

Implementation of methodological and normative bases based on artificial intelligence (AI) for bridge health monitoring in Peru.

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ABSTRACT

The deficient updating of Bridge Health Monitoring (BHM) standards in Latin America has resulted in a deteriorated road network with low trafficability services and economic deficiency. Many bridges have suffered damage and collapse due to recurrent natural disasters, poor quality materials, inadequate structural calculations and the traditional approach to bridge inspection and maintenance. The majority of bridges collapses in Peru have generated a need to implement lineaments and codes to help improve the monitoring of these infrastructures. In this sense, this research establishes the methodological bases using the BHM lineaments, since it shows a progressive technological advance in developed countries (Europe, Asia, USA). International standards (EUROCODE, JT/T 1037-2022, AASHTO) and research on bridge damage identification methods are compiled. Additionally, the types of devices that generate a quantity of data to be processed through the use of modern algorithms are described. For instance, Artificial Intelligence (AI) is used for automation of solutions, correct location of sensors, early damage detection and decision making for maintenance and operation of bridges. In conclusion, these lineaments are selected according to the reality of Peru, thus generating a vast database of research related to BHM to finally generate a guide of specifications that will serve for decision making for future bridge health monitoring in Peru.