Graham Rivers-Brown: putting radio traffic reporters out of business

Beating GRIDLOCK

The holy grail of traffic management

TRAFFIC AUTHORITIES in Australia and overseas are trialling a new vehicle detector system that identifies changes in the Earth's magnetic field at intersections to detect passing or stopped cars – an alternative to the wired inductive loop detectors now in place at most traffic lights. The new system then uses radio communication to transmit the data to roadside traffic controllers.

La Trobe University graduate in computer science and electronic engineering Graham Rivers-Brown has invented a battery-powered device for detecting traffic gridlock that he says could 'piggy-back' on this new wireless system.

He estimates that the device, the size of two and half matchboxes, can do it for $120 a vehicle, plus $1,000 per intersection, and that traffic-weary motorists would be willing to bear the cost. It works by using global positioning systems (GPS) installed in vehicles to transmit data about their location and speed to wireless data access points at intersections and other high traffic locations.

Transmitted via a 2.4GHz wireless radio network, the data is interpreted and displayed on a computer screen at a remote location to reveal how the traffic is flowing at all those points under observation.

Traffic authorities could then divert or remobilise the traffic to break the gridlock – by altering electronically-controlled speed limits on freeways, abbreviating red-light waiting time at intersections, or other traffic management processes.

The shorthand term for the Rivers-Brown gridlock cure, which he developed for his 2007 final year electronic engineering project, is *Smart Intersections + GPS*. While Australian traffic authorities have yet to see the system in action, Mr Rivers-Brown recently illustrated how it works for a television news report, using a laptop computer and Google Earth software.

In a vehicle fitted with GPS receiver, a data-processing device and a radio transmitter, he drove at varying speeds from the University's main Melbourne campus at Bundoora through busy suburban streets – interpreting the journey in real-time on a Google Earth map on a laptop computer. The system recorded the car's location every second of its journey.

Although he designed his ingenious battery-driven system in response to gridlock, Mr Rivers-Brown sees even greater potential, given the accelerating uptake of driver-controlled satellite navigation aids like TomTom or NavMan.

He says the GPS data-collecting component might very easily be integrated into these increasingly popular commercial units – and who would not want an in-vehicle navigation system that tells you where not to go?

'For $100 or so, I'd certainly want one,' he says. 'You'd get live traffic information without anyone having to go through the data and interpret it. The system could do all of that for you, and then if it is integrated with your SATNAV it could automatically tell you to go this way instead because it's quieter.'

Mr Rivers-Brown's project supervisor, Mr Peter Stewart, says his student's application of computer science and electronic engineering skills are bringing us closer to the 'holy grail' of traffic management: dealing with the flow of traffic in real time, and adapting the system to optimise the flow of traffic.

'An ideal system would "know" every vehicle's origin, destination, and route taken. Graham's system promises to be a valuable step towards achieving that,' he said.