What is GPS LOGISTIC?

The fleet management system GPS LOGISTIC is developed and supplied by Advanced GPS Technology Ltd – a company from Sofia, Bulgaria – found in the year of 2009. The organization is specialized in the area of telecommunications and informational technologies and is one of the market leaders on the Bulgarian logistic solutions field. Our devices represent a combination of cutting-edge technology GPS modules and last generation GSM data transfer stations. The company ensures installation, service and full technical support of its products.

The system GPS LOGISTIC is designed for monitoring, control and management of various sets of fleet types and serves to optimize the expenses regarding the whole logistic process. The system is based mainly on GPRS data transfer – for constant monitoring of the position of each vehicle.

The working station, from which the fleet is observed, provides the following key functions:

- Gathering and structuring of information about the movement (trace) and some of the most important working parameters of the vehicle (speed, fuel level, direction, board voltage and etc.);
- Live visualization of the position of the vehicle on a electronic map (it is possible to monitor a specific vehicle or the entire fleet simultaneously);
- Automatic notification of the most recent event from the vehicle with exact coordinates and status data;
- Constant monitoring of the vehicle's position on the World map;
- Download of the saved information of the vehicle's movement (trace) and storage of the data on secure servers – on daily basis;
- Visualization of the rows of events on the map and creation of queries for analyzing the movement of the vehicle for past periods of time;
- Electronic documents – Waybill, Tachograph Query, Objects and Zones Visit Reports and many more;
- Notification for upcoming replacement of consumables, insurance or leasing payments and maintenances of the vehicles – based on time, distance or working hours criteria.

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Goals set on the development and the evolution of the system:

- Maximal comfort for the person working with the system;
- Control of the movement of the vehicle in terms of following the exact trace, the visits of zones and objects – in real time or for past periods;
- Control of the working time of the drivers – both in clock time and quality of work performed;
- Control of the fuel consumption – through the data coming from the vehicle's fuel sensor or by connecting to the board computer – for perfect measurement;
- Control of the technical maintenances and the precise timing of the consumables replacement;
- The automatic generating of waybills, informational queries, reports and other useful documents.

For the achievement of these goals we have integrated in the system special program modules which enable the user to work with real-time data or with data for events, that have occurred in the past. The system includes a large variety of maps and visualization capabilities, which increase its functionality and productivity. Such options are: measuring of distances, searching for addresses, drawing and optimizations of paths, analyzing events from the vehicles on different kinds of maps and many more.

| picture. 1 | Analysis of the history of the movement of a vehicle – for a random period of time |
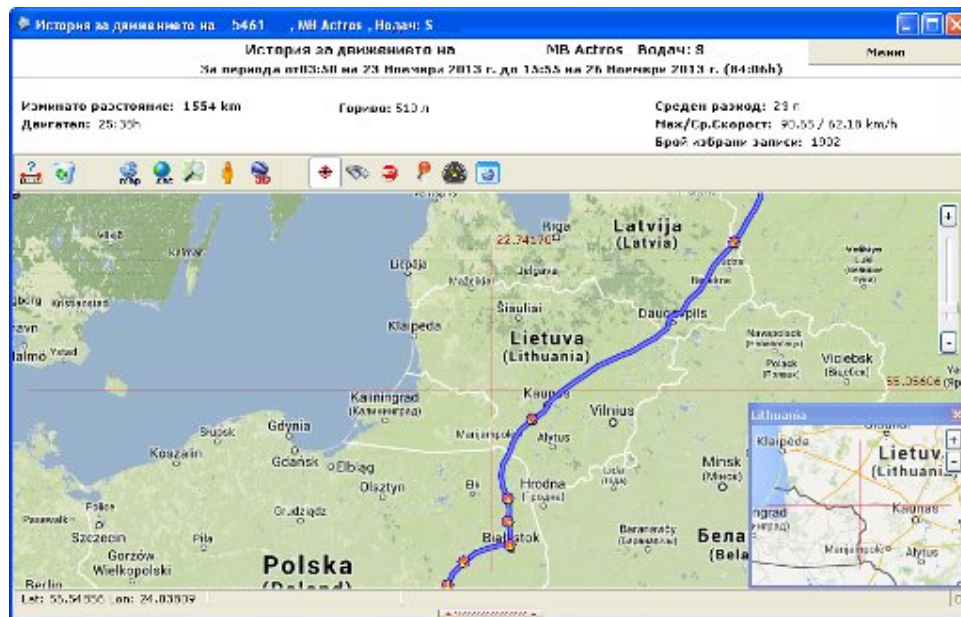
The useful functions of the system are realized by a specialized device, installed in the vehicle. The device collects and transforms information through the global positioning system (GPS). It provides the exact position of each vehicle, the movement speed, the direction toward the object that it is heading, the time of the stops and delays during each day, the working time of the engine, the correct value from the mileage of the vehicle, the

distance travelled for a specific period, the fuel consumption and other information. The data gathered is then transferred in a monitoring center (system of servers) through GSM modem in the form of SMS, CSD data or via GPRS.

picture. 2   Device – AGT mark III

The information, which enters our data center, is synthesized and analyzed by a computer system and after that the events are drawn on a electronic map – both in real time and for the past. The information can be also received in text format.

picture. 3   Real time monitoring of few trucks from the fleet

For providing a better visual understanding of the position of the vehicle on the map, it can be shown in Google Street View mode.

The combination of information for the vehicle's position on the electronic geographic maps and its working parameters enables the user to react swiftly and adequate to the situation and to take effective logistic and managerial decisions.

In addition to the benefit of the constant control of the vehicle's placement and main technical indicators, the system also gives the user the opportunity to work with synthesized data for the stops, breaks, travelled distance, and the ability to re-play different scenarios, occurred in the past, in order he/she to be better able to analyze the actions of the company's drivers.

This working mode helps the user to create different reports – for following up the movement of the vehicle for a specific period of time – and to make the comparison of these reports with the documents provided by the drivers, tachograph queries and etc.

picture. 5   Graphical analysis of the fuel consumption of the vehicle from its latest course
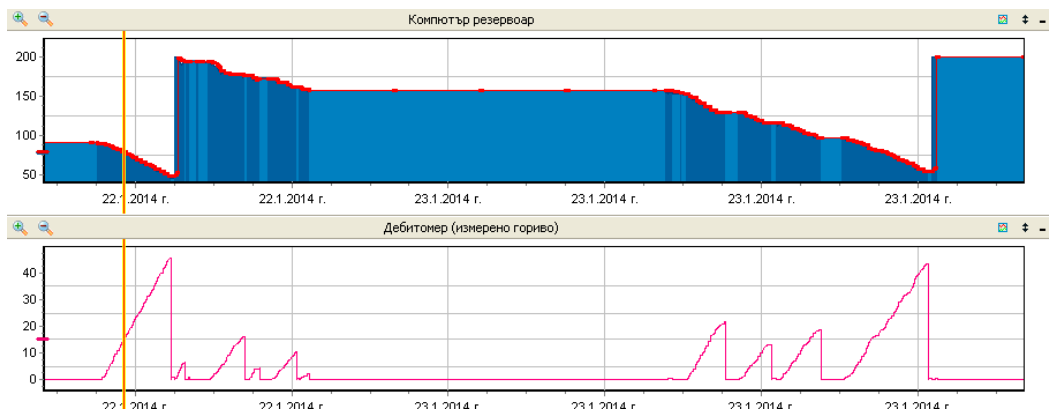
We have also incorporated an option for generating various kinds of queries – depending on each customer's individual needs – since the information, which the system gathers, is

visualized, archived and reprinted in both text and graphical view. There are separate queries – for a specific vehicle or summarized for the whole fleet.

The system supports automated completion of an electronic Waybill with the possibility of replacing the names of the addresses that were found with the titles of pre-entered objects in the system. The waybill can also contain the coordinates (addresses) of the vehicle's stops, the mileage values, the travelled distance between each stop and more. This document also comes in Control Inspection Form, in which the data is structured in the way that the Bulgarian local authorities require. This can be also synchronized to match the inspection's requirements for other EU countries.

picture. 6   Automatic Waybill completion – for a specific vehicle, for random period of time

For increasing the quality of the technical maintenance and the good shape of the vehicle, we have created the Maintenance intervals module. It contains various criteria for generating a notification which reminds the user, that it is time for insurance renewal, inspection of the vehicle from the official institutions, oil change, replacement of the tires and etc. The controlled parameters can be: travelled distance, engine hours and/or days of the year. The criteria are then linked to the maintenance deadlines and once they have been approached, the user will be notified in advance for the forthcoming inspection/maintenance.

picture. 7   Maintenance intervals for consumables replacement

The system has to offer a large variety of functions regarding the control of the movement of the vehicle compared to geo zones, areas, objects and etc. The control can be made for days that have already passed or in real time. The information is provided as statistical tables and detailed reports. There are few different ways for notification when a vehicle enters or leaves a selected zone – via SMS, e-mail or message on the screen.

The team of professionals, standing behind the idea and the development of the system GPS LOGISTIC, is constantly working upon expanding the useful functions of the program by adding new modules and options, which will make the management of your fleet even easier. One of our last new entries is the calculation of the remaining distance from the current position of the vehicle to the destination, toward which it is heading. This innovative feature enables you to provide correct information to your customers regarding the approximate time in which their goods will be ready for unloading on their address.

| picture. 8 | Measuring the remaining distance from the vehicle to its next destination |
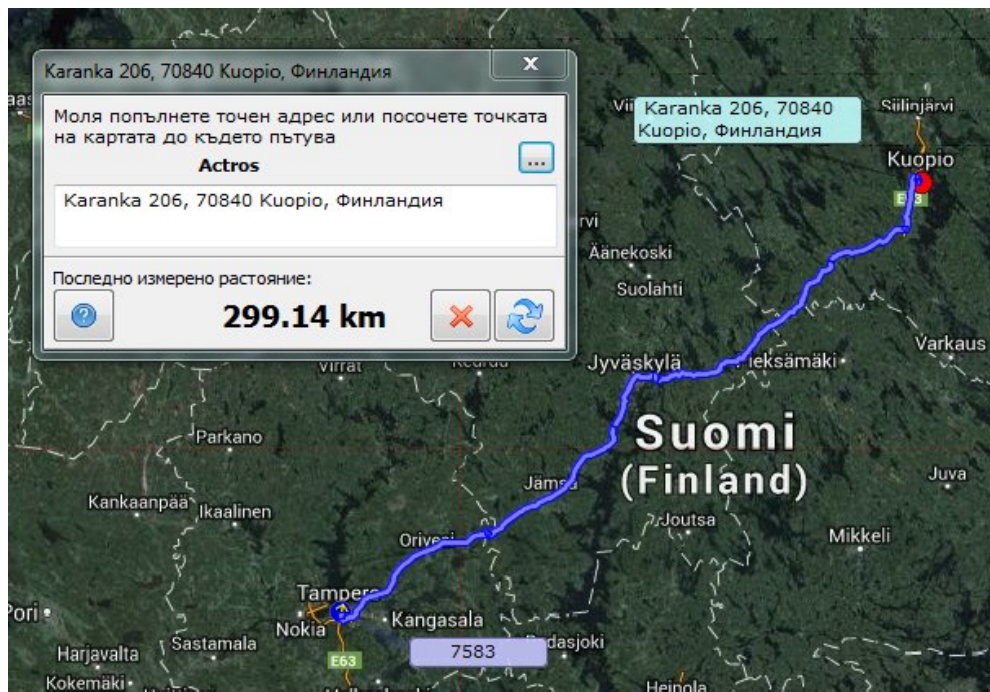
Applications of the system in vehicles with factory date after the year of 2003:

Important and extremely useful function of GPS LOGISTIC is the possibility of deriving data from the board computer of the vehicles. This provides access to precise information about the fuel consumption, the RPM of the engine, the temperature of the anti-freeze fluid and that of the oil, as well as the value of the real mileage in every moment.

The user can monitor this information in the form of summarized queries in text or

graphical view. This method of measurement of the vehicle's data is a lot better than the alternative methods, which are used in the cases when there is no possibility of data derivation from the board computers of the fleet. For comparison, the precision of measuring the fuel consumption when having access to data from the board computer is from 1 to 3%, whereas when the data comes directly from the original fuel sensor, installed in the vehicle's fuel tank – the precision value varies from 10 to 20%. Moreover, connecting to the board computer and deriving data provides useful information regarding other key parameters. The system is set to notify the user when certain critical values have been exceeded (e.g. increased fuel consumption, engine overheating, high RPM and so on).

The connection with the board computer is established via specialized CAN reading module – developed and designed by the company. There are specific CAN modules for communicating with DAF, MAN, IVECO, SCANIA, MERCEDES, VOLVO, RENAULT trucks and many kinds of cars and buses.

picture. 9   Interpretation of the data, which is coming from the board computer of the truck

The user interface of the system is extremely easy to use. The program can be installed on an unlimited number of working stations (computers, smart phones, tablets) and there is also no restriction to the number of separate user accounts per company. We have ensured an additional data encryption and defense from unauthorized access. The system also comes in Web version – an application for various sets of mobile working stations.

The service package of Advanced GPS Technology Ltd includes Online support in English – live connection with our administrators via the internal chat system or on the phone.

The devices, supplied by the company, are designed to meet the 24/7 working-time requirements and are characterized with high level of reliability.

The warranty of the products of the company is through the whole contract period!