SBB: Predictive maintenance of railway wheels

Zühlke develops a dashboard that provides live data and live predictions based on machine learning. This solution enables the predictive maintenance of railway wheels.

SBB CFF FFS

Benefits in a nutshell

- Increased planning efficiency and lower maintenance costs
- First tool providing a comprehensive overview of the status of railway wheels
- State-of-the-art machine-learning solution that provides live predictions

Demand for early warning system

Railway wheels have to be monitored by maintenance planners. Currently, live data regarding wheel characteristics are saved in different systems. Consequently, getting an overview of the wheel condition is a slow, manual process. Furthermore, alarm systems are only reactive. Rolling stock problems often become known when it is too late. In order to enable proactive maintenance, SBB is seeking to create a comprehensive monitoring tool that combines all data sources and uses machine learning algorithms to predict the state of wheel characteristics. This will enable the planning of maintenance and lower costs based on early problem spotting.

From proof of concept to operational system

On behalf of SBB and in close collaboration with railway experts, a Zühlke team of data scientists and software engineers shall develop a machine-learning-based solution to facilitate maintenance planning. The solution is developed in an agile manner using Scrum, delivering working software increments after each sprint cycle.

Health index for wheels

Zühlke shall develop a dashboard that integrates all available live data sources for wheels, provides live forecasts of wheel characteristics and enables a comprehensive overview of wheel status. Furthermore, a health index will be established, combining predictions with other available data in order to rank trains according to their wheel health, thus facilitating maintenance planning.

Tools: AI, D&A, Machine Learning, Digital Transformation, Predictive maintenance, Agile, Scrum, DevOps, Python, Confluence, Git, Intelij, Jenkins, JIRA, Docker, Kubernetes

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