Fact sheet – Mobile Communication Systems
Number 6, 2013

Part of the Tranzinfo Hot Topics series, this fact sheet offers a selection of material on **Mobile Communication Systems**, also known as 'Connected Vehicle Technologies'.

Contents:

Glossary and acronyms

Mobile Communication Systems: a term encompassing dedicated short range communications (DSRC), location-based services, mobile radio, vehicle-to-roadside communications and vehicle-to-vehicle communications. It is the US Transportation Research Board's preferred term for 'connected vehicle technologies'.

CCA - Cooperative Collision Avoidance
CCW - Cooperative Collision Warning
C-ITS - Co-operative Intelligent Transport Systems
DSRC - Dedicated Short Range Communications: technology that enables vehicle to vehicle and vehicle to infrastructure communications. Incorporating IEEE 802.11p.
ITS - Intelligent Transportation Systems: systems in which vehicles communicate with each other and with roadside base stations.
OBE - On-Board Equipment
RSE - Roadside Equipment
VANET – Vehicular Ad-hoc Network

V2I or VTI - Vehicle-to-Infrastructure: vehicle-to-roadside communications.
V2V or VTV - Vehicle-to-Vehicle: inter-vehicle communication technology.
VII - Vehicle Infrastructure Integration: technologies directly linking road vehicles to their physical surroundings.
WAVE - Wireless Access in Vehicular Environments.

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Case studies & research

[Light vehicle crash avoidance needs and countermeasure profiles for safety applications based on vehicle-to-vehicle communications](#)
US National Technical Information Service
Discusses light-vehicle crash countermeasure profiles and functions for five target pre-crash scenario groups based on vehicle-to-vehicle (V2V) communications.

[Clearing paths for emergency vehicles using vehicle-to-vehicle communication](#)
TRB 92nd Annual Meeting Compendium of Papers, US
Evaluates and tests a new strategy to enable emergency response vehicles (EVs) to navigate through congestion at signalized intersections more efficiently.

[Cooperative ITS regulatory policy issues: discussion paper](#)
National Transport Commission, Australia
Identifies and discusses regulatory options for the safe and effective deployment and support of Cooperative Intelligent Transport Systems in Australia.

[Research program to support the research, development, and deployment of system operations applications of vehicle infrastructure integration (VII)](#)
Virginia Department of Transportation, US
The Virginia Department of Transportation (VDOT) is working with federal, state and local departments of transportation to establish a multi-phase program to facilitate the field demonstration and deployment of connected transportation systems infrastructure applications.

[Dedicated short range communications for safer railway crossings](#)
Public Transport Victoria, Australia
Public Transport Victoria (PTV) is participating in the trial of a level crossing warning system known as Dedicated Short Range Communication (DSRC) technology, aiming to significantly reduce railway level crossing accidents by allowing vehicles to 'talk' to each other.

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[Recent international activity in cooperative vehicle–highway automation systems](#)
Federal Highway Administration (FHWA), US
Report that aims to provide the U.S. transportation research community with a better understanding of the current state of research and development, and to encourage broader thinking about cooperative vehicle–highway automation systems based on developments in other countries.

[DSRC interoperability study](#)
Austroads AP-R382-11
Introduces ITS and the wireless communication requirements for the different ITS applications and summarises the overseas radio communications regulatory arrangements supporting 5.9 ITS. Describes the technical and system requirements for On Board Units (OBU) and Road Side Units (RSU) of 5.9 ITS.

[Linking drivers and roads](#)
Public Roads, volume 76, number 4, 2013
Overview of the U.S. Department of Transportation's recent investment in research to support nationwide wireless system of connected vehicles and smart infrastructure.

[Potential connected vehicle applications to enhance mobility, safety, and environmental security](#)
Texas Transportation Institute, US
An exploration of the potential uses of connected vehicle technology in real-world settings.

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Books

[Autonomous vehicles for safer driving](#)
SAE International
A compendium of papers covering successful demonstrations of autonomous vehicles, ongoing projects, and discussions of the future of autonomous vehicles.

[Advanced microsystems for automotive applications 2013: smart systems for safe and green vehicles](#)
Springer, Germany
Peer-reviewed papers which address ongoing research and new developments in the field.

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[Road planning and design manual (2nd edition, 2013), Volume 5 - intelligent transport systems](#)
Department of Transport and Main Roads, QLD
This volume covers ITS with a specific focus on the impact that deployment has on road civil infrastructure provision. It outlines basic design requirements to be considered by planners and designers in the delivery of ITS for rural and urban road infrastructure and tunnels.

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Articles

[An overview of the DSRC/WAVE technology](#)
NICTA, Australia
Provides an overview of the current state of the art, and analyses the potential differences between application requirements and what can be offered by the current WAVE solutions.

[Adaptive traffic signal control using vehicle-to-infrastructure communication: a technical note](#)
NICTA, Australia
Discusses a preliminary study on controlling traffic signals using information collected via V2I communication.

[Connected vehicle insights: trends in roadway domain active sensing](#)
Analyses the merits and limits of active sensing technologies – such as radar, LIDAR, and ultrasonic detectors – and how the market for these technologies is evolving and being applied to vehicles and highway infrastructure to improve traffic safety.

[Technologies for dedicated short range communications](#)
ACMA, Australia
Presentation with an overview of DSRC technologies and their applications.

[Wireless vehicular communications: radio communications for smart transport infrastructure](#)
NICTA, Australia
Presentation outlining radio communication technologies and applications.

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Websites

[ITS Australia](#)
Intelligent Transport Systems Australia. Website includes latest news and events information.

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ITS America
Intelligent Transportation Society of America. Website has links to major programs such as the Connected Vehicle program, and studies and reports such as the Technology Scan and Assessment series.

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Conferences

2nd International Conference On Connected Vehicles And Expo
TRB is co-sponsoring this conference on December 2-6, 2013, in Las Vegas Nevada. The conference will explore the latest advances in connected vehicles and highlight potential policy and economic implications of the new technology.

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Australia

ARRB Group, MG Lay Library
Centre for Automotive Safety Research Library
Commonwealth Department of Infrastructure and Regional Development Library
Hargrave-Andrew Library, Monash University
Main Roads Western Australia Library
Queensland Department of Transport and Main Roads Library
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SA Department of Planning, Transport & Infrastructure Library
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