

# Automation as an inherent part of road infrastructures monitoring

(Athens, November 2020) The condition of the road infrastructures (RI), e.g., bumps, cracks, rolling resistance, etc. is highly associated with driving comfort and road safety. Therefore, early detection of damaged road segments helps operators to minimize hazards. Today, there are multiple situations that can be identified using artificial intelligence. Common cases include animals crossing, potholes, debris existence and car accidents. To this day, there are several methods, developed by researchers worldwide, to detect events or assess the current condition.

There are multiple reports indicating why RI condition monitoring should be prioritized. Poorly maintained roads cause half of the fatal auto accidents that happen each year in the United States<sup>1</sup>. Moreover, bad road conditions affect people well-being and tend to tackle each country's growth rate<sup>2</sup>. In USA, over 21.8% of roads are in poor condition, 7.6% of bridges need replacement or repair, and there have been 4.8 derailments for every 100 miles of train track from 2015 to 2019, the most common cause of which are broken rails or welds<sup>3</sup>.

Currently, most of automated methods of RI monitoring are based on vehicle sensors and deep learning algorithms. Yet, there is no universal solution. The adopted approaches vary, depending on multiple factors, including the optical sensors type and placement, weather conditions, and type of defects, among many other.

The EU funded PANOPTIS project, employs different kinds of machine learning approaches, to support the monitoring of large-scale road infrastructures. These systems allow access to multiple channels of information, which can be used to estimate the current road condition status and provide feedback to drivers and operators. Such information can be used for adjusting the current speed limits.

Additional information can be found in PANOPTIS site, just follow the link: <http://www.panoptis.eu/>.

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<sup>1</sup> <https://www.gregcolemanlaw.com/bad-road-damages-and-effects.html>

<sup>2</sup> <https://www.worldhighways.com/feature/bad-roads-make-people-poorer>

<sup>3</sup> <https://eu.usatoday.com/story/money/2020/07/16/infrastructure-states-bridges-roads-falling-apart/112127156/>



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