Digital monitoring of rail infrastructure makes predictive maintenance possible

Requirements for predictive maintenance

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As a digital asset management system, zedas®asset helps maintenance managers to improve the availability of their infrastructure networks,increase the service life of their systems and to manage maintenance work significantly much more efficiently for their employees. Data from measurements, sensors, operation, history and maintenance measures are put together and correlated to this end.

Less downtimes and unnecessary maintenance work when using the Track Analyser

Weak analysis – predictive maintenance thanks to clever data management

Separating important of unimportant and urgent of less urgent is part of day-to-day life in asset management. You can see at a glance which sections of the track or which components have reached a critical state. In the Track Analyser, faults, condition information including occurring limit violations, maintenance history and planning are precisely allocated to the tracks to the metre and faults are prioritised with traffic light colours. Jobs are directly created for the maintenance team by clicking on the fault itself or on the section of track.

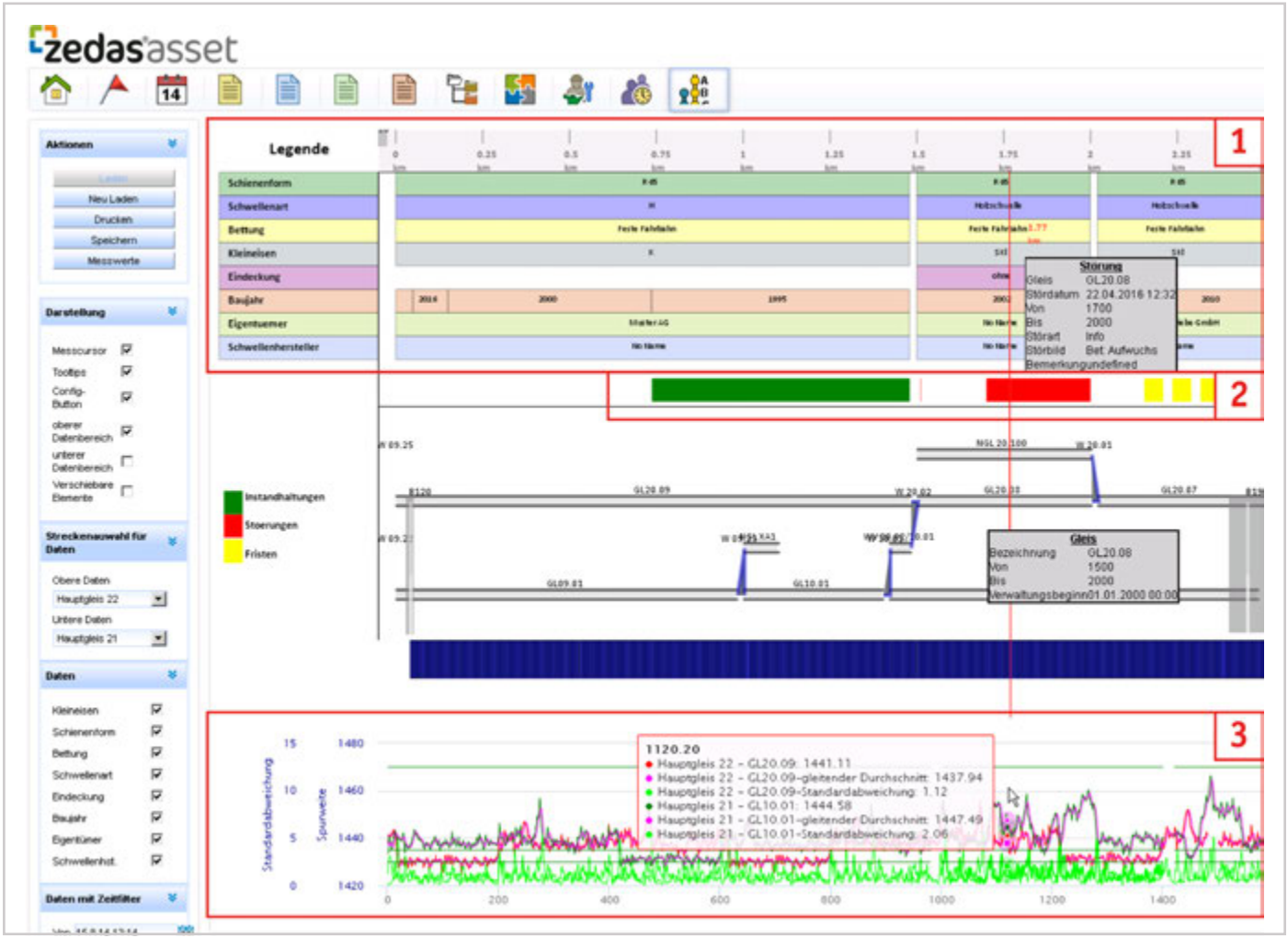

Fig. 1: Screenshot of the Track Analyser, 1. Structure of the track system, 2. Visualisation of maintenance, faults and periods, 3. Measured values

Optimised maintenance cycles with minimised repair costs

It is not only inspections and maintenance work which are periodical or strain-dependent automatically entered into the zedas®asset maintenance plans, also condition-dependent forecasts

Details on the writer

Business economist (VWA) Thomas Landskron has been working in Sales and Consulting at Zedas GmbH since 2006. By taking over the management of sales for zedas®asset 2011, he coordinates and develops strategies for national and international new customer sales. Landskron studied business administration at the VWA Cottbus.

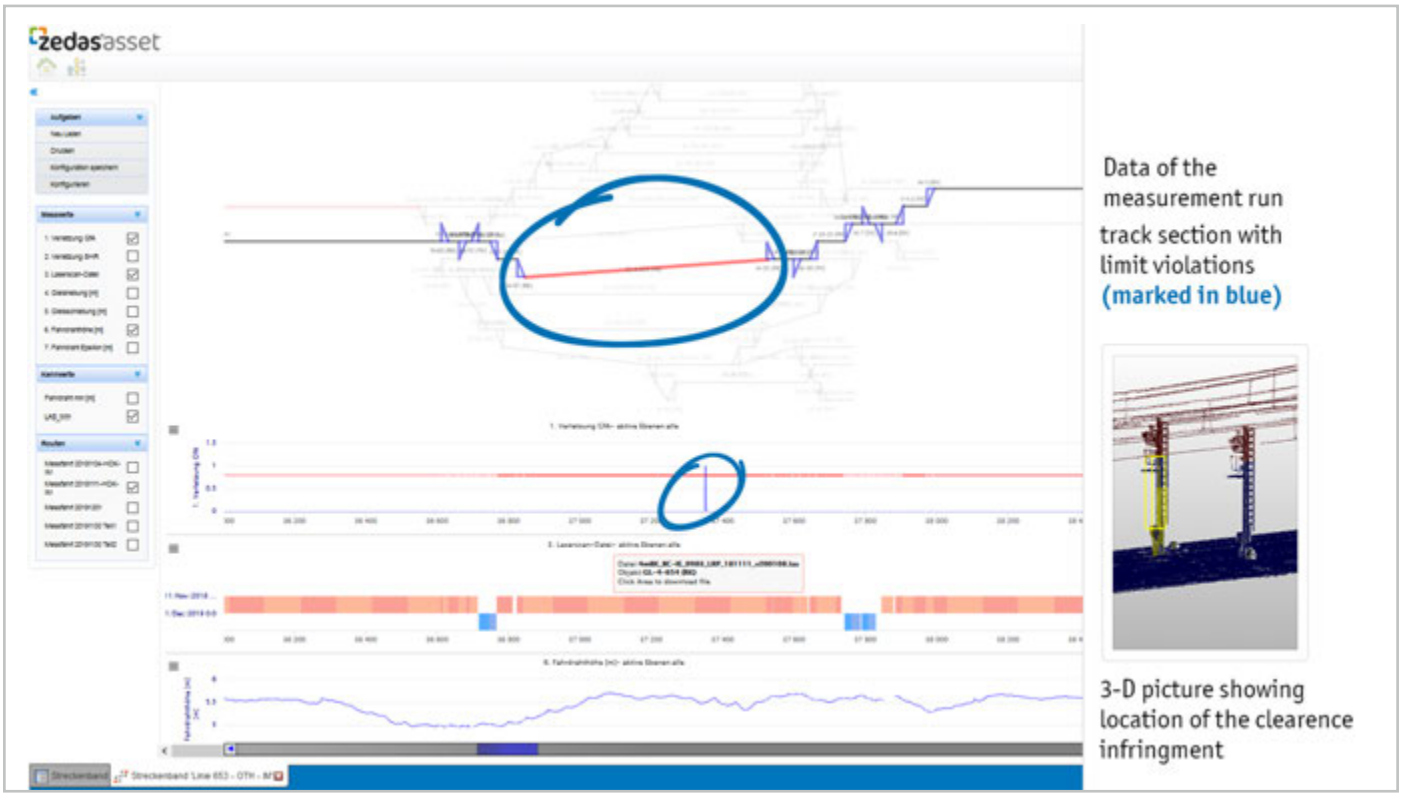

Fig. 2: Clearance profile

of when work will be required are entered based on the rail infrastructure data analysed. Intelligent conclusions can thus be drawn from this mass data ("Big Data"). A reliable forecast of the progression of wear and the probability of faults in rail infrastructure systems as well as automatic deadline calculation make it possible to optimally plan maintenance capacities and to prevent large fluctuations in workload.

Maintenance of rail infrastructure via app

The zedas®asset Smart app supports mobile employees in the field regarding fault detection. They get job orders on their mobile device and can directly process them and report back there. The app can be intuitively handled; only a minimum of data entries is required as there is a direct data exchange with zedas®asset. Multiple entries for faults, media discontinuities and error sources are thus prevented.

Digitised clearance assessments show bottlenecks at a glance

In a current pilot project, point clouds from rotation lasers which are placed along a route are evaluated. The measured data is analysed, the existing clearance profile is graphically displayed (see Fig. 2) and clearance infringements are visualised on the exact metre of track. Via mouse click you can get more information from the measurement run, e.g. size, extent and causes of the clearance infringement analysis of available space is an absolute must. Information about the useful clearance is also essential for planning larger transports.

CONCLUSION

Integrated, automatic measurement data analysis, condition assessment and forecasting including documentation makes targeted use of resources possible. As a result, maintenance processes can be managed significantly more efficiently. These consistent and optimised processes make preventive maintenance possible, thus avoiding unnecessary maintenances and unplanned downtimes.

Summary

Digital monitoring of rail infrastructure makes preventive maintenance possible

Digital monitoring of the railway infrastructure using zedas®asset enables a reliable prognosis regarding the course of wear and tear, the probability of malfunctions of equipment and thus predictive maintenance.
As a result, the availability of railway facilities can be increased and planning of maintenance measures can be significantly optimised.
Accurately to the metre, digitalised clearance gauge measurement shows narrow sections of the clearance gauge and thus offers the possibility to specifically take appropriate action and remedy these sections.