

Case Study

Advanced Vibration Monitoring using LoRaWAN Helps Global Manufacturer Avoid Millions in Downtime



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Enabling an Intelligent Planet



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The leading LoRaWAN solutions provider, [Meshed](#), has been collaborating with a major manufacturing organisation by implementing a comprehensive digital asset management solution for their mission critical processes and operations. The focus of the end-to-end IoT solution was on providing high-quality real-time data sets generated from robust and highly scalable LoRaWAN sensors for predictive maintenance.

The benefit of predictive maintenance using sensors and connectivity networks is to prevent failures with some of the most popular use cases in an industrial factory or plant being

- Vibration monitoring for early fault detection in pumps, motors, and conveyors.
- Temperature & pressure tracking to prevent overheating and breakdowns.
- Automated lubrication alerts to minimise wear and tear.
- Water, energy and gas metering to ensure efficient use of resources and to avoid production loss
- Asset tracking to understand the whereabouts for all assets to assist with maintenance scheduling

The need for digital transformation in the Industrial Manufacturing Sector

To remain competitive amid the inherent cyclicity of global demand, industrial manufacturers—particularly in steel production—must invest in digital transformation. By adopting technologies like digital twins, IoT, and advanced analytics, they can enhance agility, optimize operations, and improve product quality, ensuring resilience and long-term success.

Unlocking the Power of LoRaWAN for Remote Asset Monitoring & Digital Asset Management

The global manufacturing company has embarked upon a significant digital transformation and ESG initiative designed to deploy mass scale IoT and smart sensing with the data feeding into advanced predictive analytics and AI tools. The benefit of this move is to acquire highly granular real time datasets that pinpoint any potential issues with machines and equipment and to improve operational efficiencies. With accurate 24/7 datasets the organisation is informing its predictive and intelligent digital maintenance systems.

To kick start their IoT asset intelligence journey, the company initially installed several LoRaWAN gateways at one of their major Port facilities. The gateways were connected to the SLA backed MeshedX LoRaWAN network server giving assurance of the network uptime performance.

Whilst the organisation had already installed multiple communication networks including cellular, WiFi and Bluetooth as well as commenced their IoT sensing use cases with some proprietary sensors, LoRaWAN was seen as a better answer to enabling connectivity at difficult to get to machine locations given its ability for extended coverage and deep penetration inside factories and sub floor environments. Furthermore, as LoRaWAN is a global standard with a massive supplier eco-system the opportunity to host multiple sensing use cases using the same network was seen as a major competitive advantage and return on investment business driver.

Machine Vibration Case Study for Global Manufacturing Company

After piloting multiple IoT use cases—water metering; temperature, level and pressure monitoring; and asset tracking with trend analytics and automated alerts—the company identified its highest-impact real time data application: granular vibration monitoring of mission-critical machines and motors. Powered by the private MeshedX LoRaWAN® network, the highly scalable solution delivers early-warning insights that prevent catastrophic failures, cut unplanned downtime and safeguard production.

Unexpected machine or motor failures can halt production for days and cost millions. Inherently safe industrial IoT sensors can detect issues early and trigger condition-based maintenance—preventing catastrophic breakdowns and minimising downtime.

The company invested in a trial of the [Advantech](#) 2410 Wise vibration sensors to provide 24/7 rotating machines & motor vibration monitoring at a couple of locations. Meshed partnered with Advantech to conduct the trial as a pivotal partnership to demonstrate value add to the end customers machine performance and end of life failure predictive needs.

Introducing the Advantech WISE 2410 Vibration Sensor

The Advantech WISE-2410 is a wireless, battery powered LoRaWAN condition monitoring sensor designed for predictive maintenance in industrial environments. It helps reduce catastrophic machine failures in manufacturing sites by enabling early fault detection and proactive maintenance. The sensor enables real-time vibration and temperature monitoring to detect early signs of mechanical failure. With onboard analytics and predictive maintenance support, it helps reduce unplanned downtime, extend equipment life, and lower maintenance costs—without the need for complex installations.

Summary

As real time data started to flow, the organisation very quickly scaled the use case from 50 to now over 2,000 Advantech vibration sensors across multiple sites across Australia, Asia Pacific and the United States. The key benefits of LoRaWAN being the ability to provide factory wide full wireless coverage at a very low cost, deep wireless penetration indoors at the machine locations and reduced maintenance costs as the sensors are easy to install and do not need any SIMS or data plans to effectively send data via a secure connection to the internet application. Furthermore the MeshedX LoRaWAN Network Server is supported with SLAs on network uptime as well as comprehensive technical support.



About Meshed

Empowering Industries with Smarter, More Resilient Operations

Meshed: turn assets into uptime.

Meshed delivers secure, scalable LoRaWAN® remote asset monitoring solutions proven across smart cities, utilities, industrial and infrastructure sectors. We turn long-range, low-power data into real-time insights—shifting teams from reactive fixes to predictive maintenance powered by AI/ML.

For over a decade, customers have cut downtime and costs with our managed networks, proactive alerts and actionable dashboards.

Our IoT solutions serve asset intensive industries to be leaders in asset intelligence. We deliver secure and robust just in time data over managed LoRaWAN networks to enhance operational efficiency, resilience, and sustainability.

Start your journey to smarter asset management powered by data driven insights with Meshed today.

About Advantech – <https://www.advantech.com/en-au>

Advantech's corporate vision is to enable an intelligent planet. The company is a global leader in the fields of IoT intelligent systems and embedded platforms. To embrace the trends of IoT, big data, and artificial intelligence, Advantech promotes IoT hardware and software solutions with the Edge Intelligence WISE-PaaS core to assist business partners and clients in connecting their industrial chains. Advantech is also working with business partners to co-create business ecosystems that accelerate the goal of industrial intelligence.

About LoRaWAN - <https://lora-alliance.org/>

LoRaWAN is a long-range, low-power wide area network (LPWAN) technology, created for sending small data transmissions over long distances, using sensors that can last for extended periods on small batteries. LoRaWAN has rapidly gained traction and global industry uptake since its release as an open standard in 2015 by the LoRa Alliance®. LoRa Alliance members are major technology players such as Semtech, AWS, Orange, Swisscom, Microsoft, Honeywell, Bosch, NTT, Senet, Microchip and including systems integrators like Meshed. LoRaWAN® and LoRa Alliance® are marks used under license from the LoRa Alliance®.