Using RFID readers to optimize the effectiveness of wayside train monitoring



Numerous data and information are taken when trains pass train-monitoring installations. RFID technology now permits a more precise and reliable assignment of the gathered data to individual train cars and axles. Moreover, the relevant data can also be used for other applications. The aim of the present project is to assess the benefits of equipping wayside train monitoring installations with RFID technology.

The Swiss Federal Railways (SBB) operates a network of around 75 site of wayside train monitoring installations. Passing trains are monitored at these locations and the various data can be used to assess the status and load of the trains.
The current practice is to assign the measured data to the relevant train cars and their axles by counting the total number of axles on the train. Other databases (e.g. cargo information systems) may be involved in this analysis.

Experience shows that the assignment of data includes imprecisions that can lead to mistakes, for instance, when monitoring a train after an alarm.
However, this lack of precision can be significantly reduced with the help of RFID technology. All that needs to be done is to outfit the train cars with transponders (RFID tags) and the monitoring installations with readers. Doing so enables a reliable assignment of the measured data to individual train cars, axles and wheels. The retrofitted systems can also be used to record train data for other purposes such as railcar maintenance.
EBP is evaluating the use of RFID for the following types of monitoring installation:

Client

Swiss Federal Railways, Infrastructure Division

Facts

Period	2016
Project Country	Switzerland

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— Hot box and hot brake detectors
— Wheel-load checkpoints (dynamic forces)
— Profile and antenna monitoring installations
— Fire and chemical-hazard detection installations
— Dragging equipment detection installations

The use of RFID technology helps to improve railway safety, reduce delays in railway operation and increase the efficiency of vehicle and infrastructure maintenance. In addition to this, the gathered data can to some extent replace time-consuming weighing procedures.
EBP compared the estimated benefits to the cost of equipping trains and monitoring installation with RFID technology. Using operational data a cost-benefit ratio can be assigned to each individual monitoring installation. This provides a basis for prioritizing retrofitting projects.
Source: SBB