DEKRA AWARD

GEWINNER
in der Kategorie

SICHERHEIT
IM VERKEHR
2021

DEKRA

In Medienpartnerschaft mit der
WirtschaftsWoche

Ö3 VERKEHRS AWARD

MOBILITY OBSERVATION BOX:
Measure objectively and improve road safety

Since road safety depends to a large extent on the interaction of road users with each other and with the road infrastructure, researchers from the AIT Austrian Institute of Technology GmbH in cooperation with Transoft Solutions have developed an innovative solution for measuring traffic conditions and traffic conflicts.

TRAFFIC EVALUATION AND TARGETED MITIGATION MEASURES

The Mobility Observation Box (MOB) makes it possible to measure the safety of transport infrastructures according to objective criteria and thus make them comparable. Once data collection is done, machine learning algorithms automatically recognize different groups of road users (pedestrians, cyclists, cars, trucks, e-scooters, etc.), detects them, evaluates their traffic behavior using surrogate safety measures and provides

a basis for targeted mitigation measures. Conflict situations can be observed and evaluated objectively and for a desired period of time. The battery-operated system allows a quick and uncomplicated installation and deinstallation of the box, not requiring supplemental power source. Due to its small size, a registration of all traffic participants can be realized without distraction or influence.

The collected video data is the basis of the risk-based evaluation procedure, using machine learning algorithms and artificial intelligence. Using a unique video-based surrogate safety technology, the displacements of all road users within a traffic scene can be monitored to a high degree of precision, in a repeatable and unobtrusive way. Each road user is detected, classified, and tracked.

This data is then used to assess and provide metrics on road safety (such as near-collision and over-speeding incidents), as well as traffic flow conditions (such as volumes and speeds). A better understanding of these collision precursors helps practitioners improve infrastructure without relying solely on historical collision data.

The aim of the survey with the MOB is to provide objective and comparable evaluations of the effects of various infrastructural and traffic engineering measures on the risk of collisions and injuries. The MOB is also used network-wide in the planning or retrofitting of traffic infrastructures to determine cost-effective recommendations for specific traffic safety measures.

HOW THE MOBILITY OBSERVATION BOX DISTINGUISHES ITSELF:

- meets the highest data protection standards according to GDPR
- energy self-sufficient
- inconspicuous
- quickly and flexibly ready for use
- reliable

OUR SERVICES AND PERFORMANCE AT A GLANCE:

- Objective evaluation of traffic safety, including
  - calculating traffic volumes for all different road users,
  - identifying near-miss interactions and their safety indicators,
  - generating heatmaps, illustrating speed data, traffic directions, and possible black-spots
- Evaluation of infrastructural measures
- Carrying out specific investigations of individual forms of mobility (e.g. pedestrians, cyclists or e-scooters)
- Diagnosing the specific road user movements contributing to the most severe interactions at each site
- Selecting appropriate countermeasures by linking observed challenges to treatments available in various sources of Crash Modification Factors
- Evaluating the effectiveness of treatments using comparative studies spanning over multiple time periods and/or multiple sites

AIT AUSTRIAN INSTITUTE OF TECHNOLOGY GMBH
DI Michael Aleksa
Tel +43(0) 50550 6236
Giefinggasse 4, 1210 Vienna
michael.aleksa@ait.ac.at
www.ait.ac.at/en/mob