

# KONUX IIoT/SaaS predictive maintenance solution



KONUX is deploying AI-based predictive maintenance to improve the reliability of rail infrastructure. Zühlke developed the field data acquisition device.



## Benefits in a nutshell

- Agile methods enable rapid time-to-market and high quality
- Interdisciplinary teams enable numerous innovative details
- Zühlke's experience with smart connected solutions

## Absolute reliability essential

KONUX combines smart IIoT units, data fusion and AI-driven analytics to improve system availability and facilitate maintenance planning. This requires outstanding expertise and connected field sensors capable of operating autonomously for many years. Zühlke developed the electronics and embedded software, took care of test automation and industrialisation, and provided



»As a data company, we knew, the quality of our insights depends on the quality of the data collected. Zühlke, with their extensive expertise and proven high quality standards, was a great partner in helping us develop a robust and high-precision IIoT device, optimized for the harsh environmental condition on the railway track.»

Sébastien Schikora, CTO at KONUX

technical support with product manufacture. KONUX and Zühlke managed the project together using agile methods (Scrum) and a 'One Team' approach.

## Sensors face extreme conditions

Systems used on the rail network are very tightly regulated and have to be totally reliable. In the case of sensors, that means being able to record and transfer large volumes of data independently, maintenance-free and in near real-time for several years, despite being subject to extreme conditions. KONUX and Zühlke approached this challenge by using a series of device iterations to arrive at a final end product.

## Rail to cloud solution

The result was a robust, low-power sensor design that, by waking the sensor system shortly before a train arrives, guarantees a long life span. Data are processed internally using edge computing and then dispatched to a cloud. At the end of the project, the development expertise was transferred to KONUX, enabling the start-up to develop and support the solution independently going forward.

**Tools:** C++, Real-Time and Embedded Software, Agile Development, Microprocessors, Testautomation with Raspberry Pi, Jenkins, CI