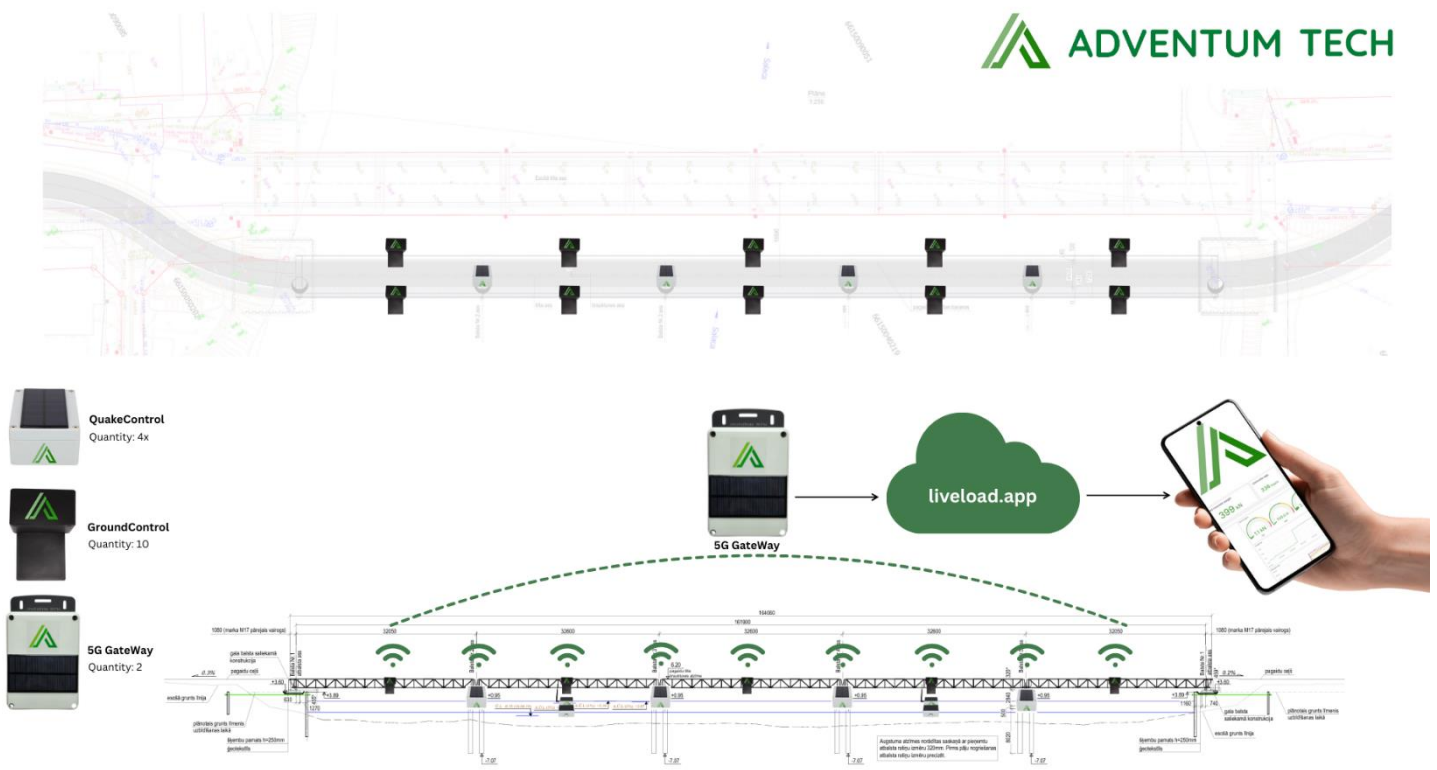


## Adventum Tech Monitoring Systems: **Digital Bridge**



## Product Overview

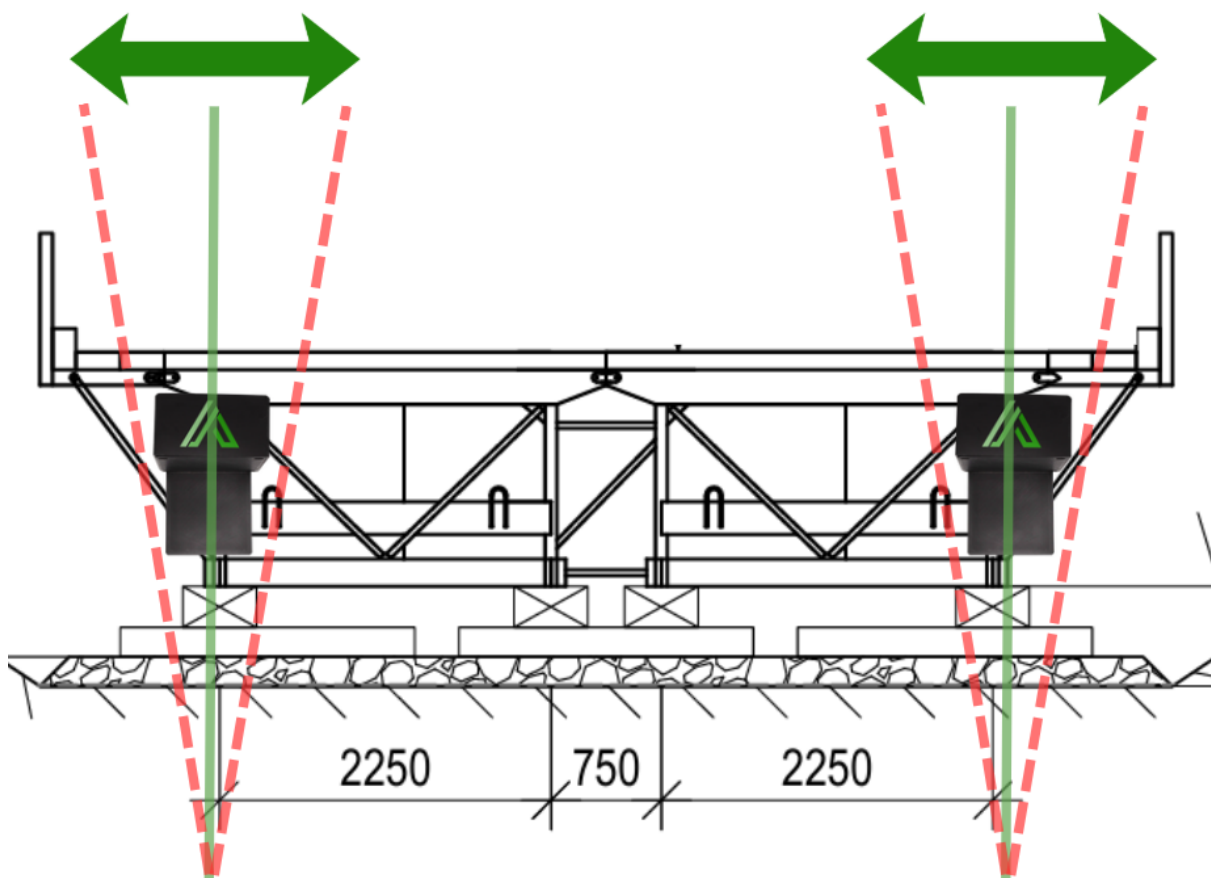
**Digital Bridge** by Adventum Tech is a complete and modular real-time structural health monitoring (SHM) system designed specifically for bridge infrastructure. The system enables continuous insight into the bridge's dynamic behavior and load distribution, enhancing both safety and long-term durability. Built with industrial-grade precision sensors and integrated via the **Liveload.app** analytics platform, Digital Bridge is suitable for all bridge types and operational environments.

## Core Components

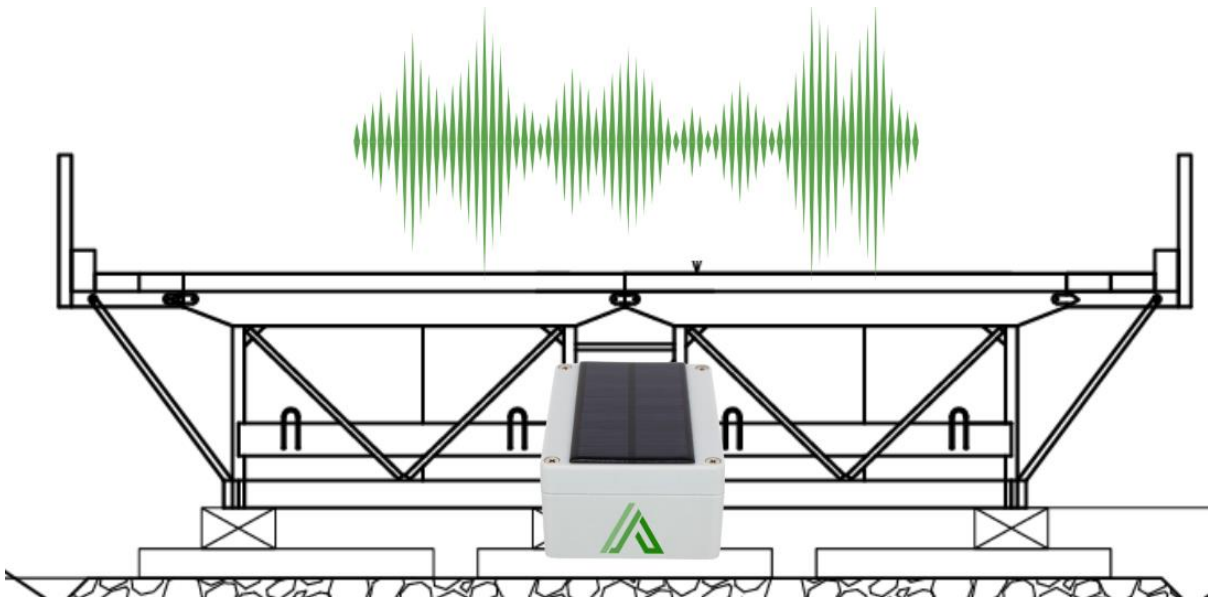
1. **LiveLoad:** Real-time load-bearing monitoring system deployed on bridge bearing elements (fixed and expansion supports).
  - **Purpose:** Measures axial loads transmitted through bridge supports.
  - **Use Case:** Early detection of overload or uneven load distribution.
  - **Benefits:** Optimizes maintenance cycles, ensures structural balance, reduces risk of deformation or fatigue failure.
  - **Sensor Type:** Pressure-based force sensors with wireless data transmission.



2. **GroundControl:** Advanced 3-axis inclination sensors placed on both sides of the bridge superstructure and abutments.
- **Purpose:** Measures tilting and angular displacement due to dynamic loads or settlement.
  - **Use Case:** Early warning of structural rotation, long-term movement trends.
  - **Benefits:** Helps assess bearing alignment, pier or girder integrity, and detect early-stage deformations.
  - **Features:** High sensitivity, wireless, long-term battery-powered.



3. **QuakeControl:** Vibration monitoring system installed on key bridge structural elements such as piers, girders, and abutments.
- **Purpose:** Measures vibration frequencies and intensity from vehicle loads, wind, seismic activity.
  - **Use Case:** Tracks dynamic performance and fatigue over time.
  - **Benefits:** Identifies anomalous vibration patterns that may indicate cracks, joint deterioration, or resonance effects.
  - **Specs:** Triaxial accelerometer-based with real-time threshold alerts.



#### Optional Add-Ons

- **Temperature Sensors:** For expansion joint stress analysis and monitoring seasonal temperature effects.
- **Displacement Sensors:** For bridge deck displacement and joint gap monitoring.



## Liveload.app: Central Analytics Platform

All sensor data is transmitted wirelessly via 5G/LTE gateway to the **Liveload.app** platform.



### Key Features:

- Dashboard visualization of sensor metrics in real time
- Historic data analysis & trend reporting
- Threshold-based alarms and notifications (SMS/Email/API)
- Project-specific user interface with secured access
- Cloud-based storage and exportable compliance reports

### User Roles:

- Asset Managers: Evaluate structural health KPIs
- Engineers: Analyze long-term behavior for maintenance planning
- Contractors: Validate design assumptions and track construction-phase behavior





## Applications

- Highway Bridges
- Railway Bridges
- Pedestrian and Modular Bridges
- Temporary or Emergency Support Structures



## Benefits for Asset Owners & Engineers

- Early detection of structural distress and anomalies
- Cost-efficient predictive maintenance
- Evidence-based decision making for retrofit or capacity enhancement
- Risk reduction during extreme load or seismic events
- Regulatory and insurance compliance



## System Configuration & Installation

- Wireless Plug-and-Monitor Deployment
- Configurable sensor quantities depending on bridge size and type
- All sensors are ruggedized (IP67+), solar-power-compatible, and field-calibrated



## Contact Adventum Tech

For more details, custom configurations, or pilot projects:

- Email: [info@adventumtech.co.uk](mailto:info@adventumtech.co.uk)
- Website: [www.adventumtech.co.uk](http://www.adventumtech.co.uk)

