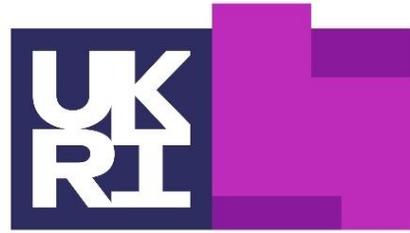


8. Signalton & Ginger





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UK

GINGER



Smart City Sensing by Connected Innovative Vehicles

R&D partnership in the Smart Cities sector

Paul Hodgins, Director, Ginger
Nail Cadalli Ph.D., Founder, Signalton

Who we are

GINGER

Sector: Shared micro e-transport

Specialty: Service provision of shared, small and micro electric vehicles, an emerging and key part of future city transport

Size: 10

Team's experience: Large operations, local government, shared transport, branding, new companies

Established: 2018, London



Sector: Smart digital systems and applications.

Specialty: Electronics, embedded SW, algorithms, signal processing R&D.

Size: 5 (core team)

Team's experience: 120+ years of engineering

Established: 2017, Ankara



Why?

Smart City Sensing by Connected Innovative Vehicles

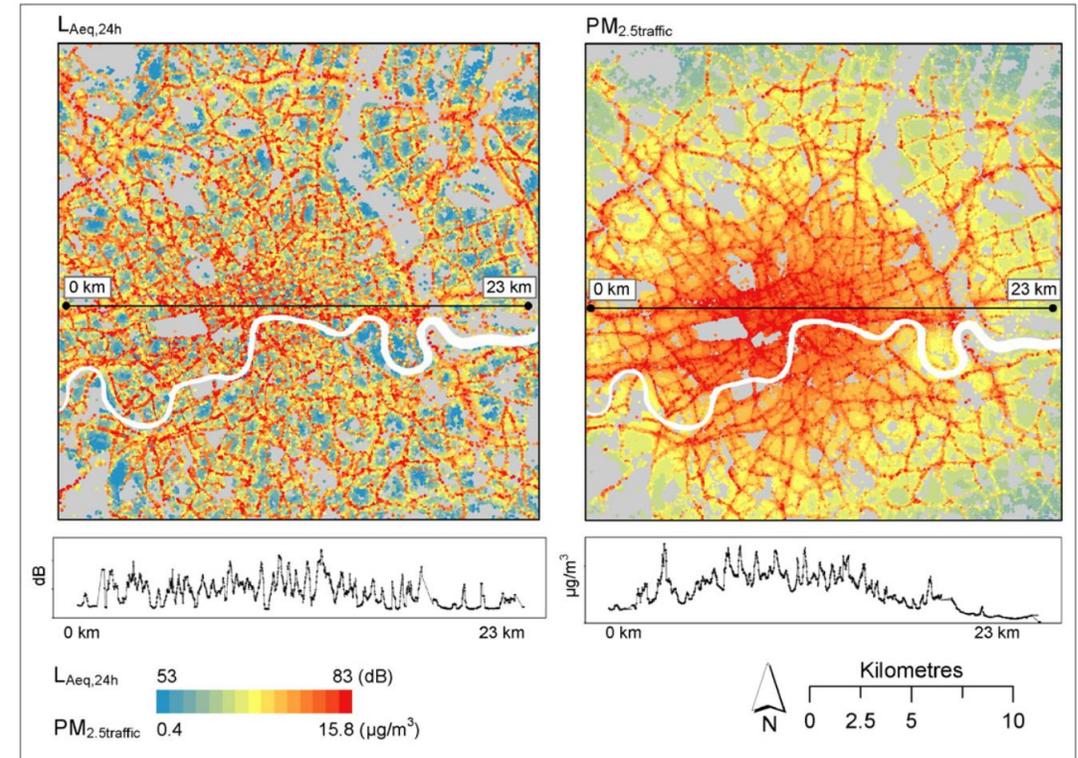
- **Clean, shared small/micro vehicle transportation:** Emerging as a key element to replacing car journeys in our towns and cities; the answer to urban air/noise pollution; smart vehicles with powerful batteries.
- Measuring the pollution is the **first step towards preventing** it.
- As Ginger and Signalton, we have a solution to measure pollution in **each and every street** of a city.
- Valuable data for **local authorities** as well as **citizens**.



The problem:

Air / Noise Pollution and Its Monitoring

- **Major problem** in metropolitan cities mostly due to traffic.
- Conventional monitoring via sensor stations at **fixed locations**.
- Such sensor stations deployed only **far apart** due to high cost.
- Resulting in **scarce** data.



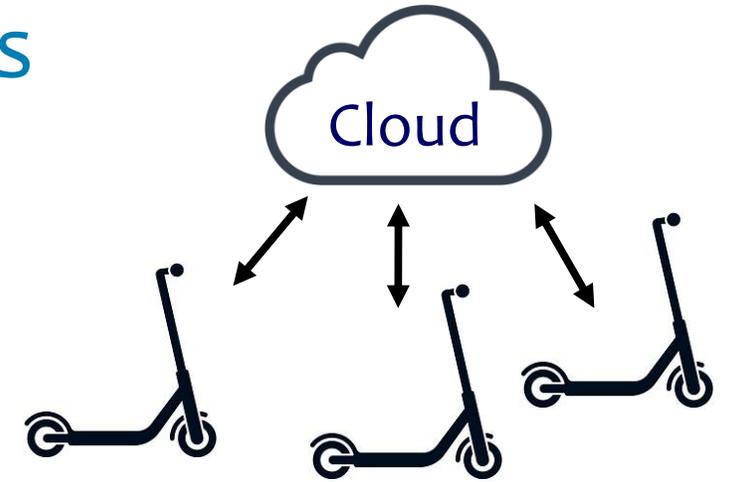
Fecht et al, “Spatial and temporal associations of road traffic noise and air pollution in London: Implications for epidemiological studies”, Environment Intl. 88, pp. 235-242, 2016.



The solution:

Smart sensing using connected vehicles

- Connected vehicles act as a **mobile sensor network** throughout a city.
- Traversing **each and every street** of a city. Impossible with fixed sensor stations.
- **Air quality and noise sensing** on top of **location tracking** and **motion detection** of the vehicles.
- **Traffic status** can be deduced from pollution data.



Shared electric vehicles
+ smart IoT



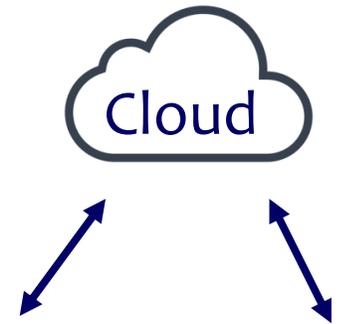
The technology

SigMote: Edge-computing sensor platform for

- sensor data collection,
- real-time embedded signal processing,
- wireless connectivity.
- **40x** the computing power of a usual IoT device.

SigMote to be used as IoT device for **PoC**.

Bespoke HW design ongoing for final product.



SigMote by Signalton
(Electronics, Algorithms,
Embedded SW)



Competitors / Competitor analysis

Sensor Manufacturers

- Static air and noise quality monitors.
- **No mobile use case** adapted on micro e-vehicles.

Shared fleet operators

- Lime, Bird, and Uber developing their own vehicles in-house.
- Could add additional sensors, none yet.
- Focused on **minimising e-vehicle cost**.

Vehicle Manufacturers

- Segway, Acton, Okai: own IoT devices.
- Could add additional sensors, **none yet**.
- Could ultimately be customers.

HOW WE ARE DIFFERENT

- **First implementers** of mobile pollution monitors on an emerging vehicle type.
- Already have a **fleet provider**.
- Have an **advocate** with local authorities and commercial partners.
- Ultimately other fleet operators will be customers. The **potential market is huge** (many millions of vehicles).



Traction or market opportunity

- **The potential market** for IoT devices on shared e-vehicles: Millions of vehicles/sensors in Europe alone.
- **Early benchmarks:** 20k micro e-vehicles in Paris, 13k shared bikes in central London.
- Paris + London: 2 million cars. A huge scale of **trip and vehicle replacement** is coming.
- Number of shared e-scooters, e-bikes, e-mopeds, e-cargo bikes to **grow exponentially**. We are right at the beginning of the market.
- We already have a **dedicated customer** in Ginger who will also help create the market.
- As local authorities, app developers, and others **see the value** in the data the demand will grow further.
- We are **highly scalable** as we are able to outsource production; we will then need to grow product development, customer service, and sales.



Timeline

Signalton
Technology

Est. 2017

GINGER

Est. 2018

Partnership,
Aug. 2019.

Innovate UK
Newton
Fund

Demo prototype
2020/Q4.

Hardware
optimization
2021/Q1



SigMote platform
real-time demo
Mar. 2019



Started developing
SigMote applications
(incl. air/noise pollution
measurement),
Oct. 2019.



Field testing
for PoC,
2021/Q1.

MVP and market
penetration
2021/Q2.



Innovate
UK

TÜBİTAK: Scientific and Technological Research Council of Turkey
KOSGEB: SME Development Organization of Turkey



What we need

- Signalton is being funded partly by a TÜBİTAK grant and has started development already.
- We need
 - Funds to help accelerate the development - £250k
 - Funds for the first phase of production - later stage
 - Funds for deployment and marketing - later stage



Thank you!

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