Kontron Transportation

DIGITALIZATION ECOSYSTEM

Tailor made digital solutions





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TAILOR MADE DIGITAL SOLUTIONS FOR RAILWAYS



Kontron Transportation is a leading global provider of end-toend communications solutions for mission-critical networks.

The Kontron Railway Digitalization Ecosystem is modular and offers customized solutions with sophisticated and user-friendly analytics. All modules can be combined with each other. As a system and service integrator, we develop implementable solutions together with our customers. Our focus is on cost optimization in our customers' operations and asset management.

Together with our partners from the S&T Group, we offer an ecosystem of digitalization solutions from a single source, paving the way to the digital future for railway customers around the world.

ASSET MANAGEMENT FOR RAILWAY INFRASTRUCTURE OPERATORS





ABOUT THE SOLUTION

The INFRALIFE® software from 3B infra is the proven vertical one-stop-shop solution for linear asset management (LAM), facilitating the holistic management of integrated railway networks, assets, maintenance, forecasting, life cycle management as well as reporting & visualization. INFRALIFE® integrates infrastructure-expertise and latest information technology. The software is based on a strictly modular concept. Customers profit from a best practice approach that derives from close collaboration & development together with railway infrastructure companies.

Sensors can connect to INFRALIFE® and transmit data 24/7 for smart asset condition monitoring. The mobile use of INFRALIFE®mobile – available on both Android and iOs – is optimized for service team field work.

OUR VALUE PROPOSITION

AVAILABILITY

Obtain real-time and historical data and access the relevant data immediately in a detailed overview.

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USABILITY

Access all data 24/7 via an intuitive interface from any device and any location, regardless of whether it is a PC, tablet or smartphone.

INTEGRATABILITY

Merge the existing software infrastructure with INFRALIFE® and connect it with ERP, GIS, DWS, diagnostic or operating systems.

CUSTOMER BENEFITS

Select the modules that are most relevant

to your use cases and customize your

Scheduled Maintenance

INFRALIFE® supports the responsible maintenance departments in their operative work by giving employees an overview of the status of all activities.

MODULARITY

individual solution.



Real-time Monitoring

Display of train positions in real-time and archiving of train movements. If needed, 3B infra provides interfaces to customized positioning and timetable systems.

Defects and Failures

Potential defects and critical tolerance violations are indicated in the system overview. A comparison of historical data allows trend statements to be made.



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Asset Documentation

INFRALIFE® integrates a holistic document database.
On request, 3B infra implements an interface to
your existing document management system (DMS).

Measurement Data

The master data and status data for all assets, as well as forecast data, are all accessible through a single system.



Smart Assets
Ability to map the entire infrastructure in a single system.
A flexible architecture ensures that the special requirements within the departments are considered.

ABOUT 3B INFRA

3B infra is an innovative IT-undertaking. It delivers software solutions to railway infrastructure operators. Precise knowledge of technical railway assets and their condition are necessary requirements for the optimized management of cost-intensive infrastructure. Here lies the core competence of 3B infra.

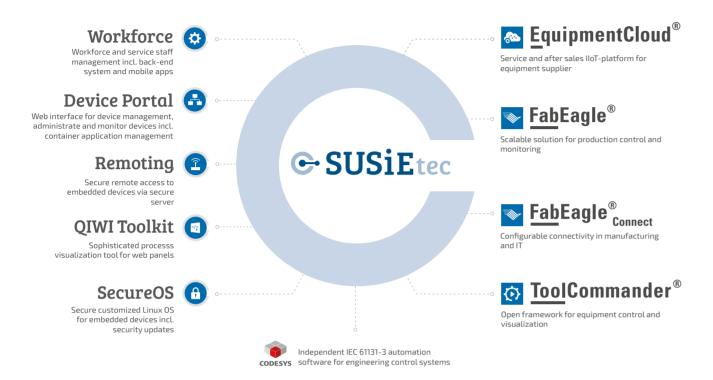
It specializes in railway technology and IT software systems and knows the challenges in the railway business. As an innovative solution provider in the areas of railway infrastructure, the company offers consulting, design, development and implementation of asset management standard software.

Find out more about 3B Infra: www.3binfra.at

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E2E IOT FRAMEWORK





ABOUT THE SOLUTION

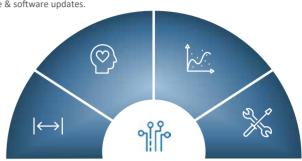
A data-driven innovation process which focuses on customer needs and operational excellence is the base for digital transformation in industry. The driving factors of digitalization are connectivity between products, machines and collaboration between people across the complete industrial value chain. The speed in which products need to get to market and cost efficiency are more important than ever. Simultaneously the complexity of customization demands is increasing and the way business and manufacturing processes are executed is changed by emerging technology.

With the SUSiEtec toolset we provide holistic software and hardware solutions in combination with a deep expertise in digitalization for equipment suppliers and manufacturers. SUSiEtec provides a tailored end-to-end IoT framework, developed in modular form, where components can be picked and used as needed for dedicated use cases. It is a comprehensive solution that's designed to help connect devices by providing the necessary link between them. The framework is customized to fit requirements of different applications and is deployed at the boundary between sensors and cloud. This toolset analyzes all data coming from devices and enables acting from the insights by integrating with back-end systems.

OUR VALUE PROPOSITION

USER-FRIENDLY

Fast and remote deployment of existing applications through automated firmware & software updates.



DATA-DRIVEN

Seamless integration to connect, store, route and manage your Industrial IoT data.

CUSTOMIZABLE

Ability to scale your business and analyze untapped data to support your individual Use Cases.

CUSTOMER BENEFITS

Hardware, software, connectivity and

security to monitor and manage your

Predictive Maintenance

Reduce downtime of equipment and processes by anticipating necessary fixes and maintenance.



Machine Learning/AI

Develop smarter products and services by implementing machine learning and data science.

Real-time Monitoring

Ensure the "right" resources are being used at the "right" time for the "right" application or process.

END-TO-END

fleet of devices.





\ Fleet Management and Logistics

Persistently track trains and their performance to optimize usage, and proactively detect issues.

Asset Tracking

Improve total cost-of-ownership by understanding usage of assets, such as freight wagons or rail infrastructure.



Secure interface for managing and distributing updates including necessary firewalls.

ABOUT SUSIEtec

A brand of Kontron Technologies GmbH. Kontron Technologies GmbH takes the requirements of customers into account and combines core competencies from different technology segments as well as expertise from different markets. This efficient combination of innovative proprietary technologies, high-quality IT solutions and professional services shapes Kontron Technologies.

The variety of services includes software solutions that meet standard requirements as well as individual wishes. Kontron Technologies offers process and business consulting as well as the implementation of digital workflows in existing systems and mobile software solutions, up to software development in the area of management software.

Find out more about Kontron's SUSiEtec solutions: www.susietec.com

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EQUIPMENT CLOUD





ABOUT THE SOLUTION

The EquipmentCloud® is a cloud-based service solution that connects devices, systems, and people centrally on one platform. The modular and ready-to-use applications allow customers to orchestrate internal and external processes, build up and provide system-related data and information along the entire life cycle or project duration for all involved stakeholders.

Detailed analysis functions enable precise data evaluation and pave the way for digital services, preventive maintenance and artificial intelligence (AI). The scalable entry and the smooth integration into the existing IT land-scape via RESTful APIs guarantee a quick start without high costs.

OUR VALUE PROPOSITION

CENTRALIZATION

Create a central source for all productrelated information (internal and external).

UTILIZATION

Enable continuous monitoring of the functionality of assets and components.



OPTIMIZATION

Deploy your skilled personnel effectively and reduce unnecessary travel times and costs.

INTEGRATION

Embed your machine and system data modular, flexible and upgradable.

CUSTOMER BENEFITS

Asset Monitoring

Monitor your asset performance intelligently and systematically evaluate process data and trends.



Knowledge Database

Ensure a sustainable transfer of knowledge via the digital knowledge database for your equipment.



Centralize administration of the software versions of all equipment – manually or automated.



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Remote Management

Spare Parts

Manage the analysis of traffic flows through remote monitoring, saving costs and improving your operations.

Remote Assistance

Receive support for service and maintenance processes, process monitoring and training through an interactive video conference.



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Facilitate identification and ordering of spare parts for customers and service personnel - mobile, simple and flexible.

ABOUT KONTRON AIS GMBH

Kontron AIS GmbH sets the benchmark in industrial software. For more than 30 years and with a growing team of 160 employees, Kontron AIS has been providing solutions for machine and plant manufacturers as well as factory operators to break new ground in automation and thereby substantially reduce costs.

Together with their customers, they develop concepts for smart manufacturing and Industry 4.0, helping to implement intelligent digitization strategies successfully.

Find out more about Kontron AIS: www.kontron-ais.com

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SECURE HARDWARE COMPUTING



ABOUT THE SOLUTION

The Kontron TRACe family is a product line of fan-less EN50155 railway computers that can be easily customized to application-specific requirements. Designed to ensure applications in a secure environment with an easy to use stable operation in harsh environments, it is ideal for any rolling stock system, from passenger information systems to video streaming and storage servers, network video surveillance and train management systems.

Running SUSiEtec SecureOS, DevicePortal and Remoting the Trace family offers a secure platform to run dedicated management portal.

OUR VALUE PROPOSITION

SIMPLICITY

All Trace are EN50155-certified and utilized the same set of long term available modular building blocks and APIs.

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SECURITY

Road mapped long-term invariability facilitates mid-life retrofits and technology upgrades.

STABILITY

High-density, low-power, rugged design based on latest technology. Dedicated micro-controller for health management.

CUSTOMER BENEFITS

Cost-effective design customization with flexible I/O memory, storage and power

enables rapid time to deployment.

Business Agility DevOps compatible Legacy SW compatible



Secure Edge Computing VMs

Run existing embedded OS + app stacks Run 3rd party appliances (turn-key VM images) Run modern micro services stacks (DevOps)



No Cloning and no refactoring Software Reverse engineering protection Strict control of software deployed copies in the field

FLEXIBILITY



Hardware-based Security

TPM based secure boot (prevent device refactoring) TPM measured boot (forbid device cloning) Wibu IP protection (2nd crypto processor)

Secure Networking

Secure remote update of SW intrusion Detection / active response



Virtualization

Fine grained resource access and allocation for VM control (stop start, provision from ISO image) Allow mixed criticality applications consolidation

ABOUT KONTRON

Kontron is a global leader in IoT/Embedded Computing Technology (ECT). As a part of technology group S&T, Kontron offers a combined portfolio of secure hardware, middleware and services for Internet of Things (IoT) and Industry 4.0 applications.

With its standard products and tailor-made solutions based on highly reliable state-of-the-art embedded technologies, Kontron provides secure and innovative applications for a variety of industries.

As a result, customers benefit from accelerated time-tomarket, reduced total cost of ownership, product longevity and the best fully integrated applications overall.

Find out more about Kontron: www.kontron.com

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INTELLIGENT PASSENGER **ANALYSIS SYSTEM**



ABOUT THE SOLUTION

The Intelligent Passenger Analysis System is a computer The design of user-friendly interfaces based on both travision solution of RTSoft and is based on video analysis via AI/NN. The system-level software can be utilized for various general-purpose, embedded and real-time operating systems. With this solution customers can leverage comprehensive cloud and IoT solutions based on leading proprietary and open-source technologies.

ditional input methods and modern technologies such as gesture sensors and eye trackers is possible.

OUR VALUE PROPOSITION

FUTURE-ORIENTED CUTTING EDGE Apply the latest computer vision and Drive technological development and augmented reality technologies to your use cases. autonomous trains. ↑↓ 5G **ANALYZE** Count traffic and analyze queues, cars and passengers to optimize the planning of lines and frequencies.

facilitate the autonomous control of

MONITOR

Support safety monitoring of railway stations and platforms for your passengers.

CUSTOMER BENEFITS

Reporting Tool

Get valuable reports with a user-friendly interface and a consolidated overview of your use cases.



GDPR Compliance

Deploy a solution that has full GDPR compliant people recognition software.

On-premise Installation

Implement the solution on site to ensure security and protect sensitive data.



Video Recognition Accuracy

Track and analyze passenger counts and leverage accurate information to optimize transportation flows

IoT Rollouts

Stay on the edge of technological advancements through continuous updates and rollouts.



Remote Management

Manage the analysis of traffic flows through remote monitoring, saving costs and improving your operations

ABOUT RTSOFT

RTSoft has experience in the development of embedded software for more than 20 years. The expertise covers the entire software stack - from drivers and operating systems to high-level applications.

RTSoft concentrates all activities to bring maximum value for customers. Whether it is software development, consulting or support, they strive to get the job done in

Find out more about Kontron: www.rtsoft.de

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About Kontron - Member of the S&T Group

Kontron is a global leader in IoT/Embedded Computing Technology (ECT). As part of the S&T technology group, Kontron offers individual solutions in the areas of Internet of Things (IoT) and Industry 4.0 through a combined portfolio of hardware, software and services. With its standard and customized products based on highly reliable state-of-the-art technologies, Kontron provides secure and innovative applications for a wide variety of industries. As a result, customers benefit from accelerated time-to-market, lower total cost of ownership, extended product lifecycles and the best fully integrated applications.

For more information, please visit: www.kontron.com

About Kontron Transportation – Member of the S&T Group

Kontron Transportation is a leading global supplier of end-to-end communications solutions for mission-critical and carrier networks. Its portfolio includes GSM-Railways, FRMCS (future railway mobile communication system), TETRA, DMR, LTE solutions for mission critical networks as well as mobility solutions for the public transport sector and is enabled with the entire service value chain, from planning, developing and producing to deploying, integrating, maintaining and operating. A further mission is to provide a critical E2E IIoT solution dedicated for railway operators to support data collection, transport, monitoring and analysis.

Kontron Transportation invests in research and development and is driving the evolution into the next generation of broadband solutions for mission-critical networks, for instance as an associated member of the European research initiative Shift2Rail.

Kontron Transportation is part of S&T group and headquartered in Vienna (Kontron Transportation GmbH) with main subsidiaries in Belgium, France, Germany, Portugal, Spain, the Czech Republic and United Kingdom.

For more information, please visit: www.kontron.com/ktrdn



Global Headquarters

Kontron Transportation GmbH

Lehrbachgasse 11 1120 Vienna, Austria Tel.: +43 1 25 33 700 kta_office@kontron.com

www.kontron.com/ktrdn

Kontron Europe GmbH

Gutenbergstraße 2 85737 Ismaning, Germany Tel.: +49 821 4086-0 Fax: +49 821 4086-111 info@kontron.com

www.kontron.com