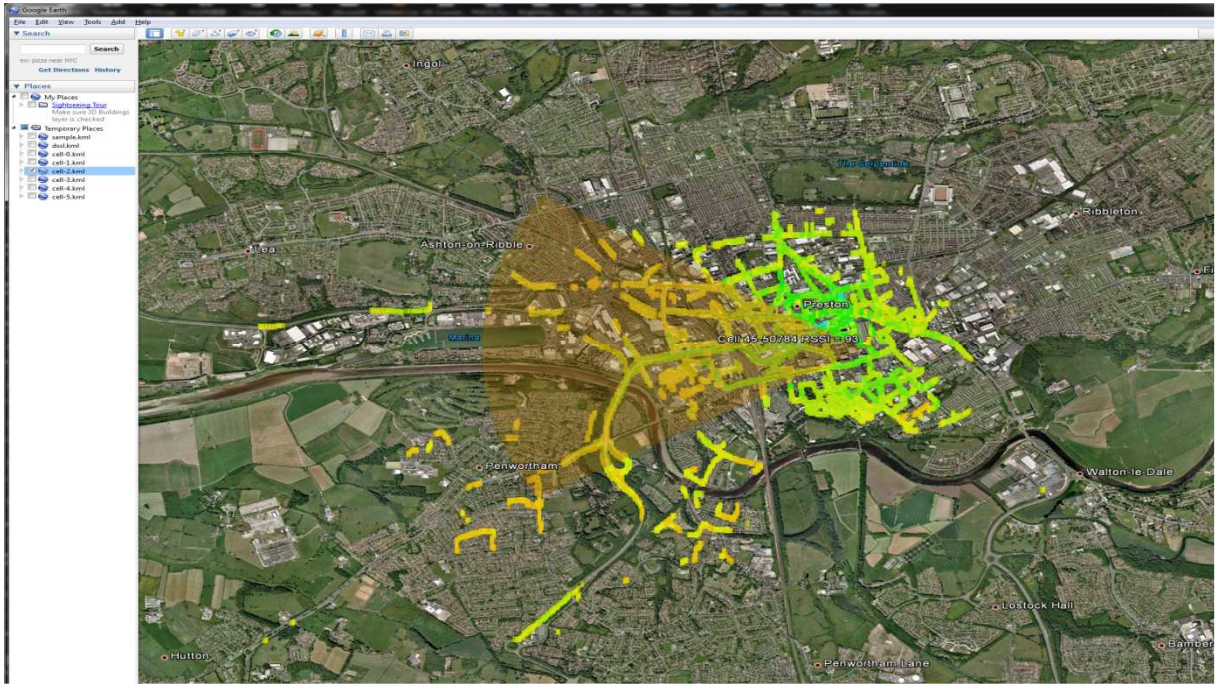
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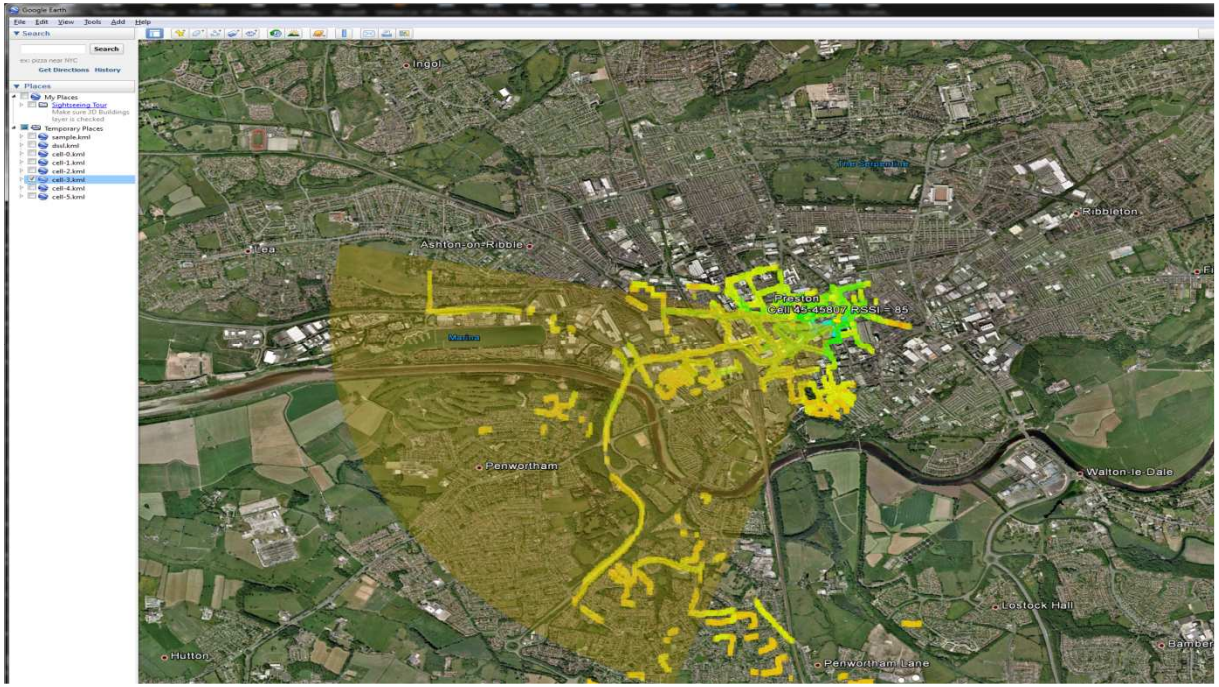
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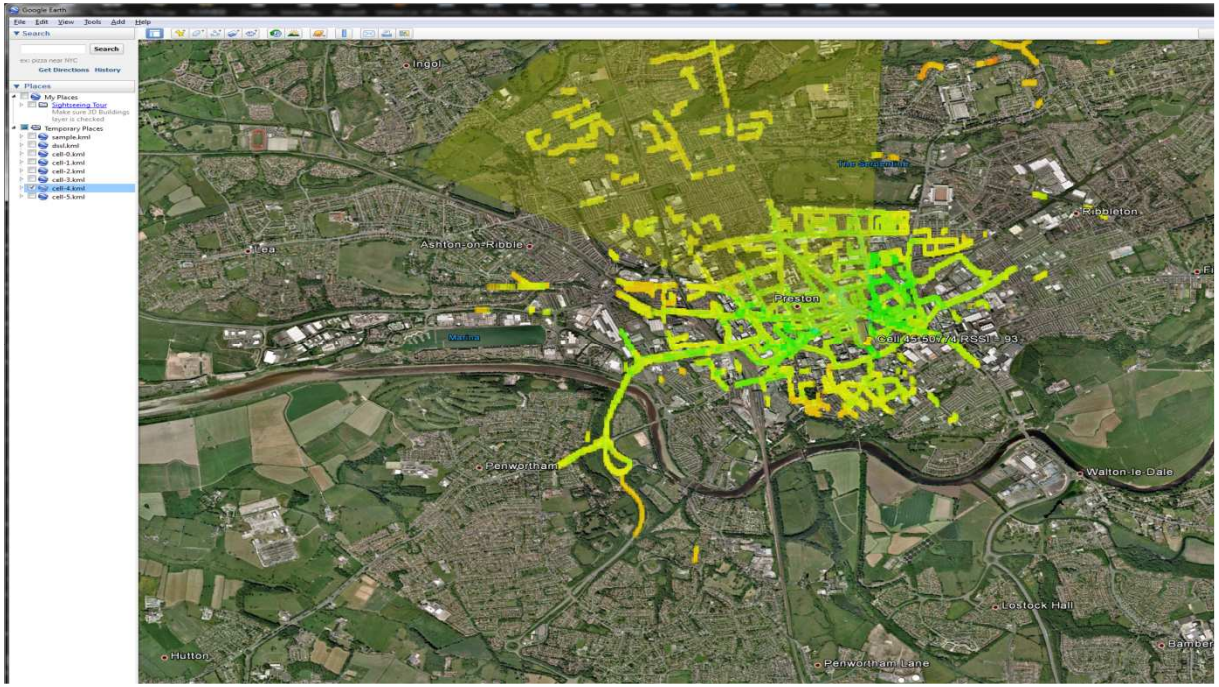
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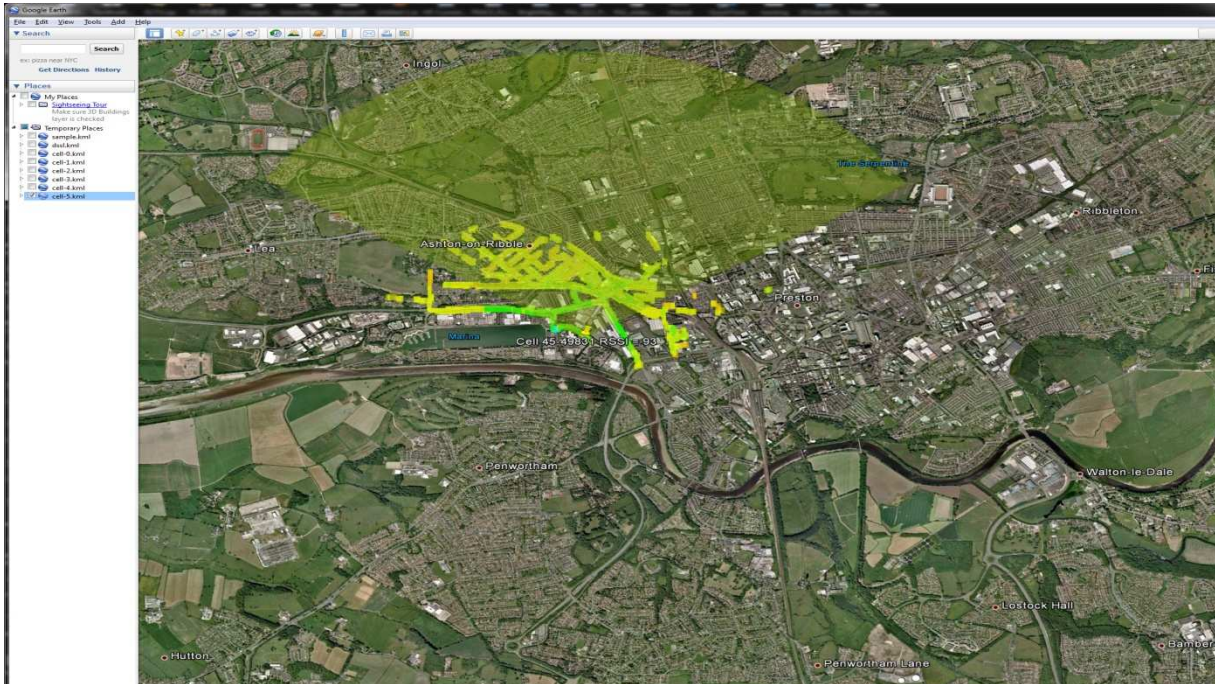
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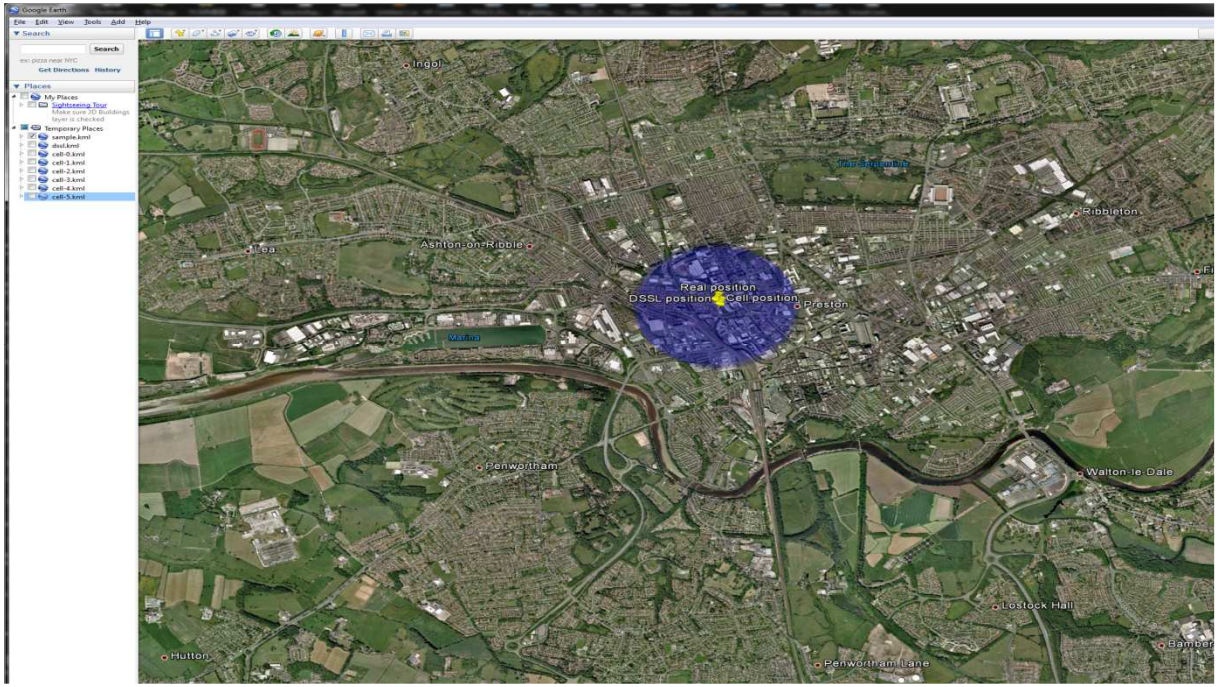
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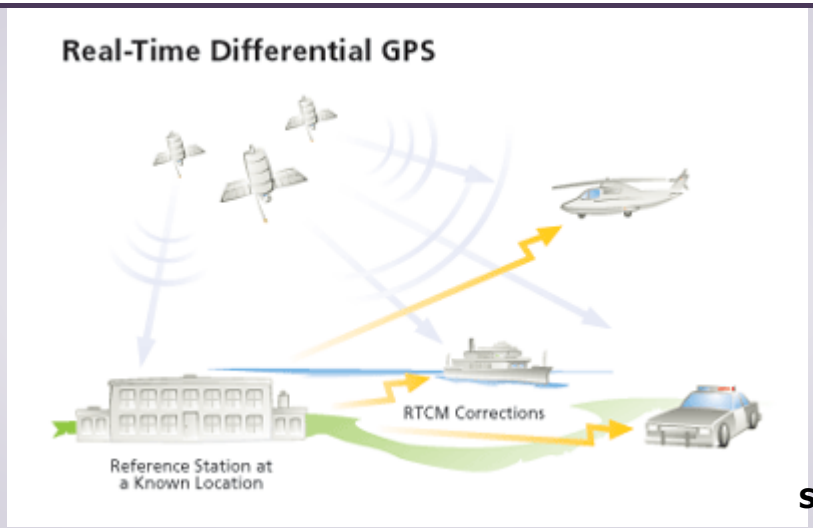
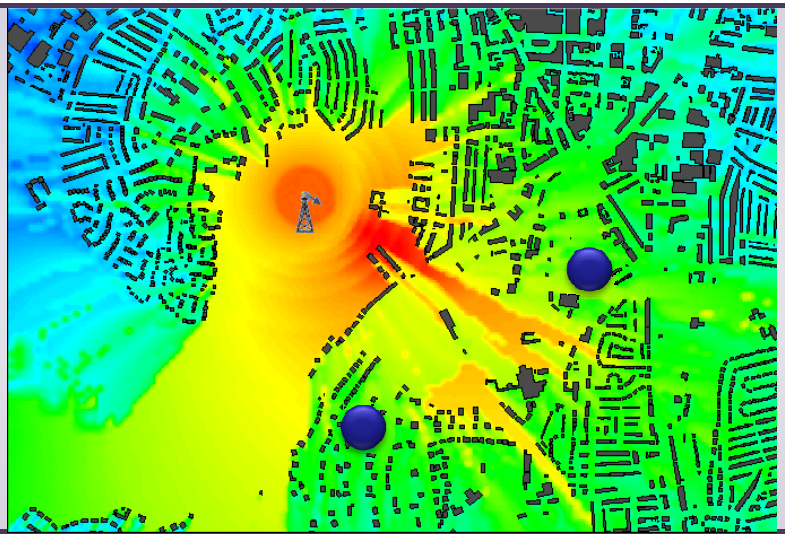
Future Work: Differential Cellular Positioning…

Differential GNSS Positioning



Source: ESRI

Differential Cellular Positioning



Differential Cellular Positioning: Performance Gain

GPS:

15m → 10cm

Cell ID:

800m → ?

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HW Communications Ltd specialises in product development and consultancy for the mobile internet.