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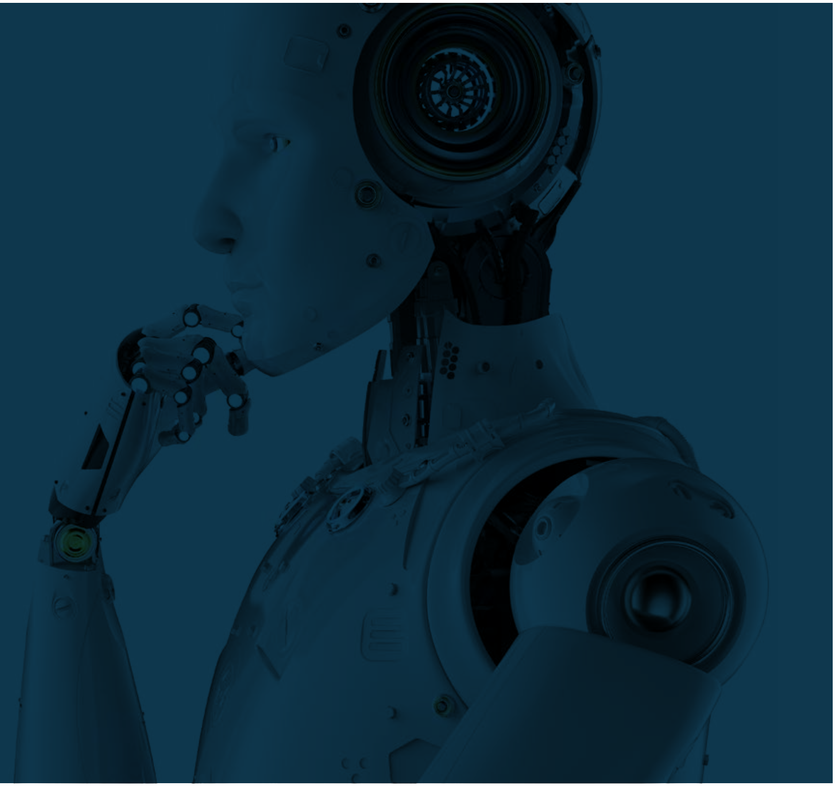
CASE STUDY

S&T Group enables a smarter and more sustainable railway in the Czech Republic



In order for the selected railway stations to provide the most optimal service, the major project had to be undertaken by a reputable IoT solution provider with a strong global presence, and S&T Group's company Kontron Transportation was the perfect fit.

Digitalization enables smarter transportation

As a staple of everyday passenger, cargo and freight travel, railways are undoubtedly one of the most important modes of transportation globally. Rail transport is critical national infrastructure, and therefore it is paramount that the management processes in stations are the most efficient, sustainable, and time-effective in order for railway operators to provide the best service possible for its passengers.

With digitalization gradually changing the way we use technology, many on-site functions such as automated operations, maintenance, and site management are becoming increasingly dependent on smart technology and can provide innumerable benefits. This can include substantially reduced employee, installation and administrative fees long-term, as well as improved security and overall service reliability for passengers and service operators.

Transforming the Czech Railway

The state organization "Správa železnic, státní organizace" is the operator of the national railway infrastructure in the Czech Republic. With more than 17,000 employees and 1,500 railway station stops nationwide, Správa železnic wanted to increase the amount of rail passengers using its service. This will subsequently help reduce the number of accidents caused by vehicles on the road, and lower the state organization's overall carbon footprint by decreasing the amount of CO2 emissions produced. To achieve this, railway operators needed to increase rail accuracy, time-management and predictive processes.

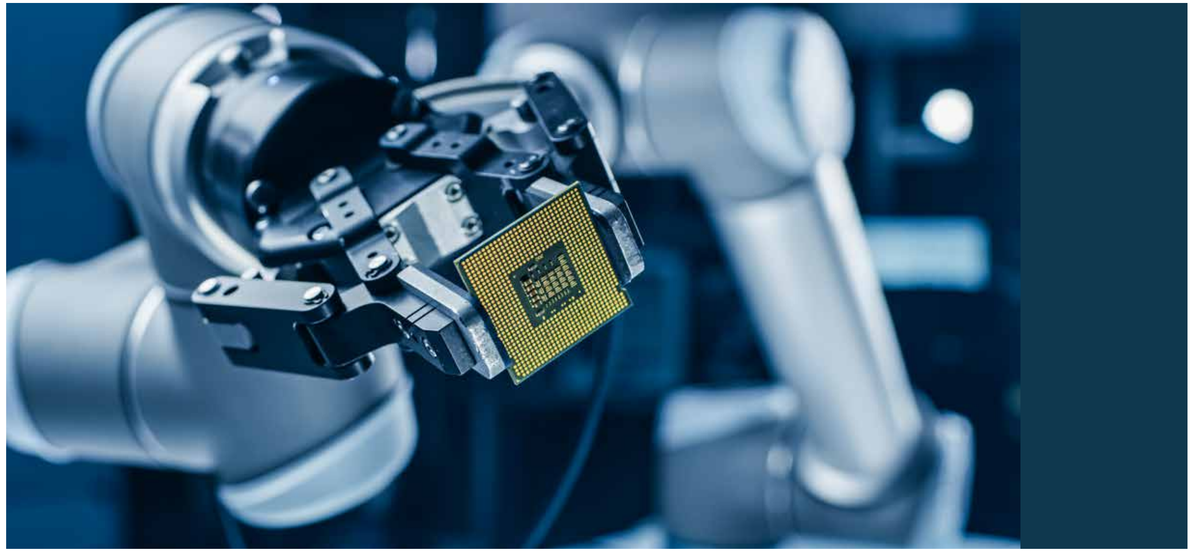
In order for the selected railway stations to provide the most optimal service, the major project had to be undertaken by a reputable IoT solution provider with a strong global presence, and S&T Group's company Kontron Transportation was the perfect fit. Amounting to more than EUR

60 million, Kontron secured three major contracts with the state organization as a GSM-R (Global System for Mobile Communications – Rail) provider.

As well as significantly increasing its global market position, Kontron was given the opportunity to demonstrate its valuable expertise in providing next generation end-to-end Internet of Things (IoT) solutions for mission-critical rail transport.

The IoT solution that enhances transport systems

The IoT solutions implemented by Kontron involve major enhancements to mission-critical rail transport systems for Správa železnic and incorporates monitoring systems that dynamically transform daily operations.
Comprehensive and remote, Kontron's patented Smart Monitoring System technology provides the railway stations with significant upgrades, controlling all railway components and performing service maintenance. This includes upgrades to radio and frequency planning processes, configuration capabilities for crucial rail transmission, and railway dispatcher signals. It enhances the overall safety of passengers, by improving general functionality, capacity and time-effectiveness in energy usage, engineering works, and site management. Due to the work implemented by Kontron, it will soon be possible for station operators to expand their services with access to photovoltaic panels, further reducing energy consumption and ensuring a more sustainable railway.



Automation to stabilize rail systems

A major upgrade that Kontron provides is the Smart Technological Units that harnessed sustainable processes on each site, by providing automated application functionality that eliminates unnecessary energy-intensive operations. This also improves reliability in all aspects of the railway operation.

The units also came equipped with automated functionality, with increased management and optimization through analytical processes, and in turn provided improved security and dependability throughout the entire operation. Kontron's smart technology autonomously detects faults and can alert users of the need for service maintenance well in ad-

vance, therefore preventing long-term breakages and repair costs.

S&T Group supporting sustainable and smart rail

By implementing Kontron's smart transportation solution, more than 100 new GSM-R base sites were successfully integrated with the innovative IoT systems. As a result, operators are now able to utilize the smart monitoring systems to enhance daily processes for train time accuracy and more reliable remote monitoring of equipment. This provides improved productivity and eliminates the need and expense of technicians visiting the site to resolve any issues.

Additionally, Kontron's installations also encouraged passengers to use a more sustainable method of transport. This in turn led to a significant decrease in CO2 emissions, and most importantly, reduces the number of vehicles and potential accidents while on the road, enabling Správa železnic to achieve its long-term sustainability and management goals.
With all three projects set for completion by 2024, Správa železnic will be able to support its customers with a superior rail experience, due to Kontron's cost-effective transportation solutions, designed to facilitate a smarter and more sustainable future.