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## Monitoring of Railway Traffic as a Part of Integrated SHM System

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In the last years one can observe an increasing interest in structural health monitoring (SHM) from Polish Railways. There are several hundreds of steel truss bridges of various spans and similar topologies in Polish railway infrastructure. One of them, located over a canal in Nieporet near Warsaw with span of 40m became an object of investigation and implementation of an integrated SHM system.

The system consists of two components - weigh in motion (WIM) part for identification of train load and SHM part for assessing the bridge state. The WIM module supplies load data required for SHM inverse analyses, however it can operate as an independent system for monitoring of railway traffic providing information about axle loads and rolling stock identification.

Many in-situ installations of SHM systems suffer from a troublesome and time-consuming way of data acquisition via standard cables. In order to facilitate data collection related with this way of acquisition, an alternative solution of wireless transmission of the measured data from the field to analysis centre is proposed. Two aspects of wireless transmission are considered - short range (in the vicinity of the bridge) and far range (from the bridge to the centre of analysis).

This paper takes up the practical issue of design and implementation of the integrated SHM system for truss steel railway bridge with a special insight into the monitoring of railway traffic.

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**Ключевые слова:**

### Содержание.

Abstract  
Introduction  
Concept of the integrated system  
System implementation  
Conclusions  
Acknowledgement