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ISWIM
International Society for Weigh in Motion

ISWIM NEWSLETTER

Message from the ISWIM president

Dear Readers,

Welcome to the second edition of our Newsletter for 2018. Like always, the Newsletter showcases the forward program of local and international events including the activities of the International Society for Weigh-In-Motion (ISWIM). This is a bumper issue, covering a broad area of Weigh-In-Motion (WIM) including:

- Using bridge WIM systems to monitor the health of bridges,
- New monitoring practices in Canada and the USA,
- The introduction of a subsurface based quartz sensor and OIML certifications.

The ISWIM Board has approved to award at least three recipients to attend it's forthcoming 8th International Conference on WIM in Prague in May of 2019. The sponsorship will cover all travel, accommodation and registration fees and will aim to allow the recipients to present their work, visit the exhibition and importantly further develop their industry knowledge and global network. Details are available in the Newsletter, and it is a credit to ISWIM that it can now support researchers and students in the field of Weigh-In-Motion.

Happy reading, and as always, available for a chat or a discussion through our LinkedIn connection.

President – ISWIM
Chris Koniditsiotis

Chris Koniditsiotis | ChrisK@tca.gov.au

In this issue

New Young Researcher Award

This award recognises young tertiary level students from around the world who are making a contribution to the Weigh-in-Motion (WIM) field and are demonstrating a passion through their studies and possibly early professional life.

ISWIM will fully sponsor at least three recipients to attend the 8th International Conference on WIM (ICWIM-8) in Prague next year to present their work (poster paper or oral presentation), visit the exhibition, and further develop their industry knowledge and global network.

The applicants should email an abstract of their work together with their CV and two references to Lily Poulikakos at lily.poulikakos@empa.ch before October 30th 2018. The ISWIM Board will evaluate the work submitted and notify the winners in January 2019.

Lily Poulikakos@empa.ch | Lily.Poulikakos@empa.ch

New all-inclusive WIM direct enforcement solution.

WanJi introduces the all-inclusive WIM Direct enforcement solution which includes bar weighing sensor, LiDAR and WIM data management platform. The system collects not only accurate truck weight data but also the complete chain of legal evidence to enforce traffic rule. The front part of the system (the weighing system and LiDAR system) would collect and update real-time traffic data including weight, time, location, plate number, speed, vehicle driving direction to the platform. Base don these data, the platform can automatically determine whether truck is overloaded or not.

WIM Direct enforcement with LiDAR at Haining, China.

More importantly, if driver has dissent on the penalty, the platform can provide overloading truck short video to assist a tribunal's judgement. Furthermore, WanJi has connected the most local weighing station database to the platform to achieve WIM big data service. The enforcement officer would search the specific plate number and violation records to improve enforcement efficiency. Additionally, the platform would also generate blacklist for trucks which has too many violation records. In conclusion, WIM direct enforcement would improve enforcement efficiency and justice as well as improve traffic efficiency.

Zhao Zhai | zhaizhao@wanji.net.cn

15th Symposium on Heavy Vehicle Transport Technology

Economy on Wheels.

Fast changes, slow structures.

The central question during the HVTT15 is how to integrate disruptive technological and socio-economic developments that affects road freight transport in existing structures: ageing infrastructure, historical grown cities, established market structures and social order and ingrained habits.

The aim is to adapt the road freight transport system to an increasing social and economic complexity, against technological opportunities, and with significant safety and environmental constraints. It is clear that solutions from a single perspective are no longer considered to be sufficient. A multidisciplinary approach is a necessity.

The HVTT15 will take place from October 2-5 2018 in the city of Rotterdam in The Netherlands. More information on the symposium can be found at: www.hvtt15.com

Loes Aarts | loes.aarts@rws.nl

Mobile WIM solution for various applications

The recent HSWIM project in Hungary led the private industry to improve their measurement equipment. Since that the notification of overload has been replaced by a fine, the companies started to care not only about the total load of their vehicles but also about the axle load.

A food market chain logistic center, provided with a static weighbridge, was the first private company in Hungary to acquire a WL 400 LSWIM system from Haenni Instruments. The wheel load strip sensor, devoid of display and with an IP 68 protection, it is very robust and can be entirely run over. The WL 400 can measure the load while driving with up to 20 km/h and has a capacity of 20 t (40 t per axle) with an accuracy of +/- 3%, excluding external factors.

New ***Portable LS Weigh Scale in operation in Hungary***

The sensors are placed in a recess into the pavement; dedicated software collects the data from the WIM sensor and by the weighbridge for further processing. Initially developed for mobile pre-selection, the system doesn't need necessarily to be installed as a semi-fix installation. With a position frame and 4 levelling mats, the system is completely portable.

Marcia Otter | Marcia.otter@haenni-scales.com

Screening of Overweight Vehicles in Italy.

Intercomp recently installed multiple sites in Italy for data collection and screening. The end user is utilizing the sites with a range of moderate to high speeds to monitor vehicle traffic by classification, and identify overweight conditions for further action. Each site is downstream of tolling entrances but prior to ramps accessing the mainline. Consisting of strip sensors, a LPR/OCR camera and reporting data to remote monitoring sites, the WIM sites are operated by Autostrade per l'Italia with real-time information accessible by enforcement authorities.

Notable in the preparation for the installations was Autostrade's attention to WIM site selection and off-lane infrastructure preparation in advance of the in-lane construction. This enabled multiple sites at widespread locations to be installed in a relatively brief period of time.

Coming Events

ITS World Congress
Copenhagen, Denmark
Sep. 17-21, 2018
www.itsworldcongress.com

15th International Symposium on Heavy Vehicle Transport Technology
Rotterdam, the Netherlands
Oct. 2-5, 2018
www.hvtt15.com

Gulf Traffic
Dubai, UAE
Dec. 3-5, 2018
www.gulftraffic.com

TRB Annual Meeting
Washington, USA
Jan. 13-17, 2019
www.trb.org/AnnualMeeting/

8th International Conference on WIM
Prague, Czech Republic
May 2019
www.is-wim.org

ITS World Congress
Singapore
Sep. 21-27, 2019
www.itsworldcongress2019.com

PIARC, 26th World Road Congress
Abu Dhabi, UAE
Oct. 6-10, 2019
www.piarc.org

Hans van Loo | hans.vanloo.int@gmail.com

Intercomp Strip Sensor WIM Site In Italy

Although each site consists of only 2 strip sensors per lane, at calibration Intercomp was pleased to report to the customer GVW errors (95% Confidence Interval) from the sites ranging from a 1.82% minimum to 3.13% maximum for four and five axle vehicles. As with any WIM site, in-service accuracy wouldn't be expected at this level, but it speaks to the quality of the site selection, sensor accuracy, and quality of the installation which is so important to the performance of WIM sites.

■ Clint Bower | cbower@intercompcompany.com

Approval for Low Speed Weighbridge.

Axtec have been granted a world-first UK National approval to Class 0.2 for an Axtec 5000 Dynamic Axle Weighbridge installed at their facility in Runcorn.

Low Speed Weighbridge during testing, UK

ISWIM Vendors

Axtec
www.axtec.co.uk

Betamont
www.betamont.sk

Camea
www.camea.cz

Captels
www.pesage-captels.com

Cestel
www.cestel.eu

Cross
www.cross.cz

ECM
www.ecm-france.com

Haenni
www.haenni-scales.com

Intercomp
www.intercomp.com

IRD / PAT Traffic
www.irdinc.com

Kapsch
www.kapsch.net

Kistler
www.kistler.com

Mikros
www.mikros.co.za

Sterela
www.sterela.fr

TDC / Q-free
www.tdcsystems.co.uk

TE Connectivity
www.te.com

Traffic Data Systems
www.traffic-data-systems.net

WanJi Technology
www. wanji.net.cn

Wheelright
www. wheelright.co.uk

■ Andy Lees | andy.lees@tdcsystems.co.uk
■ Hans van Loo | hans.vanloo.int@gmail.com

As part of the approval, the weighbridge was tested statically to full capacity using calibrated dead weights. It was then tested dynamically using three different vehicles at speeds below 4km/h. During the test runs over the centre, nearside and offside of the weighbridge, accuracy was always within the prescribed 0.1% limits. The measured tests were then followed by an over-speed test to ensure that vehicles which did not complete the weighing process properly were detected.

The Axtec 5000 Dynamic is highly automated and requires no special skills to operate. Its colour touchscreen display gives simple instructions or requests information which can then be entered via the numeric keypad. The vehicle is weighed and a ticket showing individual axle and gross weights can be produced automatically, all within 40 seconds.

Alasdair Littlejohn | Alasdair.littlejohn@axtec.com

Use of Bridge WIM at Aurora project

Commissioned by the Finnish Transport Agency, Tampere University of Technology (TUT) and Roadscanners Ltd have built extensive structural monitoring systems at two sites, both located in the municipality of Muonio, Finnish Lapland. Project is called Aurora. Aurora is a public test ecosystem created to ensure intelligent and automated transport, as well as solutions for road maintenance and asset management to meet the requirements of all conditions.

Bridge WIM system installed in Artic Circle, Finnish Lapland

Roadscanners and Cestel installed instrumentations which enable monitoring of structural responses of the road during vehicle loading and other conditions at different depths below the road surface. Combined with the truck weight information obtained from the SiWIM Weigh-In-Motion system installed in a nearby bridge the instrumentations will be primarily used for investigating the effect of seasonal variations on the mechanical behavior of road structures.

Bridge-Weigh-In-Motion system is one of the systems tested in snowy and cold Arctic Circle of Lapland. Lowest measured temperature this winter on the measurement location was -37ºC, but that was not a stopper for the system, who was operating 24/7 without complications or any other difficulties. System can operate also in very warm conditions, up to +50ºC.

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