ENERGY EFFICIENCY MANAGEMENT SYSTEM

EMIS

enetel SOLUTIONS

EMIS SYSTEM PRESENTS A MOBILE SYSTEM CREATED TO MODERNIZE AND IMPROVE THE PROCESSES OF CARRIERS OF DIFFERENT TRANSPORTATION UNITS IN REAL-TIME

THE MODERN AGE IS LOOKING FOR MODERN SOLUTIONS

CERTAINLY, ONE OF THOSE IS **THE EMIS SYSTEM**

APPLICABILITY OF THE EMIS SYSTEM
ACROSS VARIOUS INDUSTRIES

ADVANCED MAINTENANCE FLEETS

MANAGEMENT OF PASSENGER INFORMATION

OPTIMIZATION OF TRAVEL ROUTES

EMIS IOT PLATFORM

ADVANCED DRIVER WORK MANAGEMENT

MONITORING AND MANAGEMENT OF VEHICLES

Public transport

Fleet of vehicles

Railway traffic

Transportation

Road traffic

BASIC ADVANTAGES OF THE EMIS SYSTEM IN DIFFERENT INDUSTRIES

COST REDUCTION

Optimization of unnecessary costs and inefficiencies in fleet operation

PREVENTION OF UNAUTHORIZED ACTIONS

The use of various technologies in the prevention of unauthorized use or theft of vehicles

REGULATORY COMPLIANCE

Compliance of fleet operations with industry regulations and standards

DRIVER AND VEHICLE SAFETY

Monitoring of driving safety regulations and driver's behavior in the train cabin

VEHICLE ROUTING

Efficient management of vehicle routes to optimize time and fuel consumption

ANALYSIS OF ENGINE PERFORMANCE

Monitoring engine performance to optimize fuel consumption and reduce emissions

ADVANCED VEHICLE MAINTENANCE

Optimization of the maintenance schedule as well as rationalization of the maintenance process through digitization

PREDICTIVE VEHICLE MAINTENANCE

Using data analytics to predict and prevent potential vehicle failures

CASE STUDY:

IMPLEMENTATION OF THE EMIS SYSTEM IN SRBIJAVOZ

THE MAIN CARRIER OF ALL PASSENGER-COMMERCIAL ACTIVITIES IN RAIL TRANSPORT SRBIJAVOZ SUCCESSFULLY MODERNIZED PROCESSES WITH ADVANCED FUNCTIONALITIES OF THE EMIS SYSTEM

СРБИЈА ВОЗ

DIGITALIZED OPERATOR EXPERIENCE
IN RAIL TRAFFIC

MONITORING

Calculation of fuel consumption (current, average per section and driving, monthly, annual consumption...)

AUTOMATED OPERATIONS

Generate fleet reports at any location (from employee allocation to parts management in warehouses)

MEASUREMENT OF ENERGY EFFICIENCY

Monitoring of energy consumption in the railway sector and direct communication with relevant parties

EMPLOYEE PAYMENT SYSTEM

Automated calculation of wages for train drivers

INTEGRATION WITH SAP

Understanding the available fleet while eliminating paperwork

COMPLIANCE WITH EU REGULATION

Integration with European Union standards and regulations

BENEFITS OF USING THE EMIS SYSTEM
AT OPERATORS IN RAIL TRAFFIC

MAKING DECISIONS ON BASIS OF COLLECTED DATA

Using the analysis of large amounts of collected data to provide insight into railway performance

RAILWAY MODERNIZATION

Integration with current and future systems for a unified communication system

POSITIVE INFLUENCE ON THE ENVIRONMENT

Monitoring of energy consumption and driver's work

MANAGEMENT OF THE AVAILABLE VEHICLE PARK

Improving reliability fleet via complete insight into the infrastructure in real-time

EFFICIENT USE OF RESOURCES

Efficient management of fleet resources

AUTOMATION AND DIGITALIZATION OF THE PROCESS

Optimization and improvement of available resources and processes

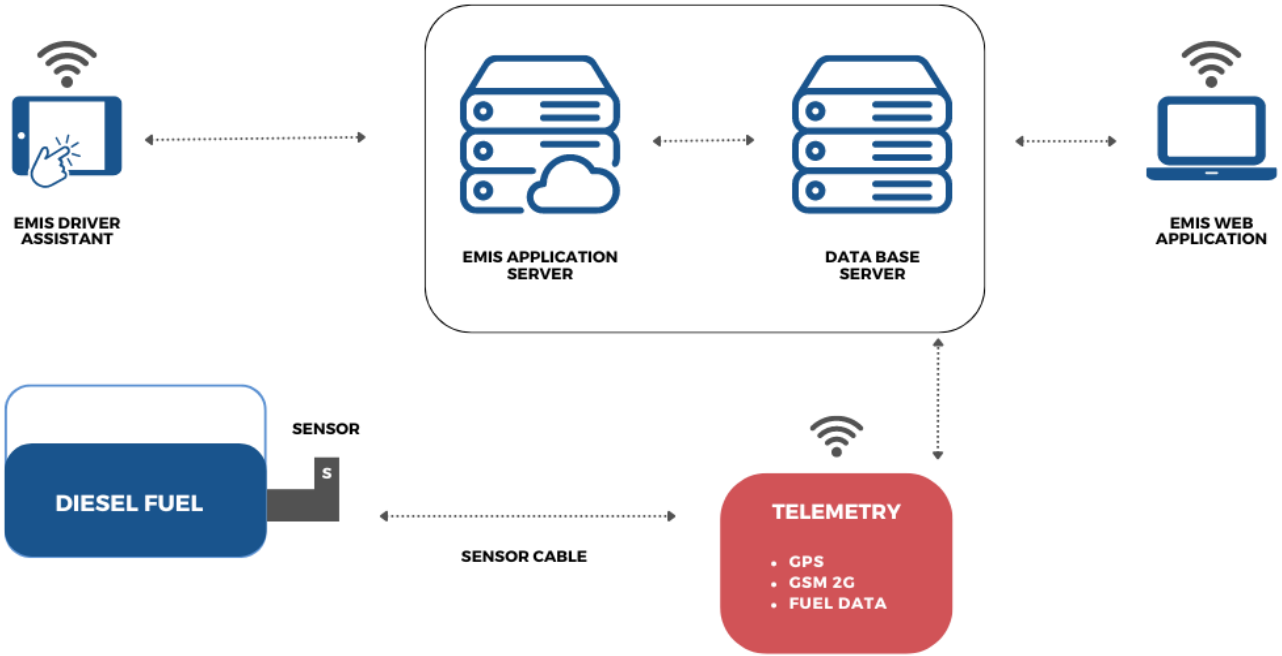
ENERGY EFFICIENCY MANAGEMENT
ELECTRIC AND DIESEL TOWING VEHICLES

The EMIS system was created to support the business processes of railway operators and provide the right information in real-time.

The system works successfully on:

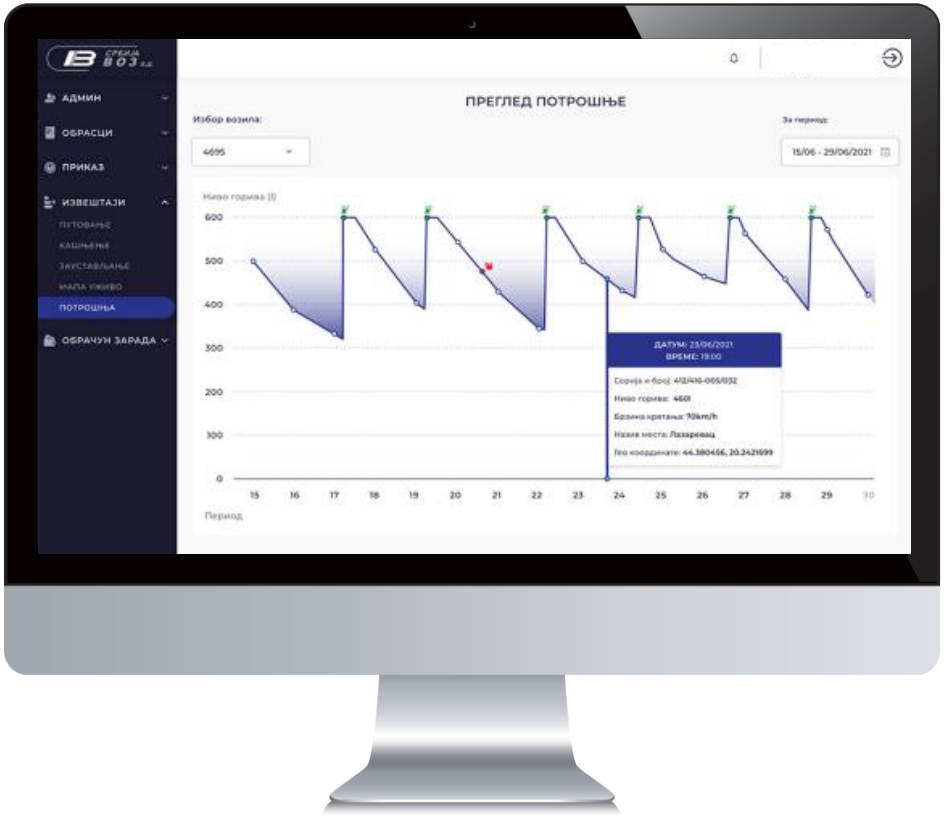
- Monitoring the fuel level in the tanks of diesel tractors
- Monitoring of electricity consumption on electric traction vehicles
- Monitoring the movement of trains and relevant data on the map in real-time
- Analytical reports on the consumption of electricity and diesel fuel

EMIS SYSTEM FOR MONITORING FUEL CONSUMPTION IN TANKS OF DIESEL TOWING VEHICLES



INFORMATION ON CONSUMPTION AND FUEL LEVEL STATE IN THE TANKS OF DIESEL TOWING VEHICLES

Data acquisition, data processing, analytics and visualization of train movement and fuel consumption information provide better control over operational processes.



FUEL LEVEL MEASUREMENT DATA
FOR DIESEL TOWING VEHICLES

The EMIS system works on detailed fuel level monitoring and real-time reporting.

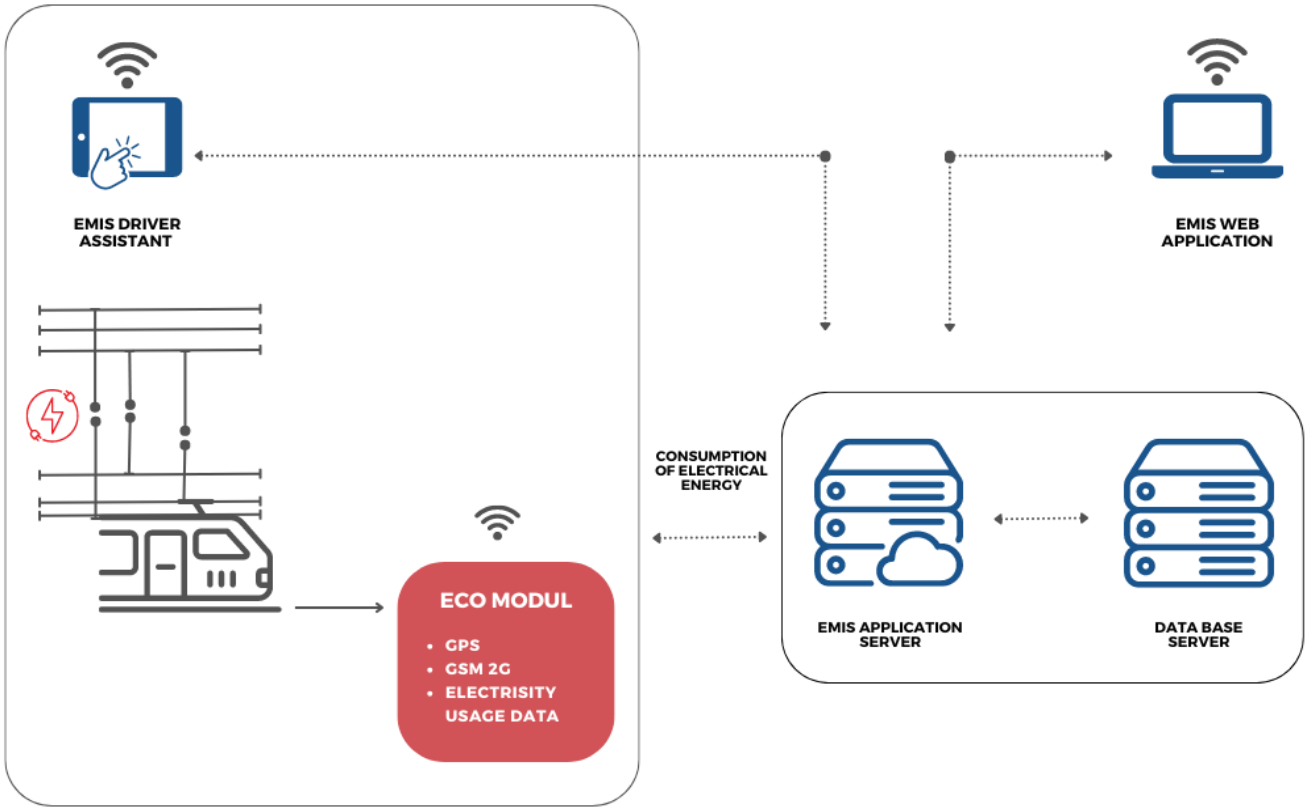
The EMIS system can be used for:

- Real-time measurement of the fuel level in the tank of the towing vehicle
- Calculation of fuel consumption (current, average, average by section and drive, per month, per year...)
- Detection of fuel cap opening and fuel theft attempts using advanced AI algorithms
- Fuel leak detection using advanced AI algorithms
- Digitization of procedures and monitoring of the fuel settlement process

TRANSPARENCY OF COLLECTED DATA ON THE CONSUMPTION AND REGENERATION OF ELECTRICAL ACTIVE AND REACTIVE ENERGY ENABLES EFFECTIVE CONTROL AND ANALYSIS OF CONSUMPTION, AS WELL AS FURTHER OPTIMIZATION

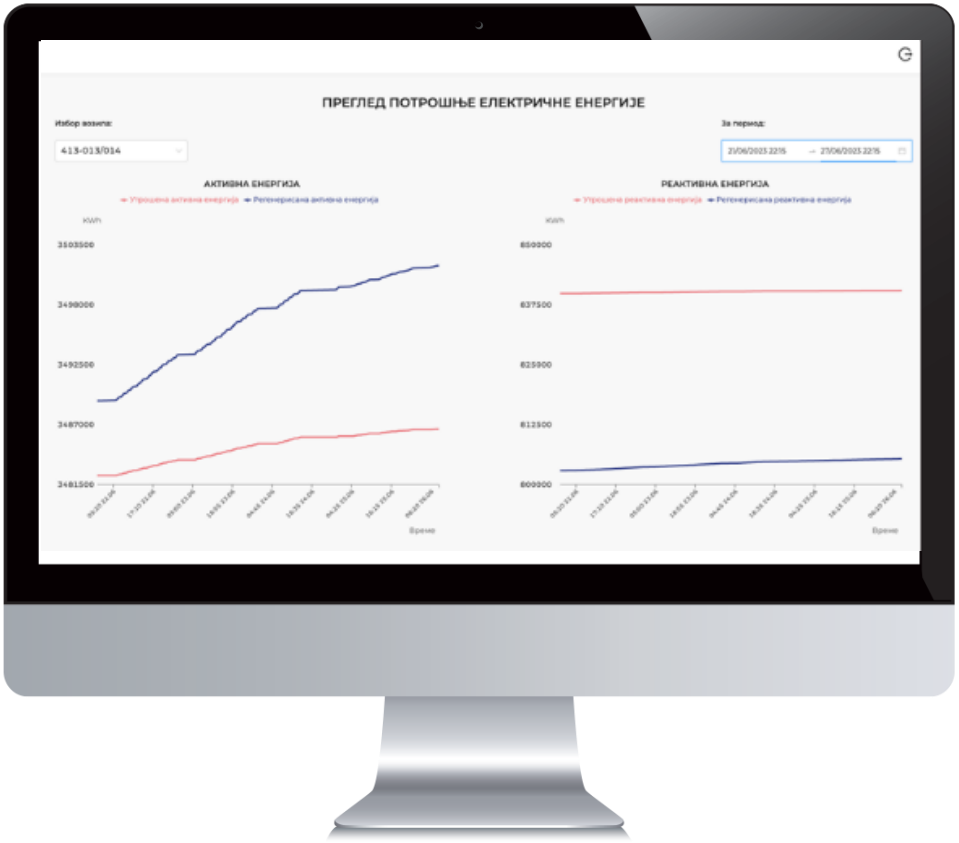
HOW TO MONITOR CONSUMPTION AT ELECTRIC TRAINS?

EMISSION SYSTEM FOR MONITORING ELECTRICAL ENERGY CONSUMPTION FOR ELECTRIC TOWING VEHICLES



DATA ON ELECTRICITY CONSUMPTION
AT ELECTRIC TOWING VEHICLES

When measuring electricity consumption, it is necessary to consider the consumption of active and reactive energy.



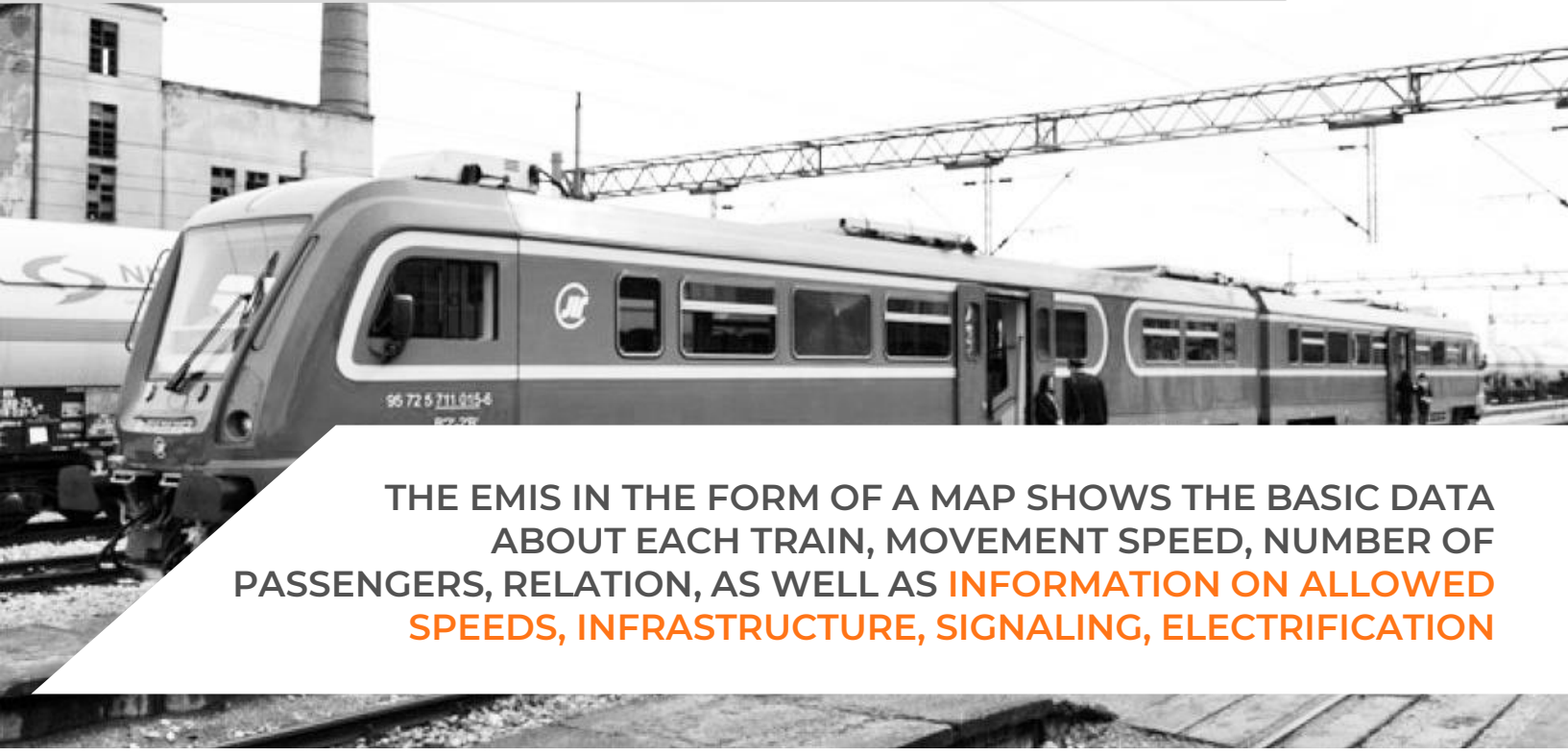
THE APPLICATION PRECISELY TRACKS AND ANALYZES THE CONSUMPTION OF ELECTRIC ENERGY ON ELECTRIC TRACTION VEHICLES

The collected information has a significant impact on cost optimization and is directly related to electricity savings.

The measurement is performed through the following parameters:

- Measurement of used active energy
- Measurement of regenerated active energy
- Measurement of spent reactive energy
- Measurement of regenerated reactive energy

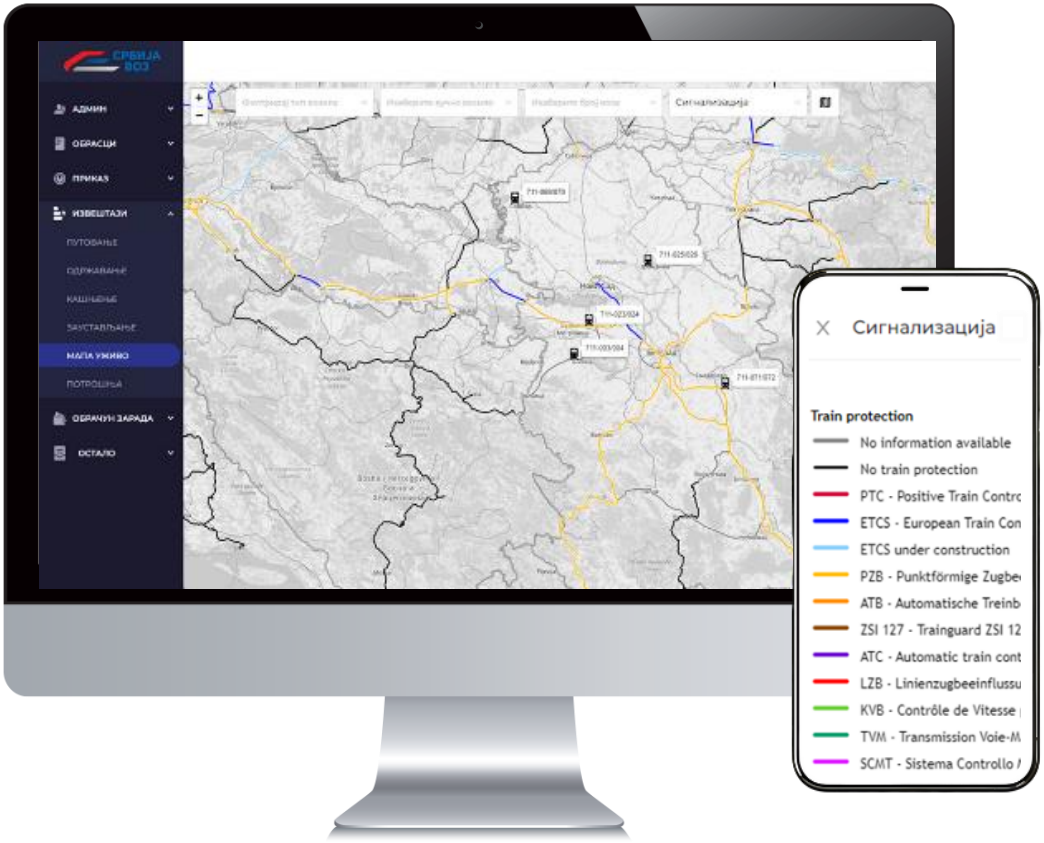
EMIS SYSTEM SUCCESSFULLY FOLLOWS THE CURRENT STATUS OF TRAIN AND EVENTS OF INTEREST IN REAL-TIME



THE EMIS IN THE FORM OF A MAP SHOWS THE BASIC DATA ABOUT EACH TRAIN, MOVEMENT SPEED, NUMBER OF PASSENGERS, RELATION, AS WELL AS INFORMATION ON ALLOWED SPEEDS, INFRASTRUCTURE, SIGNALING, ELECTRIFICATION

MONITORING OF TRAIN MOVEMENTS AND DATA ON MAPS IN REAL-TIME

Every data is automatically synchronized and displayed on the map in real-time.

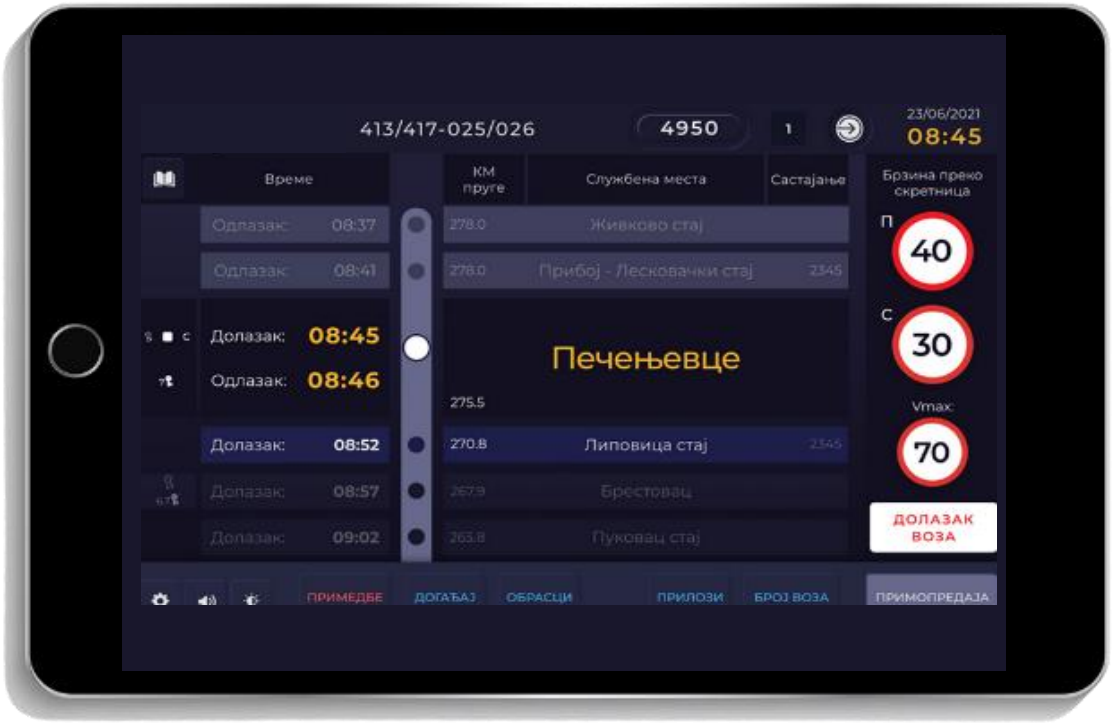


FUNCTIONALITIES
EMIS DRIVER ASSISTANT APPLICATIONS

- Engine driver application to the EMIS system
- Starting a ride and tracking data of interest
- Assistance while driving
- Joining additional staff
- Adding additional traction
- Handover of the towing vehicle
- Attachment entry
- Recording of various kinds of remarks and notes
- Entry of events of interest during vehicle movement
- Administration of digital forms

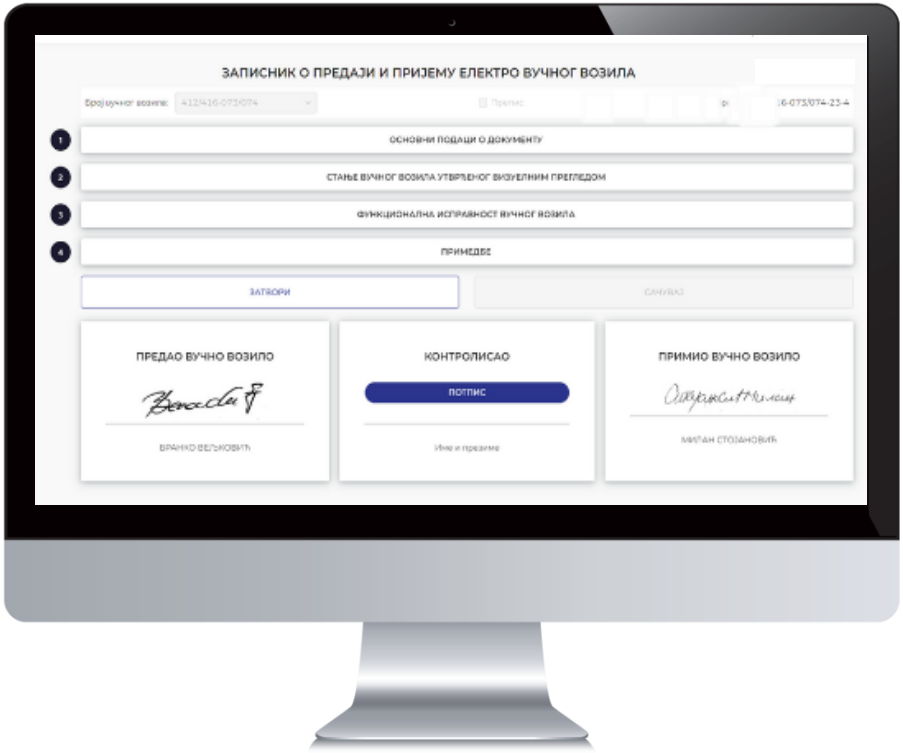
TYPES OF EVENTS THAT CAN BE RECORDED
BY USING THE DRIVER ASSISTANT APPLICATION

- Emergency stop
- Staying longer than expected
- Cancellation of part of the relationship
- Limiter - entry/exit
- Defect reporting, maneuvers, and heating
- Crossing the state border
- Brake test
- Additional traction



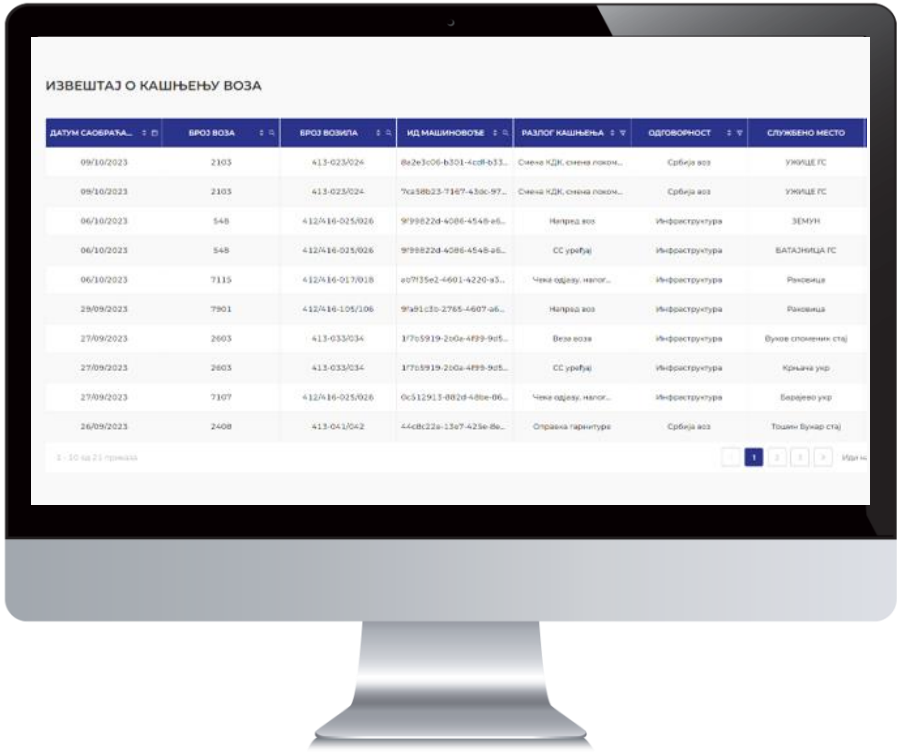
LIST OF SIGNED ELECTRONICALLY
DIGITAL REPORTS

- Towing Vehicle Personnel List (EV-1)
- Train waybill (S-1)
- Cargo ship (S-3)
- Report on train composition and braking (S-4)
- Inventory booklet (EV-81)
- Handover of towing vehicle (EV-76)
- Defect report (EV-37)
- Towing Vehicle Maintenance Request (EV-63)
- Vehicles under maintenance (EV-65I)

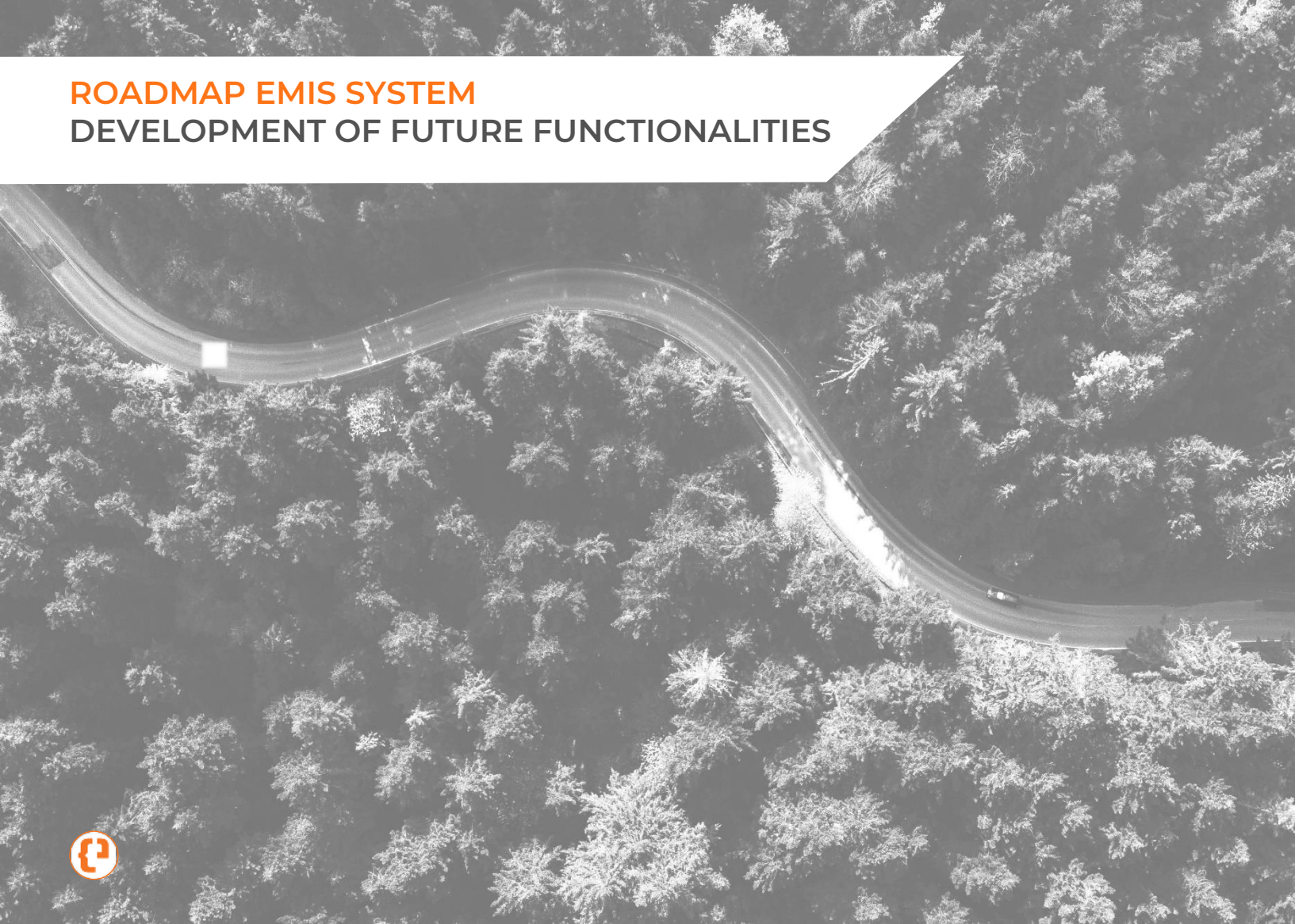


LIST OF OTHER DIGITAL REPORTS WHICH ARE PROCESSED THROUGH THE EMIS APPLICATION

- Trip report
- Maintenance report
- Report on train delay
- Train stop report
- Reports on canceled trains
- Fuel consumption monitoring
- Monitoring of electricity consumption
- Module for employee salary calculation



ROADMAP EMIS SYSTEM
DEVELOPMENT OF FUTURE FUNCTIONALITIES



PASSENGER INFORMATION SYSTEM

Providing real-time information on deviations from the planned timetable via digital platforms

COMPATIBILITY AND INTEGRATION

Open API for integration with external systems, as well as downloading data from other systems

PLANNING AND OPTIMIZATION

Planning optimizations and monitoring the implementation of the planned schedule of human resources and fleet

IMPROVING PREDICTIVE MAINTENANCE

Using sensors and data analytics to predict and prevent equipment failures, reducing downtime and maintenance costs

EMIS

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