SMART BRIDGE MONITORING



Proactive bridge Monitoring

The complete solution for static SHM, dynamic SHM and geotechnical and environmental monitoring



Piers · Cable stays · Abutments · Joints · Decks · Piers · Cable stays · Abutments · Joints · Decks · Piers · Cable stays · Abutments · Joints · Decks · Piers



Oscillation and vibration peaks

Frequency, amplitude, acceleration, and dynamic displacement



Deck deformation

Deck static deflection, dynamic displacement, strain, and temperature changes



Joint behaviour

Vertical and horizontal displacements, rotations, and temperature



Span stability

Vertical and lateral displacements, inclination, strain, and temperature distribution

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Smart bridge monitoring with dynamic and static SINGLE CHANNEL NODE + CR wireless IoT sensors **Bridge joint monitoring** Monitor the expansion of the bridge joints to ensure that they expand and contract within acceptable limits. EL NODE + LOAD CELLS **Stay cables monitoring** Monitor the tension in the stay cables **JATEWAY** and supports of a bridge to ensure it is structurally sound. SINGLE CHANNEL NODE + PIEZOMETER Water pressure and level Monitor the interstitial water pressure ACCELEROMETER and changes in groundwater **Stay cables** level to detect changes in the surrounding soil. frequencies Monitor the tension and frequencies of the stay cables Stay cables of a bridge to ensure it can safely support the weight of vehicles and pedestrians. Tilt. ACCELEROMETE TILTMETER **Frequencies and modal Bridge piers** shapes of the bridge deck stability Carry out the Operational Modal Analysis Monitor the stability of the bridge (OMA) of the deck by synchronizing accepiers and any lateral movement lerometers to identify relevant vibration to identify potential structural modes and their evolution over time. problems. DDS DDS - DYNAMIC DISPLACEMENT SENSOR Tilt.

Dynamic displacement

Measure vibrations to increase safety and to comply with state regulations on structural monitoring, respecting the required threshold levels and sampling methods.



TILTMETER

Analyse the deflection of the decks during static load tests to monitor the evolution of rotations over time.



Monitor the deformation of deck, beam, and other structural elements to ensure the longevity of the structure.



Wireless sensors for bridge monitoring • Piers • Cable stays • Abutments • Joints • Decks



ACCELEROMETER

Measure acceleration (mg) and frequency (Hz) on three axes, synchronizing devices for modal analysis.



DDS DYNAMIC DISPLACEMENT SENSOR

Measure the dynamic amplitude of the displacement (mm) and the vibration frequency through an FFT algorithm.



Measure rotation, ground deformation and triaxial tilt changes, with the option of synchronizing devices to better assess the stability of structures.



All our sensors are **battery-powered** and they measure temperature.

Vespucci bridge • Florence, Italy

ASE STUDY

The Vespucci bridge suffers from concrete deterioration, especially on the piers, due to the erosion caused by the currents of the Arno River. Continuous monitoring is required to ensure the safety of the structure. Dynamic Displacement Sensors (DDS) were positioned at the centerline of each span to monitor maximum oscillation amplitude, frequencies and temperature, and Accelerometers were installed on the two stacks to measure the acceleration caused by external events such as traffic and works.



All-in-one

Comprehensive structural analysis for efficient monitoring

User-centered

Designed to meet and anticipate your needs

Intuitive interface

Clear and simple design for a smooth user experience



🛱 Manage

Efficiently oversee your projects with ease, monitoring **multiple structures** through a single account. Configure **multi-level severity alarms** for proactive risk management, ensuring timely responses to potential issues and improving the safety of your structures.



♀ Explore

Delve into **historical data**, accessing comprehensive **trends** and detailed **acquisition lists**. Uncover hidden patterns and anomalies for a complete understanding of your structure behavior, aiding in predictive maintenance and strategic planning.



Analyze

Interpret complex data with a**dvanced analytics**, **comparing graphs** and generating **customized reports**. Transform them into actionable insights, for informed decision-making and improved longevity and safety of your infrastructure.

Be in control of your structural monitoring, anywhere you are.

Discover all the features available on **MyMove IoT Platform**





Smart Structural Health Monitoring A comprehensive solution

Our Smart Structural Health Monitoring (SHM) system offers a complete solution that helps detect potential issues before they become critical, ensuring the safety and longevity of structures.

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Wireless system

Avoid expensive and complex installations thanks to battery-powered, LoRaWAN-based and long-lasting devices.



Remote monitoring

View all sensor-collected data on our MyMove IoT Platform, accessible from any computer at any time.



Threshold setting

Configure sensors according to your needs to receive automated alerts of threshold breaches.

Static SHM

Static structural health monitoring measures slow-varying parameters over a long period of time, such as inclination, rotation, static displacement, and crack monitoring. This type of analysis is appropriate for structures that are subject to gradual load changes.

Dynamic SHM

Dynamic structural health monitoring is used to handle dynamic loading, such as frequencies, dynamic displacement, modal forms, vibrations and accelerations. This type of analysis is suitable for structures subject to fast impacts involving frequencies and vibrations.

Geotechnical & environmental

Geotechnical monitoring focuses on ground movement, settlement, slope stability, subsidence and any changes that affect the structure stability. Environmental monitoring looks at factors like air quality, water level, soil contamination, wind speed and anything that accelarates structure degradation.







SMART BRIDGE MONITORING

✓ Enhance safety ✓ Increase productivity ✓ Improve quality





www.movesolutions.it



info@movesolutions.it

- **€** +39 338 263 9556
- Via Giovanni Battista Pirelli 11, 20124 Milano Italy
 Via Guglielmo Lippi Francesconi 1256/J 55100 Lucca Italy