

Visualising real-time data with an interactive iPad video wall

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Video walls are frequently used in control rooms to display real-time data in a digestible way. Displaying often complex data feeds across multiple screens allows the operator to be alerted quickly to any potential problems or changes.

As a population we are increasingly generating a deluge of data during our daily commute, whether it be through our travelling habits or the air quality in certain locations around the city. By understanding how we move around the city we can get a sense of how smart the city has become.

The iPad visualisation wall was created to build around the control room concept and display the citywide data we gather via the TALISMAN City Dashboard¹ in an interactive way. It also provides a showcase of some of the data related visualisations we have created within Centre for Advanced Spatial Analysis (CASA) at UCL.

The iPad wall is constructed from an array of 12 iPads in a 4x3 configuration mounted in a custom built wooden frame, which is small and light enough to be portable. Each iPad is connected, via WiFi, to a single centralised server, which issues commands to each device.

Data displayed on the wall updates on average every 2 seconds with feeds configurable from an array of options. The wall can also be controlled remotely via an iPhone, allowing a central user to not only change data but also enable a mode where a video can be shown across all 12 iPads simultaneously.



Photo: iPad wall displaying real-time data about London air quality, finance and public transport.

The iPad Wall is currently (April 2013) being used in the London Mayor's Office to display real-time data on air quality, finance and the state of London's transport systems. The touch interface offered by the tablet adds a new dimension in Human Computer Interaction, by allowing people to interact with the data visualisations. In its current configuration the wall allows users to interact with the data and discover what has happened within the city. As the user touches an individual iPad, the view flips the current count panels around to display a graph of bus numbers, tube numbers or air quality throughout the last 24 hours. The daily variation can be viewed through these graphs and new discoveries about how the city works can be seen dynamically as it happens.

The wall has been built to augment and visualise the real-time data that is currently being collected and analysed through the TALISMAN node of NCRM. Another two iPad walls are currently under consideration to move into the public space of the Greater London Authority, this would include the ability to not only display but also collect data via the TALISMAN SurveyMapper system. The design and development is also being considered for a future exhibition.

References

1 <http://www.citydashboard.org>

Podcast: Big Data challenges for social scientists

The advent of a wide range of new data sources and digital research methods has created a plethora of opportunities for social science researchers to undertake innovative and impactful research.

At the TALISMAN node of NCRM, researchers are using new data and technologies to look at a range of geography-related real world issues, with the aim of generating new and powerful methods to help address key policy questions.

The iPad wall displaying geography-related real-time data (see article above) is an example of such project, which is already being used in the London Mayor's Office.

In this podcast 'Big Data challenges for social scientists' TALISMAN Director Professor Mark Birkin (University of Leeds) talks about some of the node's work and explains why he wants more researchers to seize the new research opportunities available to them.

The podcast 'Big Data challenges for social scientists' is available on NCRM website in <http://bit.ly/TDAcsF> and on iTunes in <http://bit.ly/WeDuni>