Polish State Railways Group (PKP Group) combines its public service with activity characteristic for a modern enterprise operating in the market economy. The PKP Group comprises PKP S.A., the parent company, and ten companies that provide services, among others, on railway transport, energy and ICT markets. The mission of the PKP Group companies is to build trust and improve the image of the railway, so as to enhance the role of railway transport in Poland, following the example of modern railways operating in Europe. Companies belonging to Polish State Railways Group: PKP CARGO S.A., PKP Intercity S.A., PKP Linia Hutnicza Szerokotorowa Sp. z o.o.

The companies of the PKP Group altogether hire almost 70,000 people – specialists in the railway, IT, ICT, energy and real property sectors. In terms of the number of employees, the PKP Group is the second largest employer in Poland.[1]

[1] Source: www.pkp.pl

Locations of Polish State Railways Group subsidiaries.
ET GPS

**Positioning system**

The ET GPS system is designed to monitor the position of locomotives and wagons. GPS tracker saves the object location, speed, direction of movement and information from sensors and interfaces. The data saved in the internal memory of the GPS tracker are transferred to the monitoring system. This information allows for making reports, e.g. usage and activity of locomotive or mileage of wagon.

**Route preview and display function on digital map**

ET GPS WAGON

**Wagon mileage counter system**

The key elements of the ET GPS Wagon system are device mounted on the wagon axles – mileage counter with positioning feature – and software. Mileage counter has its own power supply, which guarantees sustainable and continuous work – even for many years – and contains GSM and GPS modules enabling to remotely monitor the current location and mileage of the wagon. It is available to present the wagon position on railway or road map environment.

**On-line report of the current railway wagons mileage with location display on a digital map.**
The ET TACHO/KOL system is designed to measure and register the speed of railway vehicle, its executed route and information from additional sensors and interfaces. It is equipped with GPS module, which enables to precisely determine the time and location of the occurred event.

Elte GPS tachograph varies from other such speed recorders with:

- **lower exploitation costs** (e.g. no paper usage),
- **storage facilitation** (data is automatically acquired and archived as files on the server),
- **access to the data on line** via application.
The key element of the ET Tacho/SHP system is a railway tachograph extended with the Automatic Train Stop module with internal memory, which stores the information indicating the locations and directions, where automatic train stop must activate (ATS). ATS function turns on accordingly to the current train location. Tachograph appliance with internally stored points of automatic train stop does not require any purchase or maintenance of expensive rail infrastructure. This solution leads to less equipment purchases for railway vehicles, lower rail infrastructure maintenance costs and higher safety level of the train operations.

Route preview and display function on digital map
The ET Fuel Rail system has been designed to facilitate fuel management. It enables fast and efficient compilation of data about fuel tanking and fuel consumption with regard to a particular railway vehicle. Fuel level may be monitored thanks to a digital microprocessor fuel probe. Additionally, a flowmeter enables to control the actual fuel consumption.

Fuel level screen is a device mounted near fuel filler, which eliminates the necessity of inaccurate measuring bar.

Graph view of the fuel level changes in fuel tanks of the locomotive and fuel consumption measured by the flowmeter.

Communication terminal is a device installed in the locomotive cabin enabling the driver to monitor the operating parameters registered by the system. The terminal permits two-way communication with the dispatcher.
The **ET CAN** system allows for monitoring and saving various parameters associated with the current operation of the vehicle without the need to install many additional sensors. It enables to read and store the information from CAN-BUS, such as fuel level, fuel consumption, motor temperature, current engine speed (rpm), etc..

The **ET Integrator** system enables the integration of our ICT solutions with other systems, including the systems for clearing the provided services, monitoring of working time, invoicing, scheduling, etc. The data can be exchanged via files or Webservice. The example of such implementation is integration of ELTE GPS system with EKL system operating in PKP Cargo company.

The **ET ID** system is a solution for employee identification which allows for keeping track of each employee’s working time on individual locomotives. It offers information about mileage, speed and exploitation type of the locomotive. Depending on the applied solutions, the employee/driver can be identified with a personal RFID card and reader, RFID keychain or Dallas chip.
Elte GPS has a vast experience in developing and implementing ICT systems for companies from various industries, emergency services and local government units.

IMPLEMENTATIONS FOR RAILWAY INDUSTRY

We offer complex systems which combine state-of-the-art technology and computer science, support and monitor the processes of service provision, optimize the use of resources, and enhance the logistics of transport and communication. All this leads to lower costs, higher quality and increase in satisfaction of your customers.

As the manufacturer of both software and hardware system components, we can guarantee flexible and customized solutions that meet your individual needs, and allow for further expansion and continuous upgrade.

The top level of our services, high quality components and professional warranty and post-warranty service have been appreciated by our numerous customers.