



Senceive's Callum Davidson and Simon Brightwell explain more about InfraGuard™, the sophisticated wireless monitoring solution helping asset owners weather the weather on critical infrastructure

Remote monitoring for resilient infrastructure and construction



Images: Senceive

Increasingly volatile and frequent weather events are causing cuttings, earthworks, and embankments to be more unstable, leading to landslips. The rail industry has to be one step ahead to keep services running and passengers safe, something that is being achieved thanks to wireless technology.

This is being led by Senceive, with its sophisticated wireless monitoring solution InfraGuard™ helping asset owners to manage critical infrastructure. Last winter alone it came into play in more than a dozen locations where landslides have occurred.

"We're getting more and more violent rainstorms and facing groundwater pressures that we've never faced before, so we need to ensure at-risk earthworks are being monitored," said Simon Brightwell, Head of Marketing.

InfraGuard wireless monitoring not only tells you what your assets are doing, but also shows you. Smart tilt sensors respond to movement to give you immediate insight into an event at a remote site.

Callum Davidson, Strategic Account Manager, said: "The system gives us alerts of small-scale movement which could indicate the early signs of a slope failure, and graded alerts of further movement, backed up by photographic images.

"It combines long-term asset monitoring with emergency event monitoring. There have been examples of us rushing out the equipment to earthwork failures, and within hours the system

has been installed and is sending back data about movements. It is providing the assurance of 24/7 insight and near real-time alerts with users getting more data when they need it most from fewer site visits which overall saves money and reduces the risk."

InfraGuard is built around the Senceive FlatMesh™ intelligent communication platform which provides long-term, low-maintenance monitoring with readings taken at set intervals in normal conditions. The sensors can identify movement as small as 1,000th of a degree. When the system detects movement outside pre-set thresholds, it responds automatically and accelerates readings and image transmission, with the extent of the response related to the severity of the event.

Having been first deployed by Network Rail on routes in Kent, Sussex, and Wessex, it is proving a success worldwide, for example with recent rail projects in California and Canada.

Simon said: "Some of the landslips might not seem enormous, but even a small amount of material encroaching on a track poses a significant risk in terms of danger, disruption, and delay on an already busy network, so it is something that has to be taken very seriously.

"There are lots of steep slopes and challenging geology along the rail network and as much as you can do with traditional, visual inspections and surveys, you just can't keep track of these things, they are too unpredictable, which is why continuous

remote monitoring is so important."

Next year will mark the company's 20th anniversary, a journey which has seen it grow from the early days within the research laboratories of University College London, to a global leader for wireless remote condition monitoring solutions. Today, it has installed tens of thousands of sensors worldwide, dealing with millions of data points every year, and playing a vital role in keeping trains running safely.

Simon said: "Technology is fundamental in the whole process of predicting where problems will occur and targeting where scarce maintenance resources need to be best applied to ensure the safe running of the railway."

Callum concluded: "We are excited about the benefits the industry can gain in the future by integrating data, for example from monitoring systems, from highly localised weather forecasts, and from historic records in order to build a robust risk-based automated alerting system.

"At the end of the day, we are offering a solution to protect the assets and ensure people travelling on the railway are safe. We have an important part to play in that, with products that can be rapidly deployed on site and make the data available within minutes, something that is vital with the extreme weather we are experiencing."

Visit <https://www.senceive.com/> for more details.