Latin America is composed of emerging economies. Unfortunately some manufacturers present to this market "low cost cars" that offer low to no safety levels. Recently Latin NCAP presented two price comparisons that showed that the so called "low cost" models other than offering very low safety levels do not seem to be so "low cost" compared to European models with high basic safety.

The CITI Project - Australia's first Cooperative Intelligent Transport System Test Facility for safety applications

by John P Wall [1], Paul Tyler [2]
[1] Manager for Road Safety Technology, Centre For Road Safety, Transport for NSW, PO Box 477, Wollongong NSW 2500
[2] NICTA Kensington Laboratory, 223 Anzac Parade Kensington NSW 2033

What are Cooperative Intelligent Transport Systems and how will they benefit Australians?

Cooperative Intelligent Transport System (CITS) is the term generally defined as a form of Intelligent Transport in which information is shared amongst vehicles or between vehicles and roadside infrastructure such as traffic signals.

Sophisticated CITS applications have been developed that increase the "time horizon" as well as the quality and reliability of information available to the drivers about their immediate environment, other vehicles and road users. This has the potential to greatly improve road safety, reduce greenhouse gases and improve network efficiency.

Whilst a number of communication platforms such as the 3G or 4G mobile phone network can be used to carry communications between vehicles and roadside units, specific dedicated short range radio channels in the 5.9 GHz area of the radio spectrum are planned to be used by most major jurisdictions overseas. In Australia, use of the 5.9 GHz band is currently embargoed and the Australian Communications and Media Authority (ACMA) has recognised its future potential use for CITS, however a final determination on the use of the spectrum and its licensing is yet to be made (NTC 2012).

The road safety benefits of Cooperative ITS

The United States Department of Transport in their white paper on CITS has estimated that up to 82 percent of all crashes by unimpaired drivers could potentially be addressed by vehicle to vehicle (V2V) technology. If V2V were in place, another 16 percent of crashes could potentially be addressed by vehicle to infrastructure (V2I) technology.

Austroads conducted a study into the potential road safety benefits of vehicle to vehicle dedicated short range communications (DSRC) in September 2011. The report found that the current total of approximately 29,000 annual serious casualties could be reduced to between 18,500 and 21,500; a reduction of 25-35 per cent (Austroads 2012). A serious casualty includes road users that are killed or seriously injured as a result of a road crash.

Other benefits of Cooperative ITS

The National Transport Commission also reports that overseas studies indicate that significant environmental and productivity benefits may also result from the deployment of CITS applications.

The CITI project

Location

The CITI project is proposed to cover a 42 km length of road that connects the Hume Highway in Sydney's South West to Port Kembla situated two kilometres south of Wollongong Central Business District.

Heavy vehicles were involved but were not necessarily at fault in 69% of the fatal crashes recorded on the proposed route in which 13 people were killed (Over a three year period up to 30 September 2011). Significant engineering safety works have been carried out along the Picton Road section of the route since 2011, including road widening and flexible crash barrier deployment.

Type and number of dedicated short range communication devices within the project

The first stage of the project proposes to fit in-vehicle dedicated short range communication (DSRC) transceivers

into at least 30 trucks that regularly travel the planned route. In addition, at least one signalised intersection will be equipped with DSRC roadside units which will communicate with the trial vehicles. A 40 km/h truck and bus speed zone warning system is also planned for installation at the top of Mt Ousley to alert drivers about to descend the very steep (up to 12 percent downhill gradient) south bound section of the road.

Types of information provided to drivers in the CITI project

The Austroads report on the evaluation of road safety benefits lists 18 safety related DSRC applications related to V2I communication and a further 14 through V2V systems. These applications were then evaluated for their potential influence on serious casualty numbers. The most effective DSRC applications according to the 2011 Austroads report are: intersection collision warning (V2I application); left/Right turn assistance (V2I application); cooperative collision avoidance warning (V2V application); cooperative forward collision avoidance warning (V2V application); and pre-crash sensing (V2V application).

It is expected that the CITI project will eventually include all of the most effective applications identified by Austroads with the exception of pre-crash sensing which would need to be built into the vehicle by the original manufacturer.

In addition to the applications previously described, the project will also deploy within the first stage of operation: electronic brake light; heavy Vehicle Speed limit zone information; adverse weather alerts; and limited traffic signal phase and timing information.

Funding model

The funding model for this project is unique with just over $1.4 million of funding for the initial project having been sourced from the NSW Government through the NSW Road Safety Program and the Federal Government's Heavy Vehicle Safety Productivity Program under the Nation Building Program respectively. A contribution from National ICT Australia (NICTA) of $250,000 was also received and will come primarily in the form of a Project Manager.

Conclusion

Cooperative Intelligent Transport Systems offer the promise of increased road safety, improved efficiencies and substantial environmental benefits. However, no semi-permanent facility was available in Australia to test the validity of these claims.

The CITI project will be Australia's first semi-permanent test facility for connected intelligent transport systems. The project also differs from others around the world in that it is planned to be available to researchers of Intelligent Transport Systems for up to five years, whereas most other demonstration sites have only been established for a period of up to 18 months.

The CITI project will not only be a trial of Cooperative Intelligent Transport Systems Technologies but will also be a platform that road safety researchers and practitioners can use to evaluate and develop what may become known as the road safety 'silver bullets' of the 21st Century.

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