ITS Australia
National Awards
2020

FINALISTS

SMART TRANSPORT INFRASTRUCTURE AWARD

Data61 CSIRO
A Structural Health Monitoring System for the Sir Leo Hielscher Bridge

In collaboration with Transurban, Data61 and its research and engineering partners (the University of New South Wales, Cisco, Innovation Central Sydney and Rockfield Technologies Australia) have designed and developed an advanced sensing and data platform to monitor the iconic old Sir Leo Hielscher Bridge (the Gateway Bridge) in Brisbane in real time. The platform uses machine learning techniques to detect damage before it can affect public safety.

Department of Transport Victoria
Operational Deployment of Semi-AVs and C-ITS on EastLink Tollway

The VicRoads Smarter Journeys program developed and deployed a DSRC messaging platform to deliver real-time road warnings in a high-speed environment. The trial demonstrated that messages can be delivered with precision (location and lane) and reliability without interference with the tolling system, which were the key metrics of this project. The ability to provide instant and advanced road warnings to connected vehicles ahead of incident/roadworks warning signs along the road delivers clear safety and efficiency benefits. This is an important step towards ITS's promise of dynamic demand-response traffic management.

REV Project, The University of Western Australia
REView: Intelligent Telematics for Electric Vehicles and Charging Infrastructures

UWA's REV Project operates one of the largest electric vehicle (EV) charging station networks in WA, where it is also the largest network operated by an academic institution in the country. This network includes 24 chargers that are located around Perth. The telematics platform collects individual user data and relay them back to the user in both itemised and statistical form provides a substantial added value for individual mobility.

SAGE Automation
SAGE Edge - Delivering Valuable Insight and Smart Asset Management

SAGE Edge is an IoT data capture device that provides many different capabilities through one device. The SAGE Edge device can be used for multiple applications including SMART City data collection, transport travel time data, tourism pedestrian data and general IoT data management. SAGE Edge is used by local government, road authorities and tourism operators, drawing on real-time data to provide exceptional outcomes for local businesses and the wider community.

SICE

M8 Tunnel Remote Access Testing Solution

SICE delivered the OMCS and the ITS systems for WestConnex M8 Tunnel. During its delivery, the COVID-19 outbreak greatly endangered the delivery of the project's Testing and Commissioning. SICE quickly reacted by implementing a secure and reliable remote access solution, which provided the stakeholders with access to the tests without requiring to be physically present. This solution allowed the project to perform all the scheduled tests on time.

Transport for NSW

SCATS Priority Engine

SCATS Priority Engine developed by Transport for NSW helps the flow of priority vehicles through traffic - most recently delivered for the CBD South East Light Rail Project. The advanced traffic management software enables the movement of essential vehicles to be prioritised through traffic lights.

Transurban

Road Event Analyser

Road Event Analyser reduces false incident alarms in the traffic control room whilst maintaining a high detection rate. This reduces alarm noise and focus operational efforts on managing the network and less on alarm validation. Road Event Analyser fuses incident data sources to achieve better results than any singular source of data improving the durability of the incident detection function.

ITS Australia National Awards 2020

itsaustralia Intelligent Transport Systems

INTELLIGENT MOBILITY AWARD

Directed Technologies
Ambulance Victoria Next Generation ITS Solution

Responding to the mission-critical needs of emergency responders, this Australian designed and built Ambulance Victoria connected vehicle ITS solution is deeply embedded into the vehicle electronics and onboard body auxiliary systems, generating unprecedented mission-critical telematics insights into safety system activation, occupant detection, and emergency equipment charging status. Coupled with cloud analytics, the data and learnings have led to improved safety outcomes for paramedics, patients, and the public.

Q-Free Australia
Protecting Vulnerable Road Users while Promoting Sustainable Transportation: Q-Free's Cycle Priority and Safety Program

Increased traffic in cities as well as mandates to lower pollution levels are driving changes in transportation policies. Using sustainable power, Q-Free's bicycle and pedestrian monitoring technology detects and protects vulnerable road users in multi-modal environments via integration with traffic signals and safety warning signs. In addition, authorities can both motivate and communicate with their community while stimulating their sustainable transportation goals using outdoor active information displays.

SAGE Automation
Matilda - The Smart Transit Hub improving accessibility

Matilda is a portable, connected transit hub that caters for passengers based on their individual abilities, providing efficient, personalised and safe services. Equipped with smart technology, Matilda is key to enabling infrastructure for transport services to be safer, more accessible and flexible. Matilda's assistive features enhance accessibility and user experience, increasing independence for aged care and disability groups while integrating services for more efficient transport.

SkedGo
TripGo API, SDK and White Label

SkedGo provides groundbreaking Mobility-as-a-Service technology. Their solutions enable governments, corporations and startups to provide greener and more accessible transport routing to their citizens, employees and customers. SkedGo's unique proprietary algorithms support more connected, inclusive and sustainable travel. Born from a desire to reduce single occupancy car use, SkedGo's routing algorithm aggregates all available transport modes to provide travellers with mobility options tailored to their personal preferences.

Transport for NSW
Opal Connect

Opal Connect is an innovative payment platform incentivising customers to make best use of local public and private transport services. It incentivises customers to leave the car at home by using On Demand services for 'first and last journey miles'. It is a digital channel allowing customers to pay for privately operated On Demand services and to earn Travel Credits.

CONNECTED AND AUTOMATED VEHICLE AWARD

Austroads
Audit Specification for Infrastructure Readiness to Support Automated Driving

In October 2019 Austroads published a new way to measure the readiness of road networks to support automated driving on freeways and highways using vision sensors and machine learning. The ability of physical and digital infrastructure to support automated driving will directly impact the scale and timing of the deployment of vehicles equipped with this life-saving technology.

Cohda Wireless
C-ITS (V2X) Technology in Production Vehicles

Cohda's C-ITS technology features in over 60% of connected vehicle trials worldwide. The company is a partner-of-choice for OEMs and Tier One manufacturers, most recently Volkswagen. VW's new Golf 8 features the 'Car2X' solution which includes Cohda's standard V2X communication stacks, safety applications and NXP's RoadLINK® V2X solution, also supported by Cohda. This positions local technology at the forefront of the global shift to a being connected and intelligent.

HMI Technologies
NSW Smart Shuttle – Precinct Public Shuttle Service

The NSW Smart Shuttle achieved several 'firsts' in Australia and in the world, delivering both 'Connected' and 'Automated' innovations. It was the first known deployment of International Standards based V2I Connected Vehicle technologies to traverse through a signalised intersection completely autonomously in a live public road environment. It was also Australia's first precinct-based public shuttle service using multiple AV shuttle vehicles.

Queensland University of Technology & Queensland Department of Transport and Main Roads
Cooperative and Highly Automated Driving (CHAD) Public Experience - an Australian first

Cooperative and automated vehicle technologies will change the way people travel. Queensland University of Technology and the Queensland Department of Transport and Main Roads continue to develop an understanding of community need and perception. Through the Cooperative and Highly Automated Driving (CHAD) Experience, over 70 members of the public participated in a research program that measured their awareness prior, during and following an on-road demonstration in ZOE2 – Australia's first Level 4 Automated Vehicle.

South Australia Department for Infrastructure and Transport
Renmark Connect 'Murray' Automated Vehicle Project

Renmark Connect 'Murray' AV shuttle launched in August 2019, provides alternative community transport for Renmark's aged and mobility-challenged population, connecting residents to medical, social, and commercial destinations in the township. Phase 2 will include a focus on Renmark's tourism industry. Funded by the South Australian Government's Future Mobility Lab Fund, EasyMile is delivering the trial, with partners Renmark Paringa Council, Flinders University, SAGE Automation, and Keolis Downer.

EXCELLENCE IN TRANSPORT DATA AWARD

Queensland Department of Transport and Main Roads
Transport and Main Roads Transport Data Exchange

The Queensland Department of Transport and Main Roads (TMR) has developed a strategic cloud analytics framework to unleash the full potential of its data to connect Queenslanders and create an integrated transport network accessible to everyone. The Transport Data Exchange (TDx) is helping break down data silos and store, organise and integrate TMR's vast quantities of data to enable analytics at scale, unlock new opportunities and enable more informed decision making.

Transport Certification Australia
Evolution of the National Telematics Framework to meet new demands for road network utilisation data

TCA has introduced new applications, features and services through the National Telematics Framework to meet the evolving needs of infrastructure managers and heavy vehicle regulators to manage networks through digital technologies and data. The Transport for NSW operational policy for heavy vehicle telematics leverages new applications and features of the Framework to improve insights of vehicle movements on its road network, underpin new productivity reforms, and advance safety and asset management outcomes.

Transport for NSW
Multi-Modal Performance Reporting

Transport for NSW generates significant amount of data from Bus, Ferry, Light Rail, Metro and Heavy Rail modes every day. Multi-Modal Performance Reporting harnesses the power of data to improve customer services and manage the performance of Bus, Ferry, Light Rail and Metro operators. The vehicle journey and timetable data are shared through Open Data portal to enable self-service supporting Future Transport Strategy 2056.

Transport for NSW
When to Travel Physical Capacity Indicator

Transport for NSW is helping customers make informed and safe travel decisions during COVID by providing information that aligns on-board capacity to physical distancing guidelines. Recent historical data is calculated to provide an estimation of expected capacity for all trains, buses, ferries, light rail and metro services. This estimated capacity is shown when real-time data is unavailable to provide customers with information they need to determine if travel is safe.

Transurban
Automated and Predictive IoT-Based Water Pump Operational and Asset Condition Dashboard

By using the vast amount of data collected through smart IoT sensors, Transurban was able to build an automated, predictive and mobile solution to optimise the maintenance of water pumps operating 65 metres underground. Transurban have reduced the need for potentially dangerous manual and labour-intensive assessment and maintenance tasks and reduced maintenance costs through predictive condition alerting.

Transurban

Lane Compliance Analytics Tool to Optimise Roadside Safety and Influence Lane Closure Strategies During Roadside Incidence

Transurban has used its vast amounts of IoT data from various roadside devices and combined it into a single analytical tool that enables Transurban to determine the optimal lane closure strategy to make its roads a safer place for both drivers and support staff.

EXCELLENCE IN RESEARCH AND DEVELOPMENT AWARD

City Analytics Lab, University of NSW
A participatory prioritisation tool for cycling investment in Sydney, Australia

This Sydney study created a digital tool that integrates citizen feedback directly into how emerging data and ITS are used to inform investment in active transport infrastructure. By combining passive data traces with active citizen feedback, the tool demonstrates how we can marry public participation and advanced data analytics - two fields which are rarely paired. This approach is increasingly important as we now realise the benefits of active transport.

Data61 CSIRO
Transit Assignment Engine: The Agent-based Simulation Engine Enriched with Disease Spread Model

CSIRO teamed up with Transport for NSW to develop a Traffic Assignment Engine with a Disease Spread Model (TAE+SEIR) for in-depth analysis of virus spread patterns in transit networks and the impact of non-pharmaceutical mitigation measures. It combines transit assignment, agent-based microscopic simulation model, and a single point disease spread model mimicking the infectious disease spread between passengers allowing to identify hotspots and spread patterns to support strategic and operational decision making.

Data Science Institute, University of Technology Sydney
Improve Train Network Operation Performance via Machine Learning Techniques

UTS and Sydney Trains have successfully applied advanced machine learning techniques to develop a timetable robustness evaluation model. The model can assess timetables and response plans to ensure that that timetables/response plans are operationally robust and resilient. The outcome of this application of the intelligent timetable evaluation technology significantly reduces delay-caused losses and increases the operation efficiency, enables the train operating system to meet performance metrics and recover from incidents.

IAG
Sydney Mobility-as-a-Service (MaaS) Trial with Accompanying App, 'Tripi'

The Sydney Mobility-as-a-Service (MaaS) trial undertaken by IAG, Australia's largest general insurer, ITLS (University of Sydney), mobility app developer SkedGo and iMove Australia has advanced the understanding of the role that MaaS can play in improving a travellers' experience of using multiple complementary transport services. The trial tested real-world travel subscription plans (using cost, travel time, convenience, health benefits and perceived safety) and studied impacts to traveller behaviour and experience.

Kapsch TrafficCom Australia
The Kapsch Smart Intersection within the AIMES Mobility Hub

The Kapsch 'Smart Intersection' overall purpose is to put a spotlight on reducing congestion & increasing roadside safety through changing driver behaviour within yellowbox zoned urban intersections using the latest in ANPR, video analytics & deep learning technology to influence. Our focus is both a modular and scalable system that has a variety of use-cases including yellowbox detection, protected turn, erratic driving, bus lane enforcement and performance measure-based analytics.

Seeing Machines
CANdrive Automated Vehicle Program

The CANdrive program provided the evidence base to support the introduction of automated vehicles onto our roads in ways that are safe and that promote greater mobility and independence for the community. The findings show that driver monitoring systems are a critical technology to keeping drivers safe. CANdrive is an ACT Government sponsored program, using Seeing Machines' driver monitoring technology, to understand how drivers will interact with automated vehicles.

The University of Western Australia
Video Content Analytics (VCA) for Automated Traffic Surveys

The Video Content Analytics software developed by UWA and Main Roads Western Australia is a potential game changer for traffic surveys. It replaces conventional imprecise and laborious manual surveys with state-of-the-art technologies that can automatically extract traffic engineering data from footage with significantly higher quality and quantity. Better data leads to better modelling, which leads to better intersection and road design, and more efficient use of government investment.

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YOUNG PROFESSIONAL AWARD

Abdulmalik Alyousfi

Alex Bowler

Azadeh Emami

Shashank Kumar Gupta

Michael Holme

Jackson Meyer

Thomas Nguyen

Amirtha Chidambara Raj

Lee Summerville

Jessica Tong

MAX LAY LIFETIME ACHIEVEMENT AWARD WINNER

Dr Peter Sweatman