



Title of the project

Modal Analysis and ARTificial VIsion technologies for tuNnel evaluatIon

Acronym

MARTINI

Project content

The transport networks in, Spain and Europe are well developed but they face a growing problem, they are aging over time. To ensure the continuity of security, the adequate level of service and optimal self-management; to achieve this Maintenance and recovery operations in railway infrastructure networks must take place continuously especially in tunnels, which deteriorate and require maintenance periodically to prevent further degradation that can lead to accidents serious injuries, more expensive repairs or, in the worst case, collapses and the consequent interruption of its service capacity. Traditionally, early detection of deteriorations has been achieved with visual inspections, either during mandatory periodic inspections, during routine maintenance operations or after the occurrence of accidents. MARTINI seeks to reduce uncertainty about the structural condition of the elements managed, inspected and/or maintained by a handler, as well as the costs associated with them.

General objectives

MARTINI aims to innovate and generate new knowledge in the development of different technologies related to preventive and predictive maintenance of assets the focus is to develop/optimize an algorithm based on structural AI, adapted to the specifications of railway tunnels to enable real-time analysis with frequency in order to detect, identify, catalog and evaluate damages and pathologies based on to numerical data. The project will be aimed initially towards railway tunnels however it can be applicable to other metro tunnels, highways and other critical assets and built environments (industrial facilities)

Project phases

WP1. Platform specifications and objectives

WP2. Structural monitoring module with fiber optics and development of AI algorithms anomaly detection.

WP3. Module development of AI image algorithms for identification of structural damage and pathologies. Integration into RX and VR devices.

WP4. Development of the MARTINI platform

WP5. Adaptation and validation in pilots

WP6. Communication and dissemination

Results and conclusions

Project in execution



BUSINESS AREAS

Technical and Innovation R&D
Area COMSA

PARTNERS

FULCRUM

DURATION

01/7/2023 until 31/12/2025

BUDGET

TOTAL: 1.111.696,00 €

COMSA: 744.879,00 €

KEYWORDS

Tunnels Maintenance,
infrastructure. Artificial
Intelligence, Big Data, Internet of
Things

COORDINATOR

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