Streamlining Shunting Yard Operations
through Automation and Deep Learning

Case Study

FACING INDUSTRY CHALLENGES WITH SHUNTING YARD AUTOMATION

With the next "Industrial Revolution" knocking on the door bringing along the overdue and inexorable modernization of the railway industry, operators worldwide have acknowledged the necessity to face the many foreseen challenges head on.

Shunting yard operations in particular are no exception and will undoubtedly be affected by three main challenges:

Manpower shortages

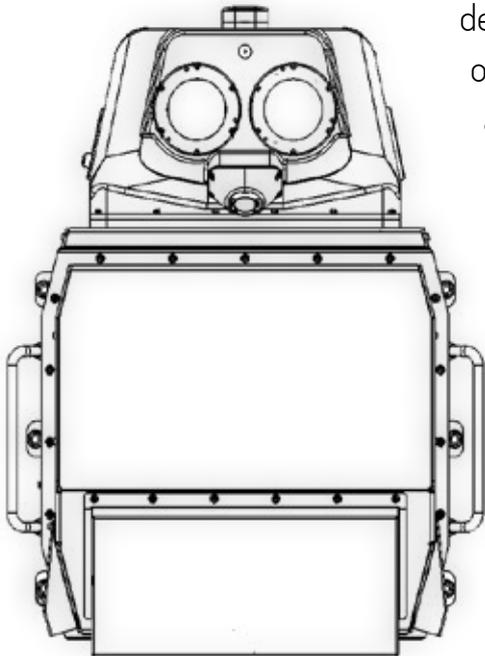Safer work environments

A growing need for automation

To cope with these challenges and ultimately improve driver safety while at the same time reducing costs, cargo operators – especially in shunting yard operations, which requires a lot of manual work – are turning their attention towards process automation. In early 2018, SBB Cargo AG recognized these challenges and deployed with Rail Vision to an automated assisted shunting process with obstacle detection to reduce the required number of workers on the track from 2 to 1. Rail Vision took on the challenge, adding an additional short-range early warning system for use in switchyard operations.

Path finder, signal & human detection

RAIL VISION'S TAILORED SHUNTING YARD SOLUTION FOR SBB CARGO'S AUTOMATION NEEDS

Rail Vision's cognitive fusion sensor technology identifies and detects humans, animals, switch states, brake shoes, trains, and other obstacles up to 200 meters at all hours of the day and in all weather conditions. For the automated assisted shunting, Rail Vision mounted its system on the front and rear of the SBB Cargo shunting locomotive, streaming live visual data to 3 remote display units.

The first 2 are located in the locomotive cabin providing the driver with visual and audio alerts in real-time. The third display is mounted to a remote control with integration of Schweizer Electronic. Thus, the shunting operation can be controlled from a remote location near the wagons using only the remote control equipped with Rail Vision visual data. The solution allows the entire shunting process to be operated by one person. At the request of SBB Cargo AG and in

POC system on SBB Cargo shunting locomotive

Human & braking shoes detection at night and in harsh weather conditions

collaboration with Schweizer Electronic, Rail Vision developed and successfully field tested automatic emergency braking in the event that an object is detected within a predefined range. Rail Vision's system has already been successfully tested in SBB Cargo's shunting yard in Switzerland.

Rail Vision™

CONCLUSION:
AUTOMATED SHUNTING YARD OF TOMORROW

Automation is no longer just a buzzword but rather has become a necessity. It offers enormous potential for the railway industry, shunting yard operations in particular, where locomotives operate at low speeds and are usually confined to limited areas of the yards.

Therefore, shunting yard operations are destined to be first in the automation wave. The immediate impact of such automation is a notable reduction in the number of workers operating on the tracks accompanied by an increase in profits.

ABOUT RAIL VISION

Rail Vision is an Israeli startup developing a cutting-edge cognitive fusion sensor technology, including deep learning, data analysis, predictive maintenance, and digital mapping for the railway industry. The system becomes the "eyes" of the train and control center and improves operational flexibility as well as safety. Rail Vision is the owner of certain global intellectual property rights with respect to the above-mentioned technology. It offers inter alia solutions for shunting yard and main line operations, designed to cover obstacle detection in all weather conditions, day or night.

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Rail Vision™