MURPHY

Breathing life into infrastructure

INNOVATION EDGE™: BRIDGE STRIKE MONITORING TECHNOLOGY

Main Image: The Bridge Strike Monitoring Technology installed on the leading edge of a bridge

Murphy, in collaboration with Network Rail, has developed a cost-effective system for remote monitoring of damage to rail structures

Description

The Bridge Strike Monitoring Technology was developed by Murphy in collaboration with client Network Rail. The technology can be used on rail-over-road bridges which are lower than the standard height. Its application is particularly crucial where the leading edge of the structure is vulnerable to being struck by high vehicles attempting to negotiate the reduced clearance.

The Bridge Strike Monitoring Technology comprises several remote cameras that are installed on the underside of the bridge structure. The number of cameras is dependent on the bridge layout.

Tell-tale targets are erected in each camera's line of vision, typically on the opposite edge of the bridge, to confirm the extent of bridge movement resulting from a strike.

The technology is powered by a solar PV panel which is connected to a battery and control box. Stored inside the control box are a router, a network switch and an inverter. In the event of a vehicle striking the structure, a notification text message is sent to Network Rail Operations Controller. The structure can then be viewed remotely via the hosting website.

The Benefits

- Enables remote monitoring of structures in isolated geographical locations.
- Facilitates immediate assessment of impact and damage severity, allowing Network Rail to take proportionate action and avoid unnecessary track closures and restrictions.
- Has a low carbon footprint and sustainability credentials due to its solar power.
- Reliable and easy to maintain in addition to offering potential for future savings for Network Rail.

Cameras fitted each side of the bridge

Application

Murphy utilised the Bridge Strike Monitoring Technology for the first tranche of works relating to the 2012 London Olympics. Following that, Murphy further developed the system making it more robust, cost-effective and efficient.

Tranche two of the works for installing this technology and worth approximately £2.2m at the time of writing is currently being rolled out on a number of bridges.

It is envisaged that the Bridge Strike Monitoring Technology will provide social and economic benefits by enabling railway lines to remain open, trains to run at reduced speed whilst the damage is assessed and minimising delay costs.

End User Feedback

"Murphy continually looks into potential challenges to the railway infrastructure and seeks innovative ways to address these with leading-edge solutions." – **Sean Blackmore, Murphy Regional Manager**

This solution has received positive feedback from Network Rail.

Targets attached to the bearing pads of each bridge beam

Market Potential

The monitoring system currently focuses on rail-over-road bridges however simple modifications and adjustments can enable monitoring of other structures.

Murphy is currently developing remote monitoring technology which can be used as a stand-alone or integrated together for flood monitoring, embankment slippage, structures movement, and weather stations.

Learn More

For more information, please contact Murphy Marketing & Communications Department at communications@murphygroup.co.uk

This is a brief description of the solution as we have applied it and should not be taken as exact. Its application must take into account the local environment and specific project requirements.