Intelli Stride

KATHREIN

Railway Tracking & Monitoring

Source: KathreinSt...

Challenge

Railway operators need to guarantee the availability of their railway networks as they are widely used these days. Even minor incidents can lead to major disruptions in the dense and complicated timetable of the transport system. One way to avoid incidents and accidents is to use security checkpoints, where various parameters are measured, such as profile clearance, wheel loads, heat, fire or chemical leakage. The challenge was to identify alarming measurements as accurately as possible down to an axle/ wheel of a certain rail car body, in order to perform the actions as efficiently as possible.

Background

The railway operator wanted to track and identify the rolling stock passing the security checkpoints. Since the planning data of the compositions is not always up to date, especially for freight and international trains, there is the need of a system which can precisely identify each railcar body. For that purpose, it is also necessary to identify the axles passing the checkpoints (time, speed and direction).

Solution

Due to electromagnetic waves, Radio Frequency Identification (RFID) allows for an automated and non-contact identification of the rolling stock.

Almost the entire railway fleet of the operator has been equipped with passive UHF RFID tags. The security checkpoints on each rail were equipped with a Kathrein RFID infrastructure which also incorporates an external wheel sensor system. Data can also be made available to other rolling stock operators if they are prepared to equip their vehicles with passive UHF tags.

The system, which completely consists of outdoor-capable ARU 3500 readers, is connected to the backend systems with Kathrein's CrossTalk AutoID suite, which also provides configuration and monitoring.

Result

The Kathrein RFID technology in combination with the external wheel detection system and Kathrein's Cross-Talk AutoID platform leads to an increased precision in the allocation of measurements to a certain axle/wheel of a rail car. With this information, not only problems (axles getting too hot, overloaded axels, etc.) can be precisely assigned to a railcar body and axle/wheel, but also the long-term trend of the measurements at a security checkpoint can be documented. This allows for the evaluation of various points, e.g. railcar bodies with axles or wheel sets. This enables the railway operator to work with predictive maintenance and to be aware of impairments before they cause an incident. By making this information available to other rolling stock owners, it is possible to protect the railway network and increase its availability.

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