SIEMENS

Ingenuity for life

System Performance Dashboards Applications

Unleash the full potential of data for optimized mass transit operations

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Connecting rail systems for data analytics

Our world is becoming more and more connected with technologies, systems and machines producing massive amounts of data about the environment around them every second. However, only a small amount of it is intelligently used in the rail industry. At Siemens we are connecting critical rail assets and systems to the Internet of Things (IoT) to help us and our customers understand their data and transform it into useful business insights.

MindConnect Rail is our primary solution for connectivity allowing us to collect data to enable and create applications and digital services for data from (railway) assets. As a modular and flexible software and hardware solution, MindConnect Rail ensures secure data transmissions from safety-critical infrastructure into MindSphere, our open IoT operating system from Siemens. It utilizes all functions of the new Siemens Data Unit (DCU) in order to provide you with full access to data as well as effectively prevent cyber-attacks.

Improving operational decision making with visualized data insights

By unlocking the wealth of data in your mass transit business, MindSphere transforms data to help create new business cases and provide greater insights into your operations with advanced data analytics. Collected and analyzed data can be used to feed applications and service processes, increase performance and revenues, and reduce costs or energy consumption.

Our MindSphere Applications for railway-specific performance monitoring provides live and remote monitoring of your connected infrastructure, reducing maintenance and operational efforts. User-friendly dashboards allow for increased operational efficiency through data representation & visualization, asset information & management, performance monitoring and predictive insights.

MT Dashboard

- Cloud-based MindSphere applications enable you to harness the wealth of data generated by the Internet of Things (IoT) with advanced analytics.

Signaling

Displays information from:

- CBTC system
- Asset monitoring systems
- Interlockings
- Automatic Train Stop (ATS) Wayside

Radio

Displays information from:

- Radio communications for CBTC, CCTV and other services

Station

Displays information from:

- Digital Station Manager
- CCTV
- SCADA
- Misc station assets (air conditioning, escalators etc.)

✓ By extracting data from various subsystem (Signalling, Radio, Station) relevant operational data can be displayed at one glance.

Customer value

✓ Increase transparency on operations

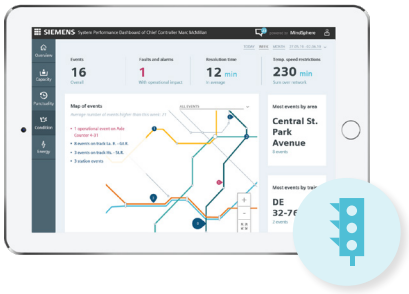
✓ Improved decision making

✓ Optimization of entire network

✓ Decrease operational and maintenance efforts

✓ Option for cloud-based

Mass Transit Dashboard Use Cases



Signaling and asset monitoring

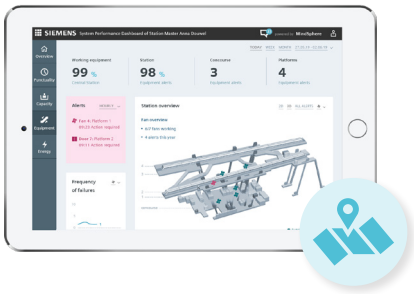
Improved transparency and optimization concerning:

Status of signaling elements and components for early fault detection.

Improved maintenance planning & scheduling.

Greater predictive operations with “live” data analytics.

Avoid downtime due to technical issues.



Digital Stations: “Passenger Forecasting”

Forecasting of passenger numbers through data analytics and intelligent algorithm:

Different data sources at a station and within trains allows counting the actual number of passengers in the network.

This data can be gathered from cameras, 3D sensors, Wi-Fi sensors, ticketing systems, CCTV etc.

By using intelligent algorithms, one can also forecast the number of passengers allowing better planning and handling of station and network operations.

Radio and Communication monitoring

Improved transparency and optimization concerning radio communications:

By combining data from CBTC and radio performance can be mapped to the assets position.

By analyzing the signal strength over time, recommendation for target-orientated maintenance can be given.

Coverage of the radio system can be monitored to maintain high availability.

What are the benefits of our System Performance applications for our customers?

- Have a centralized information display for improved decision making
- Cloud-based

- Decrease maintenance efforts by target improved maintenance support (e.g. by showing where the signal strength of radio equipment decreased, by showing areas of signal strength degragation or interference, by visualizing the location of defect equipment, etc.)

- Decrease operational efforts (e.g. by providing better decision support, e.g. by forecasting deman of services)

- Enable new insights and benefits by combining data from different subsystem (e.g. Radio + CBTC, station infrastructure)

- A more intuitive and user-friendly working tool for mass transit operators

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