SMOK OBJECT MONITORING SYSTEM
THE SMOK SYSTEM: MONITORING FROM THE PROS
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For many years Elte GPS Sp. z o.o. has been a leader and forerunner in production and implementation of systems for vehicle monitoring and fleet management using GPS/GSM/GPRS technologies.
The SMOK Object Monitoring System, our original product, is a powerful system which combines the state-of-the-art solutions in software and technology. Not only does it provide ongoing monitoring of the fleet, but it also allows you to effectively manage your company vehicles, optimize your resources and cut down your costs.

As the manufacturer of all the components of the SMOK system, we guarantee we are able to tailor our solutions to your individual needs. The SMOK system consists of modules which allow for almost any configuration and upgrade, depending on your requirements.

The highest level of customer service, high quality components and professional warranty and post-warranty services have been appreciated by our numerous customers. Please take a closer look at what we can offer.
ABOUT ELTE GPS COMPANY

MANY YEARS OF EXPERIENCE

53,000 VEHICLE DEVICES MANUFACTURED LAST YEAR

SUPPORT FOR COMPANIES OPERATING IN 10 INDUSTRY SECTORS

municipal engineering, commercial fleet, railway industry, public transportation, construction machinery, property protection services, water and wastewater utilities, courier delivery services, uniformed services.

ELTE GPS
PROPRIETARY SMOK
SYSTEM SOFTWARE

PATENTED SOLUTIONS
AND REGISTERED
INDUSTRIAL DESIGNS

ALL DEVICES
DESIGNED IN POLAND
The SMOK Object Monitoring System by ELTE GPS has been implemented in all district towns and cities in Poland.

It covers tens of thousands of vehicles in various industries, which makes ELTE GPS an undisputed leader among companies that provide monitoring services.

Our customers include:
The companies for whom we have implemented the SMOK system are located all over Poland, both in big cities and small towns. The countrywide network of our installation centres combined with mobility of our staff ensure fast and efficient fulfillment of our customers’ orders.

The modular design of the system and its flexibility has made it applicable to various industries. Our system is used by the sector of uniformed services, which is the best proof of the ultimate quality and reliability of the solutions we offer.

SELECTED LOCATIONS OF SMOK SYSTEM DEPLOYMENTS:

EMERGENCY MEDICAL SERVICES

POLISH STATE FIRE SERVICE

RAILWAY COMPANIES
GLOBAL POSITIONING SYSTEM (GPS) TECHNOLOGY
This is a navigation satellite system created by the United States Department of Defense. It comprises 31 satellites orbiting around the Earth. Ground vehicle GPS devices calculate their location based on radio signals emitted by the satellites.

GENERAL PACKET RADIO SERVICE (GPRS) TECHNOLOGY
This technology concerns packet data transmission in GSM networks. It allows for accessing the Internet or audio/video streaming.

GLOBAL SYSTEM FOR MOBILE COMMUNICATIONS (GSM) TECHNOLOGY
This is the most popular mobile phone standard now. Networks based on this system offer services such as transmission of voice, data (for example, access to the Internet), text or multimedia messages (SMS and MMS).
The GPS driver mounted in the vehicle receives signals from the GPS satellites and calculates its own geographical position.

This information about the geographical position is saved by the device in its internal memory and then transmitted to the server over the GSM mobile network.

Access to the data saved in the SMOK system is possible via the following apps:

+ SMOK Net which runs in any web browser,
+ SMOK Mobile which can be installed on mobile devices.

Using the SMOK Net or SMOK Mobile app, you can track on your device, in real time, the position of all the monitored objects, i.e. any vehicles with a GPS driver or people with personal GPS tracker.
**WHAT IS THE SMOK SYSTEM?**

*(SMOK OBJECT MONITORING SYSTEM)*

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The SMOK Object Monitoring System, our original product, is a powerful system which combines the state-of-the-art solutions in software and technology. Not only does it provide ongoing monitoring of the fleet, but it also allows for effective management of company vehicles, optimizing your resources and cutting down your costs.

As the manufacturer of all the components of the SMOK system, we guarantee we are able to tailor our solutions to your individual needs. The SMOK system consists of modules which allow for almost any configuration and upgrade, depending on your requirements.

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**The vehicle controller is the heart of the SMOK system. The device is installed in a vehicle, powered by a battery and works unattended. The GPS receiver of the vehicle controller determines the geographical position of the vehicle. The collected data are sent to the server via a GSM modem complete with SIM card.**

If the vehicle is equipped with additional recording equipment, the recorded data will also be sent to the server along with the information about the geographical location of the vehicle.
The SMOK system consists of vehicle devices and dedicated software.

All data sent by the vehicle controller are accessible via the SMOK Net application, which runs in any web browser.

Monitoring of vehicles is also possible via SMOK Mobile application which may be installed on mobile devices, such as a smartphone or tablet with iOS or Android operating systems.

**SELECTED FEATURES OF THE SOFTWARE:**

- displaying the current location and speed of vehicles;
- monitoring of the current operating parameters of vehicles;
- access to the history of routes and recorded parameters;
- creation of reports which may be programmed to be sent recurrently to the provided e-mail address;
- creation of road reports (i.e. distance covered, total driving time, total standstill time, quantity of fuel consumed);
- alarms in the event of a breach of a specific term (e.g. entering or exiting a defined area, pulling off the defined route, speeding);
- the possibility of marking standard routes, areas, field points, etc. on the map;
- creating service reports on alarm events;
- coloring the route travelled by the vehicle according to the defined parameters (e.g. the permitted area, the speed limit);
- tabular view of whether the requirement set by the operator was met (e.g. exiting the defined area, following the set route);
- 'tracking' function by which the map automatically follows the selected object.
VARIOUS APPLICATIONS OF THE SMOK SYSTEM

- Hands-Free Kit
- Cargo Area Open Sensor
- Temperature Sensor
- Semi-Trailer Identification
- Unit Operating Time
- Vehicle Positioning
- Driver Identification
- Communication Terminal
- Can Interface
- Fuel Filler Cap Open Sensor
- Fuel Probe
- Communication Terminal
Our positioning service is provided using one of two devices:

**VEHICLE GPS CONTROLLER**

It is fixed in the vehicle and powered by a battery. If the vehicle is equipped with additional recording equipment, the recorded data will also be sent to the server by the controller.

The controller is protected against:
- cutting off power supplied by the vehicle battery - the controller has its own battery to ensure its continuous operation,
- loss of GSM signal - the controller has an internal memory, which saves the collected data.

In addition, when the vehicle crosses the Polish borders, the controller saves all the logged events, which are sent in bulk to the system upon returning to the country (which means that roaming communication is not required).

**SMOK S PERSONAL TRACKER**

No installation is needed. The tracker may be given to selected persons or placed in any vehicle.

It has a built-in battery that is charged wirelessly and guarantees the operating time of up to 7 days.

The operating parameters of the tracker may be configured, which allows for its customization and tailoring to the needs of individual clients.

SMOK S Personal Tracker:
- fits in your pocket,
- has a waterproof casing and floats on water,
- is shockproof.
THE SENT DATA...

... are saved on the server in the SMOK system and displayed in your application:

- SMOK Net which runs in any web browser,
- SMOK Mobile which may be installed on mobile devices, such as a smartphone or tablet with iOS or Android operating systems.

FEATURES AND ADVANTAGES:

- getting the current position of vehicles and persons;
- an insight into the history of travelled routes;
- the possibility of determining the allowed zones for vehicles and persons (e.g. province, city);
- alarm messaging (e.g. e-mail) in the event of exceeding the specified criteria;
- monitoring of speed limit motivates drivers to drive economically and in compliance with road traffic regulations;
- monitoring the working time of drivers, determining the use of vehicle for work and personal purposes;
- positioning the object in the event of theft.
FEATURES AND ADVANTAGES:

+ reduced costs – lower fuel consumption;
+ optimal fuel management;
+ data about fuel tanking and consumption with regard to one or more vehicles;
+ detection of fuel losses;
+ settlement of fuel consumed for business purposes and personal use;
+ reduction of private trips and fuel theft.
Implementation of the SMOK system means better fuel management. It enables fast and efficient compilation of data about fuel tanking and consumption with regard to a particular vehicle or a group of vehicles.

**FUEL PROBE**
The fuel probe ensures the most accurate determination of the level of fuel in the tank. Due to the design of fuel tanks, the installation of fuel probes is possible in trucks and construction machinery.

**CAN INTERFACE**
The CAN interface is used to read data directly from the vehicle CAN bus, which is a serial network for transmitting digital data between electronic devices in the vehicle. Some of the transmitted information is the data about the fuel level in the vehicle tank. The interface may read also other parameters e.g.: odometer, total fuel consumption, engine speed, the pressure in the brake circuit.
FUEL FILLER CAP SENSOR
The fuel filler cap sensor monitors the opening and closing of the fuel filler. Every opening and closing is recorded in the SMOK system.

INTERFACE TO FUEL SENSOR
This device is connected to the in-tank fuel level sensor (float), whose accuracy of the measurement is defined by the vehicle manufacturer.
View of the smartphone screen with alert text messages: opening of the fuel filler cap outside the defined area and loss of fuel.

Graph view of the amount of fuel relative to time, including other parameters. Example of fuel loss.
FEATURES AND ADVANTAGES:

- identification of drivers on the basis of individual identifiers;
- calculation/reporting of the drivers’ working time in individual vehicles/machines;
- calculation/reporting of the current mileage of vehicles and their use by drivers;
- graphic and tabular reports of work history for individual drivers;
- easy identification of the offender in the event of a traffic offense;
- authorization to access the cargo area.

THE SMOK SYSTEM - MODULE FOR DRIVER IDENTIFICATION AND WORKING TIME MONITORING
THE SMOK SYSTEM

MODULE FOR DRIVER IDENTIFICATION AND WORKING TIME MONITORING

The SMOK system solutions such as driver identification enable accurate settlement of working time of the staff on individual vehicles/machines. The reports generated in the system can be supplemented with detailed information such as the mileage traveled or fuel used by individual drivers.

IDENTIFIERS
Depending on the applied solutions, the driver may be identified with:

- an RFID card,
- an RFID keychain,
- a Dallas chip.

BREATHALYZER
The breathalyzer is used to control sobriety of drivers before they commence work. It provides a contact-free analysis of the exhaled air.

While logging onto the system, prior to commencing work, the driver may randomly selected and inspected for sobriety. If alcohol is detected in the air exhaled by the driver, the system will duly inform the dispatch about this and will also immobilize the vehicle.

Thanks to its fast measurement capabilities, the breathalyzer can be used to control all employees.

FEATURES AND ADVANTAGES:
- fast and accurate measurement;
- short intervals between measurements;
- low operating costs;
- increased occupational safety by preventing the work of drivers who are found to have alcohol in the exhaled air;
- avoiding waste of time and material losses resulting from destruction or downtime of vehicles due to their damage by intoxicated drivers.
FEATURES AND ADVANTAGES:

- monitoring of the operating mode of vehicles;
- inspection of the operation of vehicles (such as battery status, temperature of the engine, the engine speed);
- a tool which records the use of equipment;
- a tool which authorizes access to the cargo area;
- alarms in case of exceeding the set limit values (e.g. the temperature inside a refrigerated truck body).
THE SMOK SYSTEM

MODULE FOR MONITORING ADDITIONAL PARAMETERS OF VEHICLE OPERATION

SEMI-TRAILER IDENTIFICATION
It is used in cases where it is possible to use different semi-trailers. This feature allows for creating reports of their use.

MEASUREMENT OF TEMPERATURE INSIDE THE REFRIGERATED TRUCK BODY
An electronic thermometer can be connected to the vehicle device. This part of the system is mainly installed in trucks with refrigerated bodies.

RECORDING OF THE EQUIPMENT OPERATING TIME
Thanks to sensors it is possible to monitor the operating time of additional equipment in the vehicle, such as the arm of hydraulic crane system, pump, cooling unit, heating system.

OPENING OF THE CARGO AREA AND AUTHORIZATION
Control of the opening of vehicle doors and flaps is possible thanks to magnetic or proximity (transponder) sensors.

Optionally, by mounting a driver ID reader, you may get an authorization tool to open the door or cargo area. If they are opened without authorization, an alarm signal is sent to the SMOK system. The alarm of the unauthorized access may be sent by an e-mail or SMS message to selected people.
FEATURES AND ADVANTAGES:

- remote assignment of tasks for the driver;
- information about the current state of order fulfillment;
- sending text messages between the driver and dispatcher;
- transfer and display of reference standard route;
- navigation to the set destination.
TOUCH SCREEN COMMUNICATION TERMINAL
The touch screen communication terminal is used for navigation. It displays the planned route and the coordinates of the task points. It also sends the status of task implementation to the SMOK system and allows for fast communication between the driver and dispatcher.

The main functions of communication terminal include:

- navigation to the selected destination set by the driver or assigned by the dispatcher,
- displaying of the planned route and coordinates of tasks; the driver can check if he follows the set route,
- sending text messages between the driver and dispatcher; various statuses may be defined for individual buttons to speed up communication,
- providing the system user with continuous information about the status of tasks and additional notes made during the carrying out of the tasks,
- ability to display the image from a camera mounted on the vehicle and connected to the terminal.

Combination of the driver identification feature with the communication terminal permits the clearing of orders carried out by individual employees. This greatly facilitates the clearing process as the data on the completed tasks are automatically saved in the SMOK system, with a breakdown by employees who carried out the order.

HANDS-FREE KIT
The hands-free kit installed in the cabin of the vehicle enables the driver to make calls with the dispatcher. By pressing the button, the driver informs the base that he wants to contact the operator who in turn calls him after receiving such a signal. In this configuration, it is not possible for the driver to make any outgoing phone calls.

PANIC BUTTON
In case of an emergency, it allows the driver to send notification about the threat to the dispatcher, who will call for help.
FEATURES AND ADVANTAGES:

- documenting the status of tasks completion;
- recording any irregularities found;
- control of the cargo area and the goods transported therein;
- photographic documentation in the event of traffic incidents;
- geotagging of recorded movies and pictures.
One of the ways to document the performance of tasks and any irregularities observed is to record them as pictures or videos. The advantage of recording in the SMOK system the capability of geotagging the photos and videos. In this way the time and geographic coordinates of the place where the image was recorded are added to it.

**PHOTOBOX**

Photobox is a digital image recorder compatible with the SMOK system. The recorder saves photos taken by the vehicle cameras on an SD card. The recording is triggered by any signal, e.g. starting the pump, opening the cargo area.

The photos imported to the SMOK are synchronized with other information recorded by the system. This allows you to link photos with specific events presented in the SMOK system, for example as a list of events or their visualization on the map.

Here are a few examples of the use of the Photobox image recorder in the transportation and freight forwarding industry:

- making a photo when the driver presses the panic button,
- making a photo when opening of the cargo area is unauthorized.

**VIDEO RECORDER**

Another form of image recording are videos. Such recordings are made with a video recorder compatible with the SMOK system. Several cameras may be connected to the recorder. The device can record the image continuously or it can be triggered by pre-set signals, e.g. starting the suction pump.

Videos are saved on SD cards or a hard disk drive and are played using a dedicated software.

The advantage of video recording is the ability to view an object on a digital map synchronized with the video captured in a given location. During this view it is also possible to show operating parameters of the monitored devices.
FEATURES AND ADVANTAGES:

- boosting the efficiency of planners and staff carrying out tasks;
- reduction of the order fulfillment time;
- more efficient performance of tasks;
- improved quality of services provided;
- decreasing the course of vehicles;
- reduced costs of transportation;
- control over the fulfillment of orders;
- enhanced competitiveness of your company.
The fleet management module features the functions of planning and control of vehicle routes, route optimization, and keeping the record of vehicles and employees.

**ROUTE PLANNING AND CONTROL**
The route planning and control module allows you to create timetables of planned tasks and to check how they were completed. The timetables created in the module can be viewed on a digital map and sent to communication terminals in vehicles. The data collected in this module may be used to make various reports and summaries of both scheduled and unscheduled tasks.

**ROUTE OPTIMIZATION**
The optimization module in the SMOK system is always tailored to the needs of individual customers. When planning a route for each task, the module takes into account many variables and parameters so as to effectively carry out a single task or a group of tasks.

Main parameters and variables taken into account when optimizing routes are as follows:

- the type, quantity and dimensions of the cargo,
- the duration of the visit, e.g. loading/unloading at a given point,
- set time of visits (receipt, delivery, drop-off point) at a given point, with the tolerance of time window,
- the frequency of visits,
- the types and availability of vehicles,
- maximum permissible load of the vehicles in terms of capacity, dimensions and weight, with the tolerance to exceed these parameters,
- prioritizing the visits and allowing for breaks pursuant to the Act on road transportation.

The role of the SMOK system is not only fleet monitoring, but also fleet management.
THE VEHICLE LOGBOOK

The logbook allows you to make the full list of operation of vehicles and drivers, broken down by individual cost accounts that are assigned to tasks.

The logbook contains all the information necessary for clearing purposes such as the vehicle data, driver data, initial and final values of the odometer, initial and final amount of fuel, mileage and work time broken down into individual cost accounts, etc. It overrides paper documents made in the traditional way.

The logbook is created automatically on the basis of events recorded by the SMOK system. This module allows both grouping and splitting individual tasks defined in the logbook depending on the individual needs of the client.
The register module stores the databases of vehicles used in the company and the data of employees. In addition to basic information about the vehicle (e.g. the registration number, VIN, year of manufacture, color) the user can view the history of repairs, refuelling, insurance policies, accidents and purchase of tires.

The module is complete with a schedule which reminds of upcoming events such as vehicle checkups, technical inspections, official inspections, tachograph authentication etc. The events may be set as recurrent in time (e.g. every year) or distance (e.g. every 20,000 km).