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TIME: a Transport Information Monitoring Environment

*Creating an open platform for
capturing, processing, and
delivering transport-related
data and applications*

The premise

**Better data leads to
better transport**

The challenge

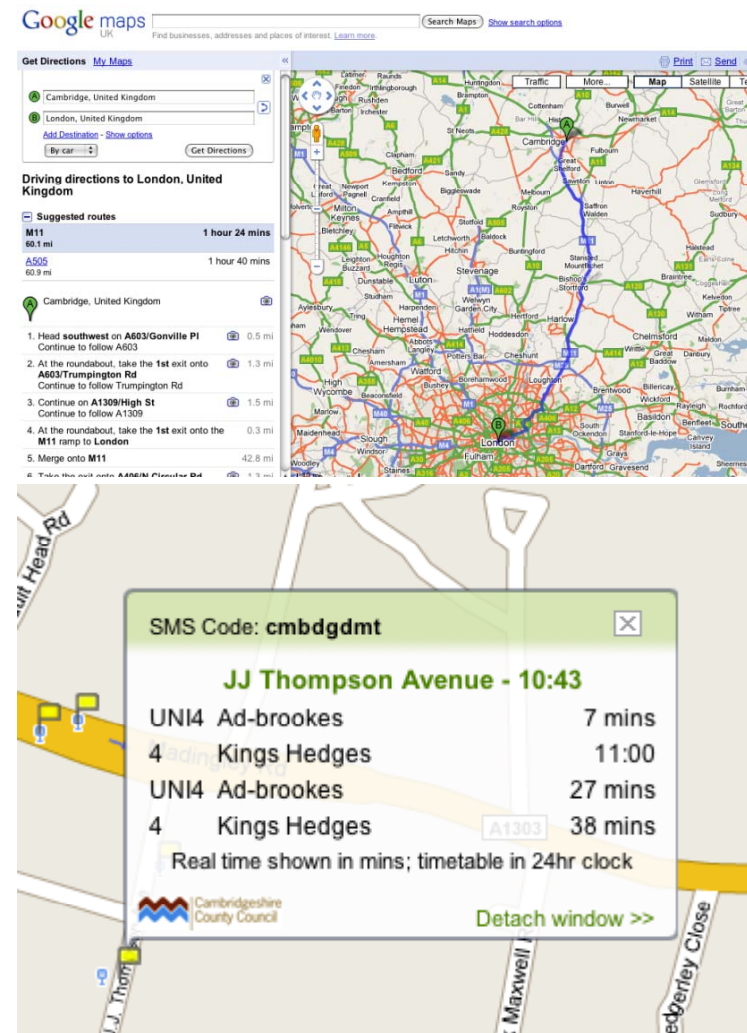
We know how to collect data and there is lots out there



The challenge (cont'd)

We're starting to learn how to build applications

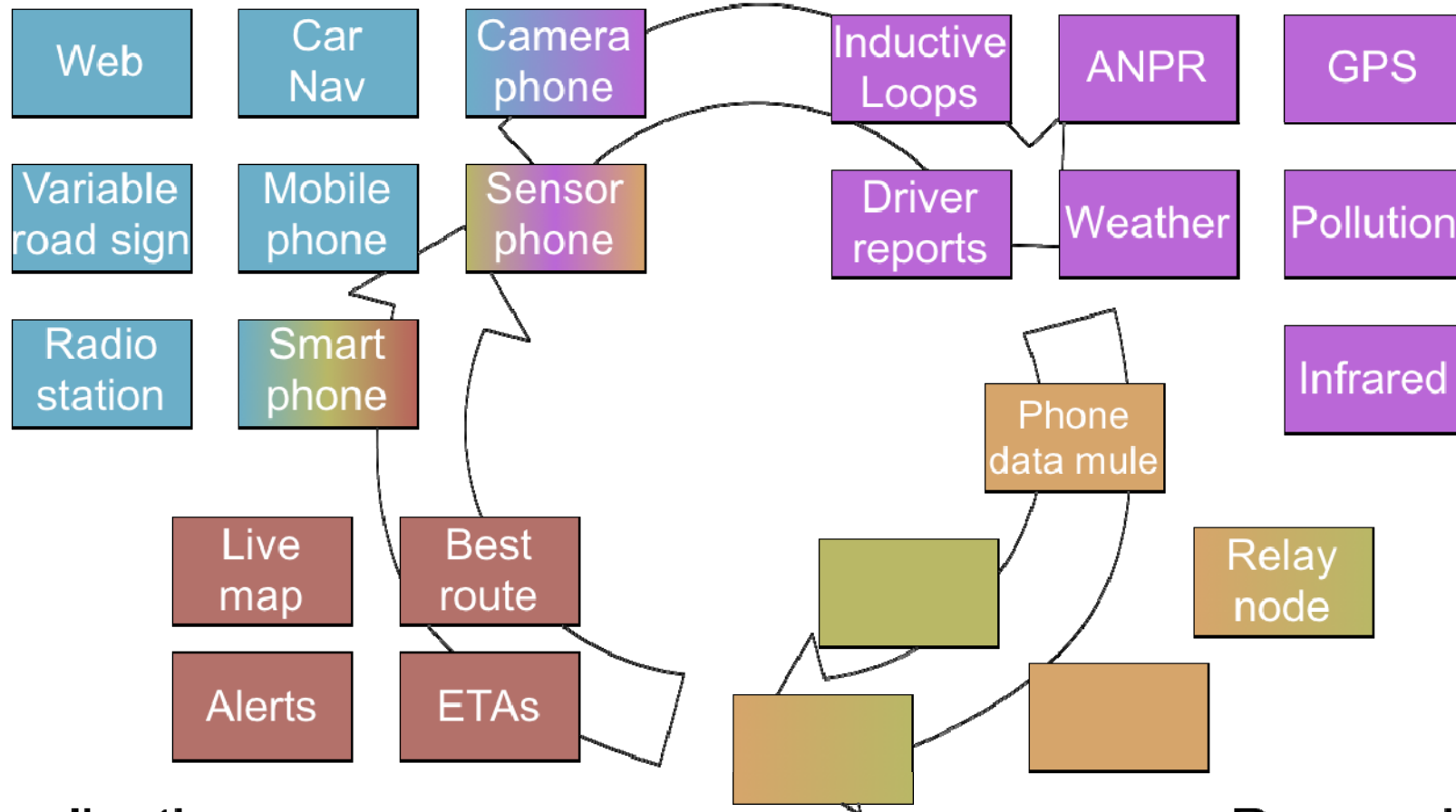
and people are building more all the time



The Vision

Displays

Sensors



Applications

Processing

This means...

- A marketplace for data
- Application designers should innovate, not collect data
- Worry about sensors as much or as little as they want to

Contributions to sensing

- Sensor, gateway, and relay nodes
- Application of infrared sensing to vehicles
- Efficient transmission of sensor data using spatial and temporal correlation

Data transmission (the middleware)

- High-bandwidth streams
- Dynamic reconnection and reconfiguration
- Easy support for a library of processing modules

Data having commercial value

- Simple machine-readable encoding of policy
- Focus on monitoring compliance with data use agreements
- Allow easy integration of humans suspecting violation or taking steps to solve it
- A straightforward route to data provenance

Personal information

- Images, video, phone numbers, ...
- Protecting personal information is tricky
- We eliminate it as much as possible
- Allow for assertions that are opaque to outsiders

We end up with

- Application logic being insulated from data collection
- New sensors, same applications
- Data may be stored and retrieved
- Applications may be built quickly
- Data having commercial value are kept secure
- Personal information is managed appropriately

Case Study: Academic/Commercial Collaboration

- Benefits
 - Real data
 - Real requirements
- Challenges
 - They have problems to solve
 - Organisation inertia can be bewildering from the outside