Fact sheet – Pedestrian safety technology

Number 19, 2017

Part of the Tranzinfo Hot Topics series, this fact sheet offers a selection of material on recent work in pedestrian safety technology.

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Latest measures and trials

Mayor confirms Britain's first "Safer Lorry Scheme"
Transport for London press release, Friday 6 February 2015
Heavy vehicles not fitted with upgraded safety equipment such as sideguards and special mirrors to protect cyclists and pedestrians have been banned from entering London.

Adelaide City Council creating safer paths through the city
Adelaide City Council media release, Thursday 13 August 2015
Adelaide City Council has installed light-inspired art installations, CCTV, lighting, and wayfinding signage to attract pedestrians and increase their safety in various city locations.

MTA NYCT tests new safety technology on buses
Metropolitan Transportation Authority press release, Thursday 1 October 2015
New York City Transit tested a pedestrian turn audio warning system and an audio-visual collision avoidance system on its buses.

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[New flags to promote pedestrian safety on Bunda Street shareway](#)
ACT Government Ministerial Media Statement, Wednesday 14 October 2015
Flags have been installed along Canberra's Bunda Street shared zone to indicate clearly that pedestrians have right of way.

[New Perth CBD flashing traffic lights to boost pedestrian safety](#)
Perth Now, October 15 2015
The Western Australian Government conducted a trial of flashing caution lights in Perth's CBD to remind drivers to give way to pedestrians when turning left at signalised intersections.

[California cities turn to Internet of Things to solve parking, traffic problems](#)
FutureStructure, Wednesday 28 October 2015
Several cities in California set up sensor networks to gather data to help guide city planning in areas such as parking and pedestrian safety.

[Mayor welcomes London roll-out of road safety technology developed in Israel](#)
Mayor of London press release, Tuesday 10 November 2015
Garbage trucks in London have been fitted with the Cycle Safety Shield system, which uses cameras and sensors to help drivers detect cyclists, pedestrians and motorcyclists.

[U.S. DOT brings 5-Star Safety Ratings into a new safety era](#)
National Highway Traffic Safety Administration press release, Tuesday 8 December 2015
The U.S. Department of Transportation has announced proposed changes to the National Highway Traffic Safety Administration's 5-Star Safety Ratings for new vehicles, including the assessment of crash avoidance technologies and pedestrian protection.

[Google Street View aids understanding of pedestrian safety, new study finds](#)
Forbes, Sunday 31 January 2016
Researchers at Columbia University used Google Street View to analyse the safety of streetscapes for pedestrians.

[Metro buses test alarms to improve pedestrian safety](#)
The Seattle Times, Wednesday 3 February 2016
A trial of bus dashboard alarms that flash when a pedestrian is in the driver's blindspot has been trialled in Washington state.

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[In Germany, lit crossings for preoccupied pedestrians](#)
Deutsche Welle, Friday 22 April 2016
Two German cities have trialled the use of flashing LED lights to warn distracted pedestrians to stop and look up.
Trials of this technology are also to take place in the [Gold Coast](#) and [Sydney](#).

[Mayor sets out measures to rid London of dangerous lorries](#)
Mayor of London press release, Friday 30 September 2016
A new star rating for heavy vehicles based on the level of vision the driver has directly from the cab forms part of proposals announced by the Mayor of London to improve safety for pedestrians and cyclists.

[NYC looks to tech to improve pedestrian safety](#)
GCN, Wednesday 19 October 2016
New York City is planning to develop smartphone applications or wearable devices that can communicate with traffic signals to help visually impaired pedestrians cross streets and intersections safely.

[NHTSA sets 'Quiet Car' safety standard to protect pedestrians](#)
National Highway Traffic Safety Administration press release, Monday 14 November 2016
Under a new safety standard released by the U.S. Department of Transportation's National Highway Traffic Safety Administration (NHTSA), all newly-manufactured hybrid and electric light-duty vehicles will be required to make audible noise when travelling at speeds up to 30 kilometres per hour.

[New glowing crosswalks will help protect pedestrians in the Netherlands](#)
Curbed, 4 January 2017
Lighted zebra crossings connected to existing streetlight systems or solar panels are planned for towns in the Netherlands after a successful 12-month trial.

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Reports

[Europe must boost safety for cyclists and walkers](#)
European Transport Safety Council press release, Tuesday 4 June 2015
In this report the European Transport Safety Council (ETSC) argues that all new vehicles sold in the EU should be fitted with mandatory safety technologies to increase protection for cyclists and pedestrians.

[New report identifies 21 actions to help states address pedestrian safety](#)
Governors Highway Safety Association media release, Monday 10 August 2015
This report released by the Governors Highway Safety Association in the US examines a range of initiatives used at a national, state and local level to address pedestrian safety.

[Collaboration the key to improving pedestrian and bicyclist safety](#)
Department of Transportation, Wednesday 28 October 2015
A U.S. Department of Transportation report on the findings of its year-long bicycle and pedestrian safety assessments which were conducted in every state.

[Review of pedestrian detection techniques in automotive far-infrared video](#)
Hurney, P, et al. IET Intelligent Transport Systems, vol. 9, Issue 8, 2015, pp. 824-832.
One application of driver assistance systems is in the automated detection of vulnerable road users, such as pedestrians, using automotive far-infrared imagery. This study presents a comprehensive review of the literature currently available in the area of pedestrian detection techniques in automotive infrared imagery.

[Drivers to wait longer at red lights under pedestrian safety plan](#)
The Age, Thursday 8 September 2016
Report by pedestrian advocacy group Victoria Walks with safety recommendations to curb the number of older pedestrians killed and injured on the roads.

[Pedestrian safety needs to catch up to technology and put people before cars](#)
The Conversation, Monday 26 September 2016
Technological innovations to improve pedestrian safety are still too car-centric, according to this article by researchers at The University of Sydney.

Distraction and attitudes towards safe pedestrian behaviour

Austroads report no: AP-R510-16, 2016.

Many effective countermeasures address general pedestrian crash risk, but few address distraction from mobile phones while crossing the road, and these have been educational in nature, with unproven effectiveness. Countermeasures should integrate education and engineering interventions within a Safe System approaches, target pedestrians under 30 years, and be located at high pedestrian activity locations.

VRUITS Project

The European VRUITS Project aimed to improve the safety and mobility of vulnerable road users through ITS applications. The project is now complete, and its reports and other publications are available on the website.

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Research in progress:

Pedestrian collision warning applications

The US Department of Transportation has several research efforts underway that are researching the benefits of pedestrian collision warning applications.

Monitoring and predicting pedestrian behavior at traffic intersections

A project sponsored by the US DOT and Carnegie-Mellon University.

An investigation of sensor-based infrastructure solutions that provide awareness of pedestrian activity. Such a system could alert incoming vehicles about dangerous situations involving pedestrians, or provide adaptive traffic light control systems with information about the motion of people. Expected outcomes include the implementation of technology which can be deployed in the field, and is capable of providing pedestrian information to a real time traffic signal control system.

Do prohibitive warnings improve road-crossing safety for texting and non-texting pedestrians?

A project conducted by the University of Iowa.

The goal of this project is to investigate how mobile devices can be used to assist pedestrians in making safe road crossings. The project will develop a cell phone app that warns pedestrians when they initiate unsafe road crossings and test the app in state-of-the-art pedestrian simulator. This project will develop and test prohibitive alerts (ones that indicate when it is unsafe to cross). The results will inform the design of Vehicle-to-Pedestrian (V2P) communication systems based on Dedicated Short-Range Communications (DSRC) technologies being incorporated into vehicles.

[Creating livable communities through connecting vehicles to pedestrians and cyclists](#)
A project conducted by Portland State University.
Vehicle-to-People (V2P) or V2X applications have not been as extensively developed and tested as other connected vehicle applications. How can these technologies and applications be used by pedestrians and cyclists to improve their safety and reduce vehicle conflicts? Can access to travel information improve mobility options and achieve environmental outcomes? This project will explore the linkages and opportunities for connecting vehicles and infrastructure to pedestrians and bicycles.

[Evaluation of ultra-wideband radio for improved pedestrian safety at signalized intersections](#)
A project conducted by the University of Idaho.
The goal of this project is to increase the safety of signalized intersections for pedestrians with limited mobility or vision. The research outcomes and technology developed by this project can be applied to existing intersections throughout the United States without significant changes to the infrastructure other than the addition of electronics.

[An investigation of pedestrian signals to reduce intersection crashes and red light violations for elderly drivers](#)
A project conducted by Florida State University
This study will investigate the potential of utilizing pedestrian signals as warning signals and their impacts on elderly drivers' reaction time. This study will analyse intersections in Florida with different types of pedestrian signals and evaluate their effectiveness in reducing crashes involving elderly drivers.

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