
Sky Electronics
M2M SOLUTIONS

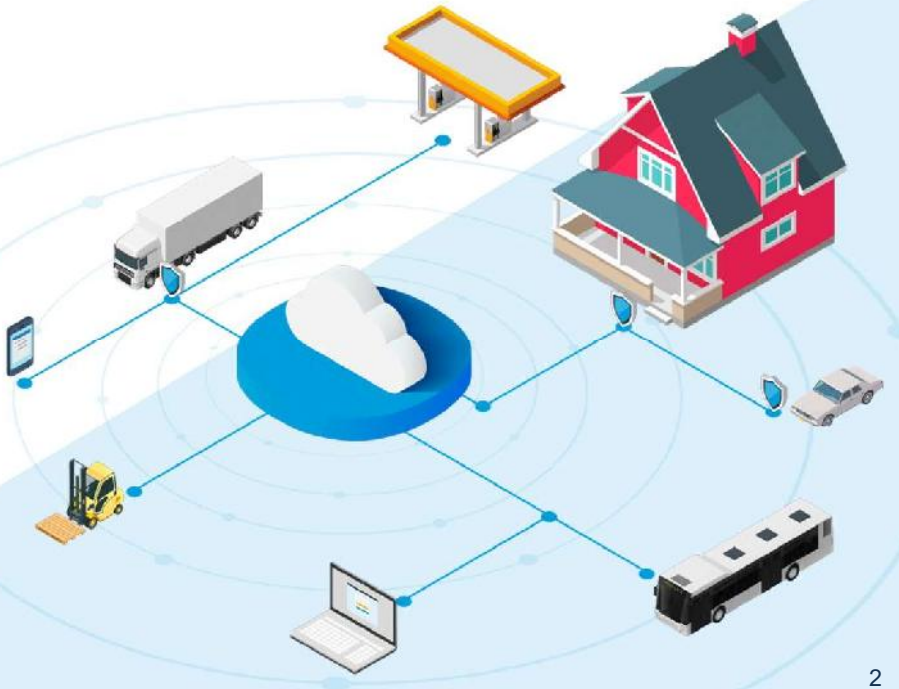
Data based modern solutions

Sky Electronics develops solutions in the IoT and M2M areas for:

Intellectual Management of Business Processes

Expense Management

Monitoring of Transport and Stationary Objects



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- IoT and M2M solutions – technology for managing data exchange between machines using wireless and wired sensor systems which transfer information from one device to another.
- To date, over 1000 sensor models, dash-cams and other recording devices are integrated with Sky Electronics software.
- This technology, combined with Sky Electronics software, provides wide possibilities for optimizing and automating business processes, and receiving detailed analytics and report compilation.

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Over 4000 companies world wide have chosen products from the Sky Electronics range for solutions to their business tasks.

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The Main Functions of Sky Electronics Software

- Automatic Tracking of the Fleet’s Availability
- Increasing Effective Use of Fleet
- Monitoring Mileage
- Monitoring Fuel Consumption
- Monitoring Driver Quality
- Monitoring Compliance with Road Rules
- Monitoring and Protecting Loads
- Automating Business Processes in Transport Companies
- Heap Maps for Events
- Remote Control of Vehicles
- Anti-theft System
- Photo and Video Surveillance in Real Time
- Modular Analytics
- Automation of Delivery Planning
- Plan-Fact Analysis

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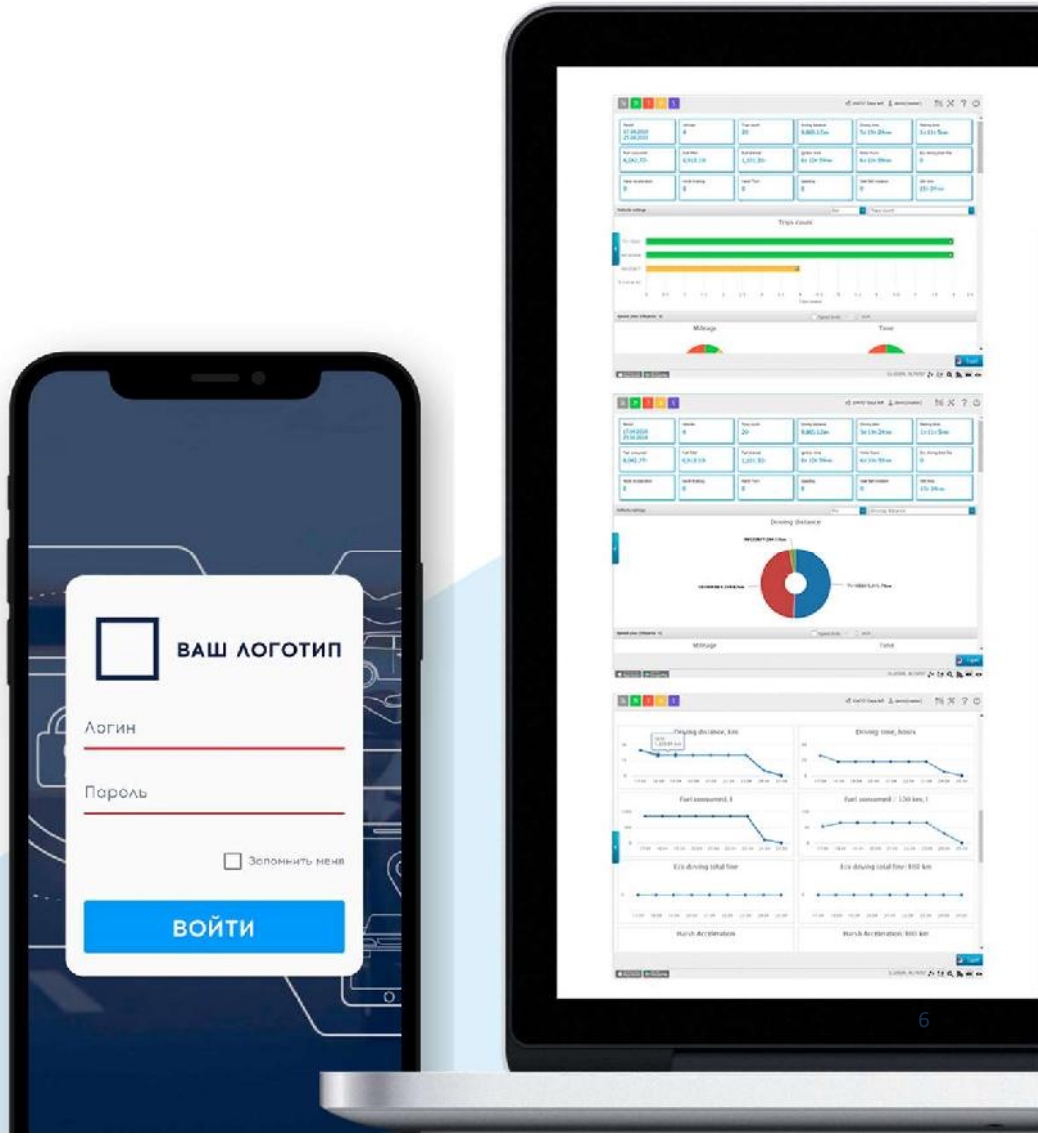
Special Personalisation Options

White Label
Place your own logo, name and domain name in the Sky Electronics interface.

Feature Settings
Use features of Sky Electronics' products fully or partially depending on your or your client's needs, and also add new functions.

Adapt to Regional Market Conditions
Set local units of measurement, currency, languages and also connect local payment systems



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Comprehensive Solutions
Sky Electronics

We have developed 5 user-friendly and flexible tools to speed up decision making based on data.

PILOT

Monitoring in Real Time

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Electronic Dispatcher

Monitoring
Responses to Requests

Autoconductor

Automisation of
Passenger
Transportation
Management

Logistic-Navigator

Map the
Shortest Routes

GARM

Monitor and Protect
Vehicles and Property

Intellectual Monitoring of Vehicles and Fuel Consumption In Real Time

The multifunctional system for monitoring transport, PILOT, is based on modularity in order to accomplish your objectives.

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Monitoring Mileage and Fuel Consumption

PILOT's monitoring system allows you to:

- Monitor mileage
- Monitor fuel consumption
- Calculate the operating hours various machines

This system is integrated with a large number of manufactures of different sensors and of GLONASS equipment

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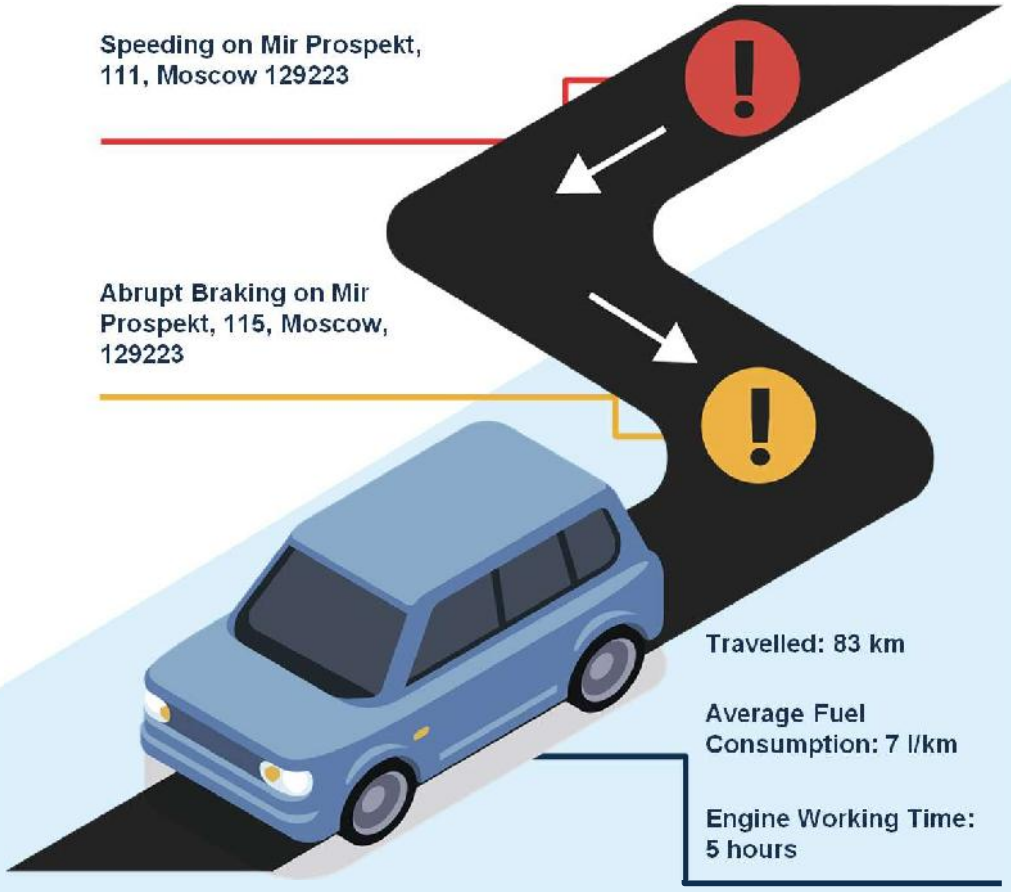
Monitoring Driving Quality

The driving quality module allows you to monitor driver behaviours that lead to increased wear and tear or damage to parts

- Abrupt braking,
- Rapid acceleration,
- Travelling at increased RPMs.



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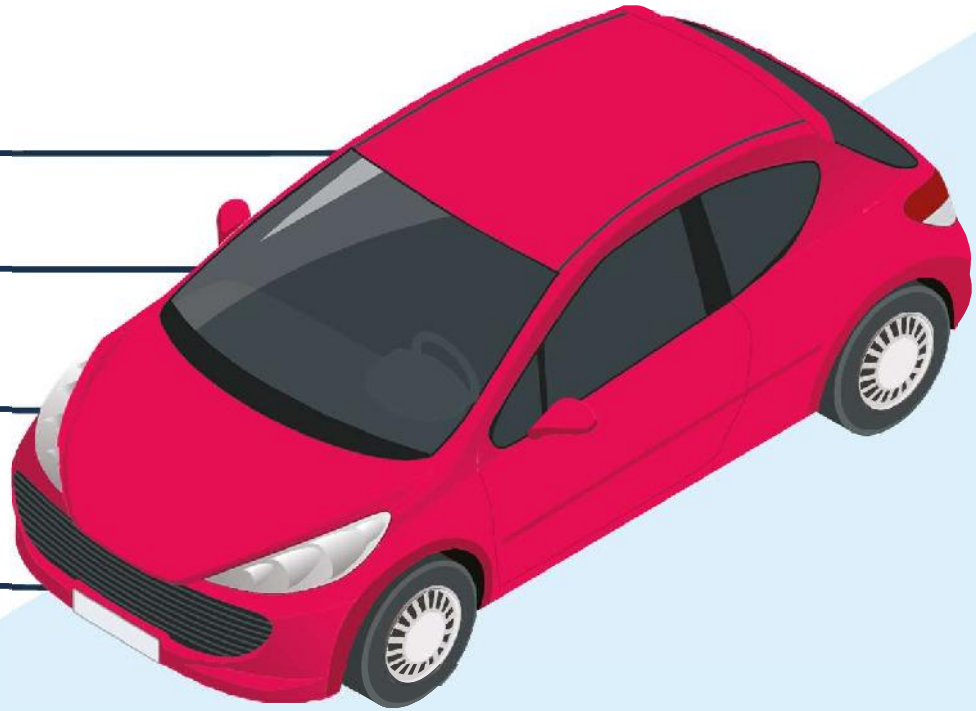
Remote Control of Vehicles GARM

The special module GARM allows users to control vehicles remotely from a desktop or mobile application

- Securing and unlocking the vehicle
- Blocking the engine
- Starting and stopping the engine
- Identifying location etc .



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Anti-theft and Load Protection System

The PILOT monitoring system together with various devices provides comprehensive monitoring of the condition of:

- Vehicles
- Trailers
- Driver's Cabin

PILOT®

Monitoring Compliance with Road Rules and Fines

The system enables the user to track driver compliance with road rules on specific vehicles on specific stretches of road

The data is valid as it is taken from the State Traffic Safety Inspectorate, as is information about fines

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Fuel Cards

The PILOT monitoring system is integrated with a large number of fuel card operators which means you are able to monitor the volume of fuel bought with the card and compare it with the actual volume of fuel used, and this makes it impossible to give the card to third-parties.

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Photo and Video Surveillance in Real Time

With PILOT, you can :

Watch videos online

Set up an audio channel for both online listening and storage

Download a travel history for vehicles

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This solution is suitable for:

1

Monitoring Driver Behaviour:

- The condition of the vehicle: abrupt braking, rapid acceleration, incline, impact detection etc
- Detecting driver tiredness.

2

Monitoring The Safety of Logistics Vehicles:

- Monitoring blind spots
- Monitoring load safety

Expanded Analytics Module

The analytics module is for creating different timetables and circle diagrams which present data about changes in parameters in real time.

Analytical data is presented about both vehicles and drivers. When the data is being analysed, you can access detailed information about each specific vehicle without having to redo the whole report

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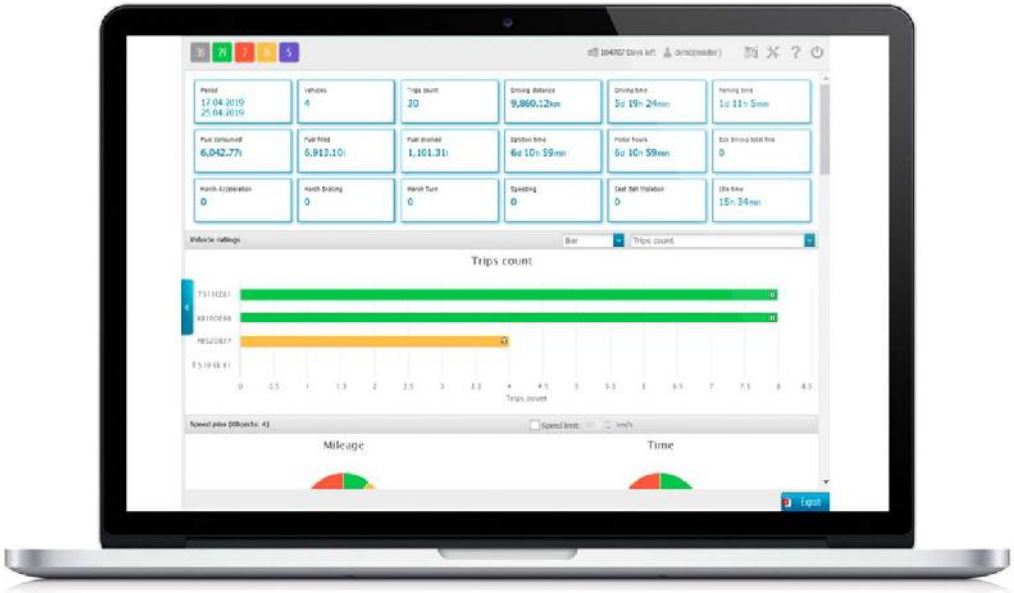
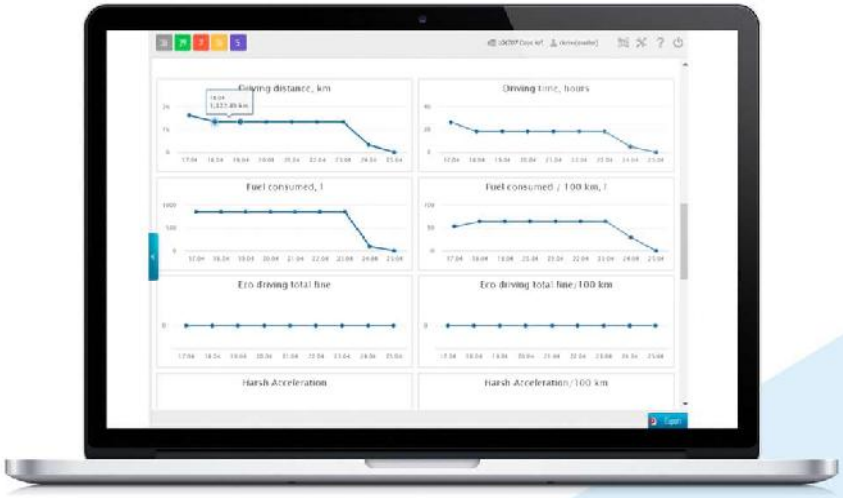
Expanded Analytics Module





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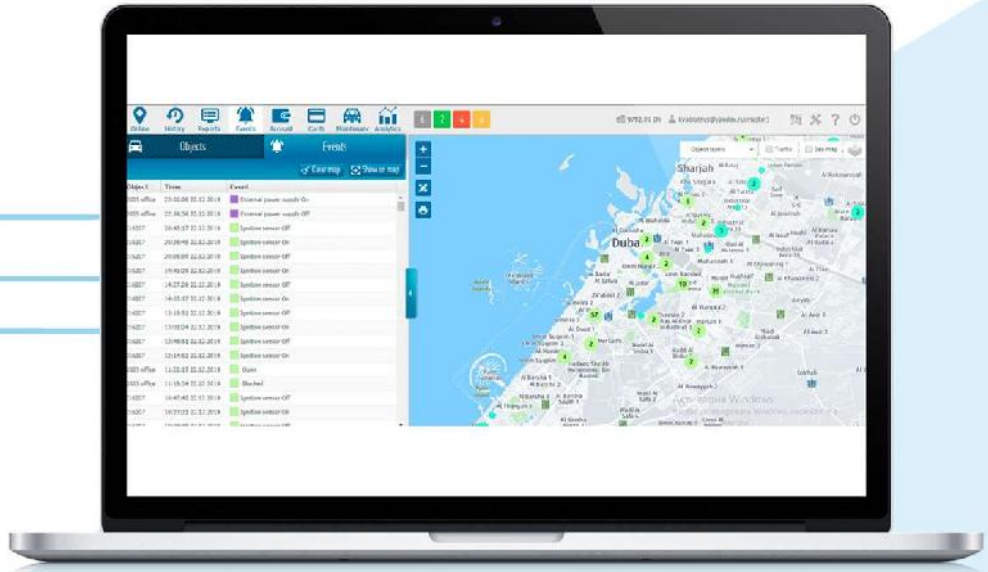
Heat Map Of Events

The event and notification module allows you to select and display on the map various events which are happening with vehicles such as:

Engine switched on

Style of driving

Fuel being drained off etc



This makes it possible to check consistencies according to specific parameters.

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Monitoring Fuel in Diesel Generators

Case

The Task:

Organise monitoring for fuel tracking in diesel generators from different manufactures with regular and irregular fuel tank shapes

Our Solution:

All diesel generators were divided into three types. The

following solutions were developed for each type:

- Fuel tracking with the help of capacity sensors. In order to decrease the effect of vibration, each tank was equipped with two sensors. ESCORT-TD-150 fuel sensors were used.
- For tanks with irregular shapes, differential impulse flow-meters from the company Technoton were used.
- For diesel generators with the Modbus interface, CAN-adaptors were used.

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Result:

On the first day after installation, the system registered that there was 40% less fuel than the daily norm.

During the second month, fuel costs dropped by 38%.

Percentage of fuel stolen before the implementation of PILOT solution

40%

Fuel consumption fell by

38%

Monitoring Garbage Removal

Case

Task:

- Organise garbage removal monitoring with accuracy down to the last separate bin.
- Bins are divided into two types: those emptied into the vehicle container and those loaded onto the vehicle.
- Total number of bins: 5000. It is necessary to monitor the unloading of bins, the transfer and to get information about processed and unprocessed bins every day.
- Have information about the location of bins and the vehicles processing them.

Our Solutions:

To complete this task, we used the main functions of the Monitoring Vehicles Module. In addition, the Notifications Module was connected which notifies residents about the approximate ETA of the garbage truck by SMS and Telegram. The notification option is available to residents in suburbs where rubbish is put out for collection according to a timetable.

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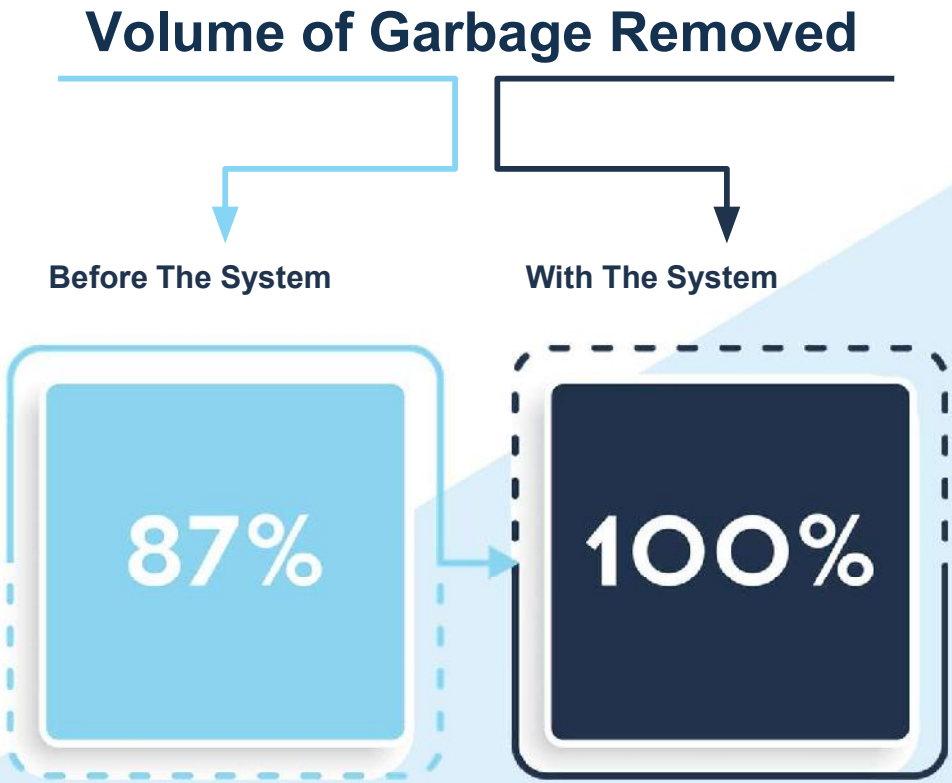
Monitoring Garbage Removal

Case

Result:

- Before the implementation, 87% of garbage was removed. After the implementation, 100%.
- The garbage loads on garbage trucks increased in regions where garbage is put out for collection according to a timetable.
- The amount of work required in the housing and utilities sector was reduced in regions where garbage is put out for collection according to a timetable
- In regions where the garbage removal operator is operating, positive comments have been received by residents



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Monitoring Axle Load

Axle Load Sensor manufactured by Sky Electronics

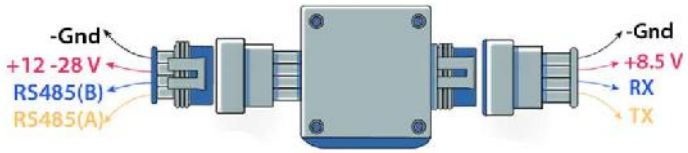
- The sensor allows the road train's weight and the weight of the load to be measured.
- The system consist of a head unit and a direct weight sensor.
- An unlimited number of sensors can be connected to the head unit. Each sensor is identified separately by the head unit.

The weight of the load and road train with 90% accuracy

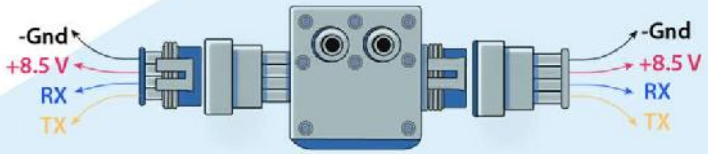
Trailer Identification

One truck, many trailers

Driver display



Main Unit



Sensor Unit

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Monitoring Axle Load

Axle Load Sensor manufactured by Sky Electronics

The system shows the load's weight and the road train's weight separately

Information about weight values is displayed on the driver's screen

The head unit works with weight sensors and doesn't need to be reconfigured after a new sensor has been connected. All sensor settings are stored directly on the sensors themselves so that reconnecting does not require any additional setting to be carried out with the trailer identifier

A separate sensor, which can be connected to any head unit, is installed on the trailer. It transfers a unique identifier which can also be used as the trailer's identifier

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Tablet PILOT740

The specially developed Sky Electronics tablet for displaying information from sensors installed on vehicles. The PILOT tablet interface can show information about mileage, fuel usage, average speed, images from cameras etc. Data is transferred online and is also recorded on the inbuilt memory card.

: Technical Specifications

- Operating System Android 7.0
- 7» Navigation device, 1.5GHz quad core CPU 2G
- DDR3, 16G NAND
- High screen resolution IPS (1024x600)
- Capacity touch panel (multi-touch) GPS
- 2G/3G/4G
- Wi-Fi/BT
- Built in Camera (8M Omni vision)

Additional Options:

NFC, Lora receiver, video input (720p, does not come with the camera)

)Accessories:

Protective frame, various types of holders,

camera hub HH420 (4 x 1080p camera input), camera hub HH421 (HDD, 4 x 1080p camera input)

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Electronic Dispatcher (PILOT Task Manager)

This is an adaptive system for managing business processes which allows tasks to be completed with ERP and/or CRM systems.

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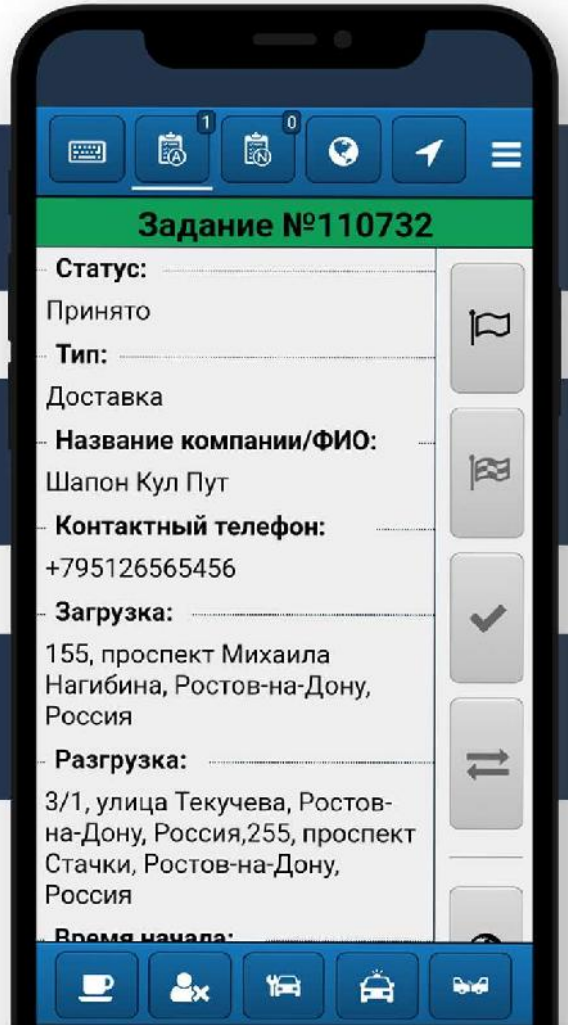
Main Functions:

- Managing business resources which are used for carrying out tasks
- Automatic calculation of time required to carry out tasks
- Receiving and processing incoming tasks



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Electronic dispatcher (PILOT Task Manager) allows many tasks to be completed, such as:

1. Automate vehicle distribution
2. Equally distribute workload amongst drivers
3. Eliminate the possibility of missing requests for delivery or not processing the requests on time
4. Increase the volume of deliveries in a given time period
5. Lower the number of refusals and returns
6. Reduce mileage and fuel consumption etc

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Corporate Taxi

Case

Customer:

Kazakhtelecom

Task:

Create a corporate taxi system

Solution:

On the PILOT Task Manager base a system was built which allows requests from company employees regarding the temporary use of corporate vehicles to be processed .

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Corporate Taxi

Case

Result:

All those participating in the process are able to track the request’s status in real time. Usage of the fleet has been optimized. The system automatically calculates the time required for the requests, taking into account traffic jams, which allows the fleet to be used at the maximum level of effectiveness.

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Logistic-Navigator

Intellectual system for planning, optimizing and monitoring deliveries

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The Logistic-Navigator system enables:

- Automation of the load delivery process
- Minimization of mileage and fuel consumption
- An increase in effective use of the fleet

- Monitoring of deliveries and deadline compliance
- A plan-fact analysis to be carried out
- Comprehensive reports on specific parameters to be compiled

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When planning, the following factors are taken into account:

The time frame for pick-up and delivery

Weight and volume specifications of the load and vehicle

Type of transport used

Working hours

Congestion on the roads

Other factors given by the user

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Logistic-Navigator can be integrated with corporate information systems to receive and transfer information

1

SAP

Galaktica

Autoconductor

A system for automatically counting passengers in real time

The “Autoconductor” system calculates profit based on passenger flow and this prevents drivers from illegally taking money for themselves

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The Autoconductor system enables:

- Timetable management with the ability to send data to “Smart Stops”
- Automation of planning processes and timetable creation
- Automation of the calculation of fleet availability, and the availability of individual vehicles
- Monitoring of the earning power of routes, taking into account passengers travelling on concession
- Automatic calculation of the number of vehicles on the route, taking into account the number of passengers at different intervals
- Analysis of transportation efficiency

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Additional Capabilities:

Integration with
Yandex.Transport

Based on statistics from our clients, after the implementation of our systems, profit grows by between 25% and 40%.

Monitoring timetables
The system monitors the timetable and, if it is not followed, sends a message to the dispatcher and the driver

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Monitoring Passenger Flow

Case

Task:

To carry out a set of actions designed to provide monitoring in buses, video monitoring of roads and also to provide automatic calculation of passenger flow

Our Solution:

- The Autoconductor system was installed
- In addition, surveillance cameras were installed in the passenger compartment to monitor the road and driver
- For the drivers' convenience, buses were fitted with screens which showed video from the cameras, weather summaries and also text messages from the dispatcher
- For passenger convenience, the system was connected to Yandex.Transport which allows them to get information about buses' ETAs at stops

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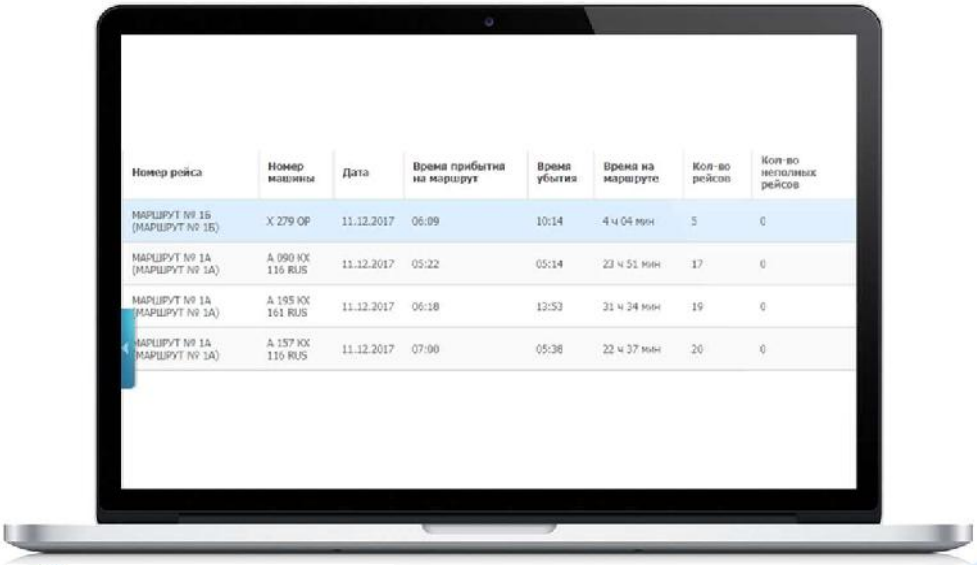
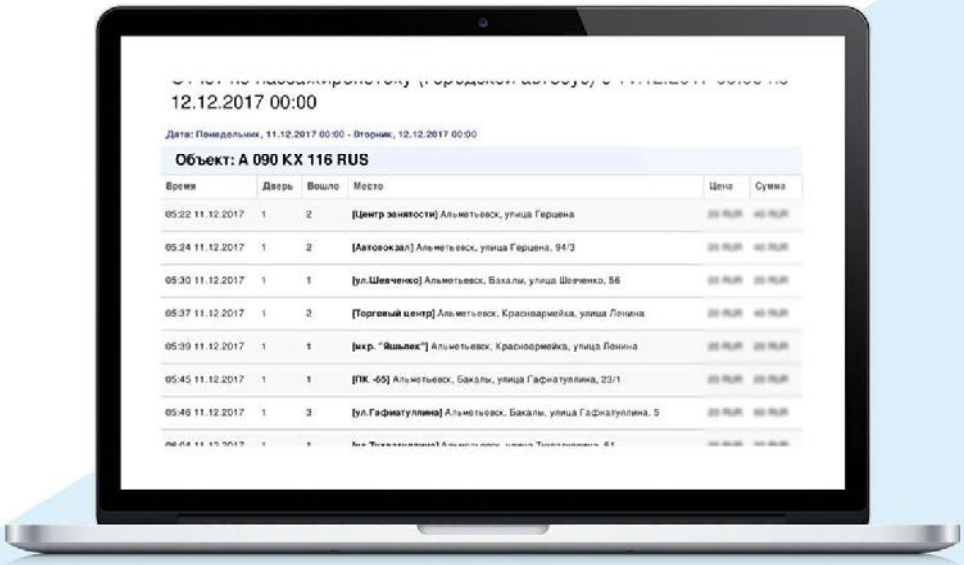
Monitoring Passenger Flow

Case

Result:

As a result of implementing our system, the client was able to increase profit from transportation by 30%. The procedure for processing customer complaints and also determining the cause of accidents was reduced to practically one working day.





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GARM

An intellectual safety system for guarding vehicles and property

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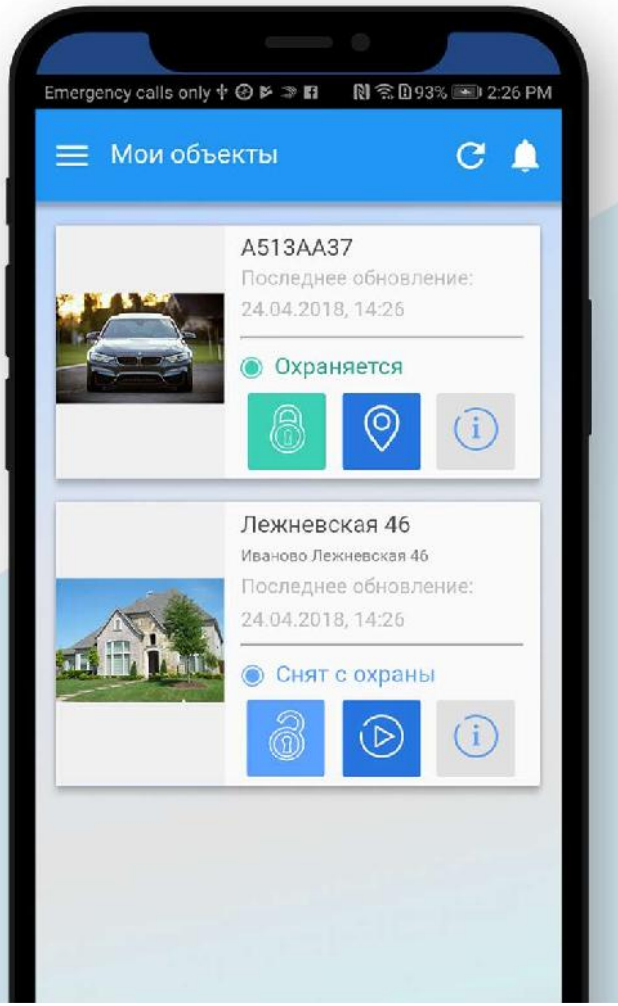
An intellectual safety system for guarding vehicles and property

1 Guard and anti-theft systems. The vehicle can be fitted out with:
— an engine-blocking relay
— GPS tracker
— CAN-adapter

2 A system for managing vehicle functions which enables you to remotely control vehicles and start or stop the engine using a mobile application

3 We connect vehicles to a guard dispatch center



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An intellectual safety system for guarding vehicles and property

The “Smart Home” kit for monitoring and managing security systems, turning on and off electrical equipment using a mobile app.

Creation of event scenarios in which notifications about unauthorized entry or gas leaks are delivered

Live video helps to remotely monitor the area

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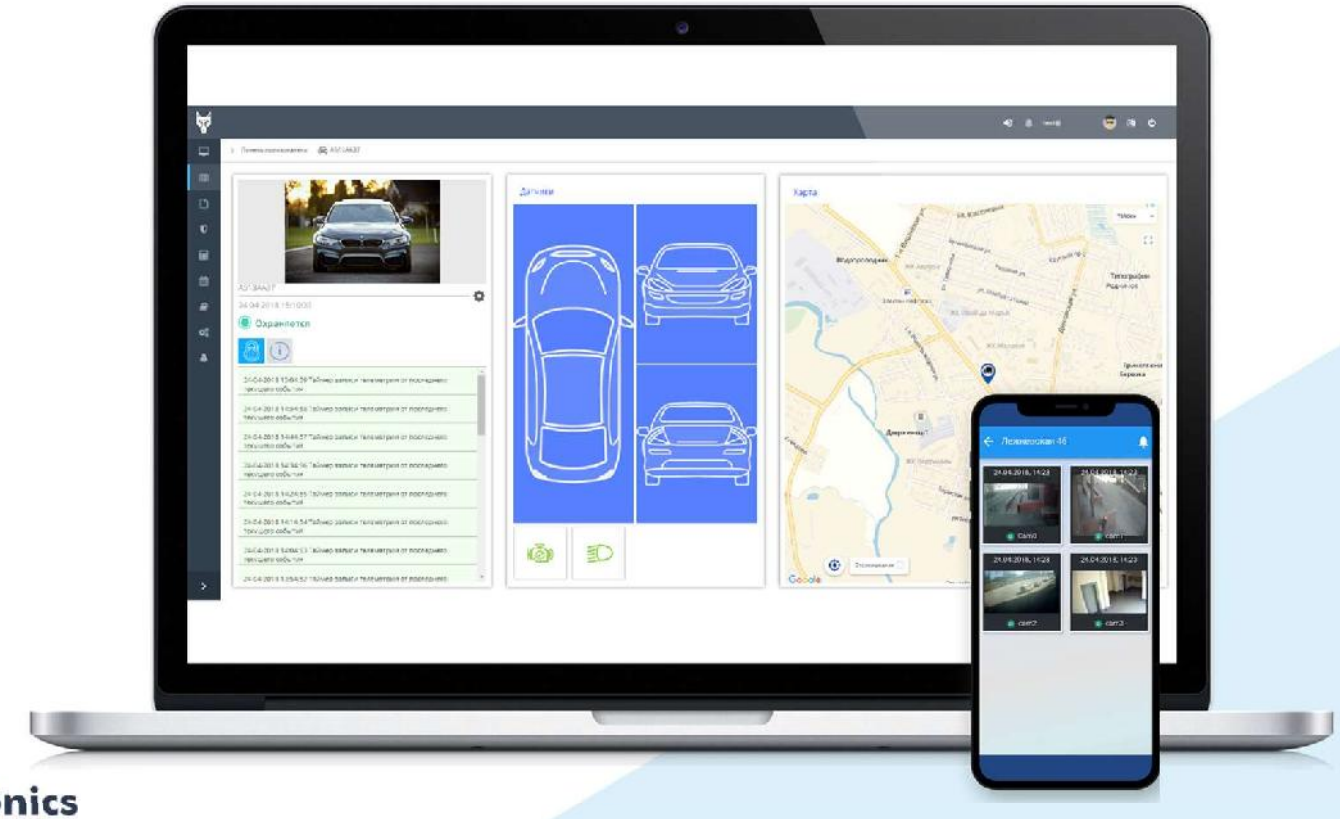
All information is displayed in an easy-to-use interface



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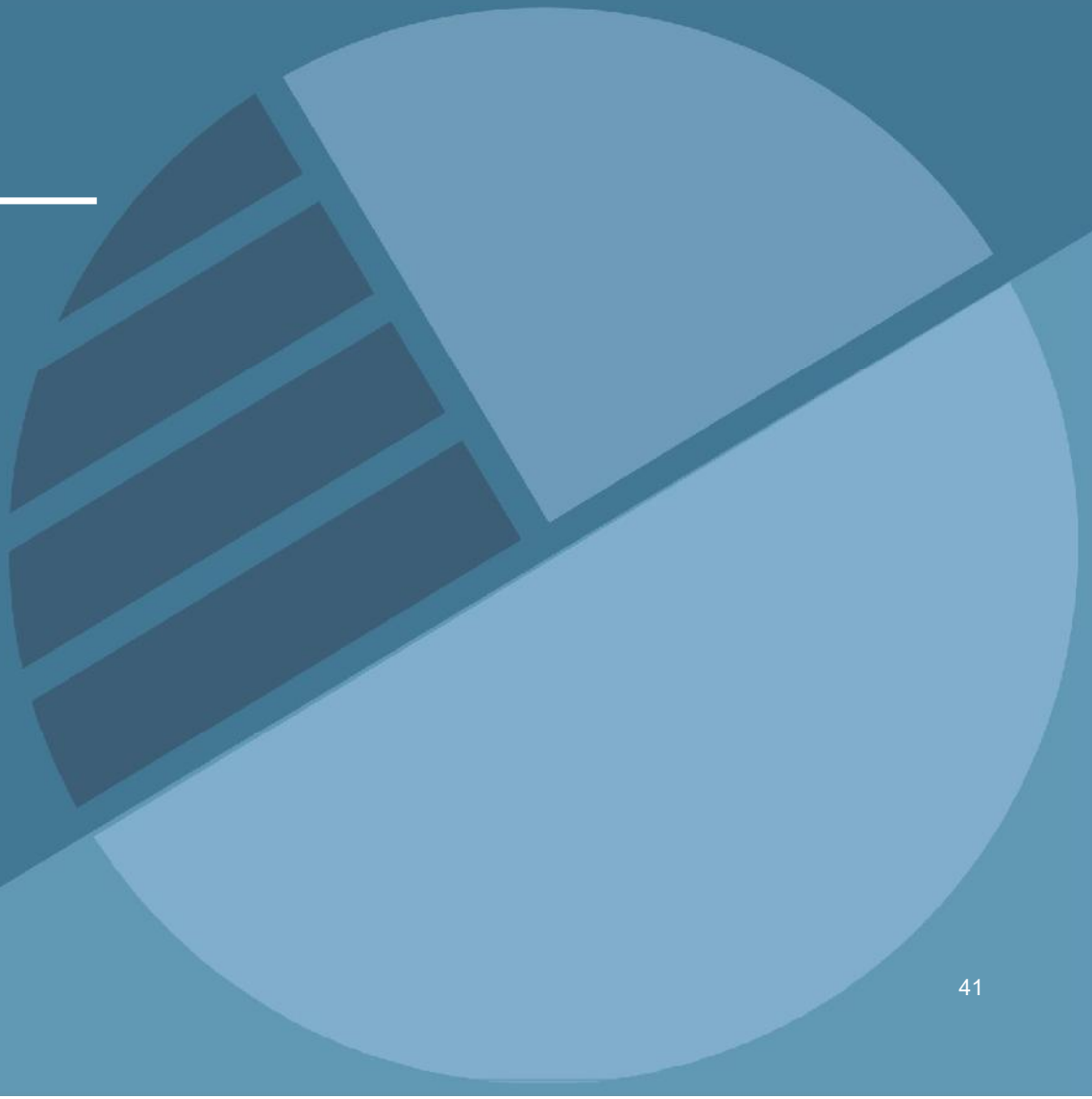
Additional tools for managing business processes and other capabilities from Sky Electronics



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Billing system for monitoring payments from contractors

- Manages connections to payment systems
- Monitors account threshold amounts
- Automatically creates and sends out invoices by email
- Keeps a record of monetary transactions
- Integrates with ERP

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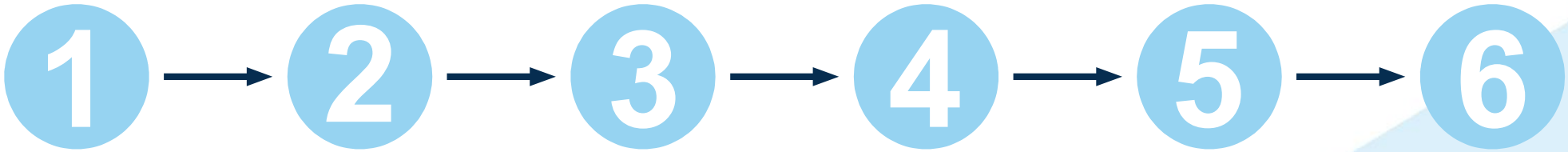
Incident Management System

How the system works:



1. Request creation in tech-support or another service
2. Registration of request and appointment of duty-holder
3. Notification of request deadline
4. Feedback (if necessary)
5. Request completed. User notified.
6. Request closed

- **Automatically processes requests from users**
- **Easy-to-use interface for the integrator to manage requests**
- **Monitors SLA**

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Beneficial and transparent collaboration

Sky Electronics offers intellectual adaptive software for carrying out tasks in any business

- Adaptation according to your needs and industry requirements
- Easy to integrate with third-party systems

- Our solution does not require extended programming and can be set up without a programmer
- Has modular configuration
- Setting notifications for any tool: email, SMS, Messengers

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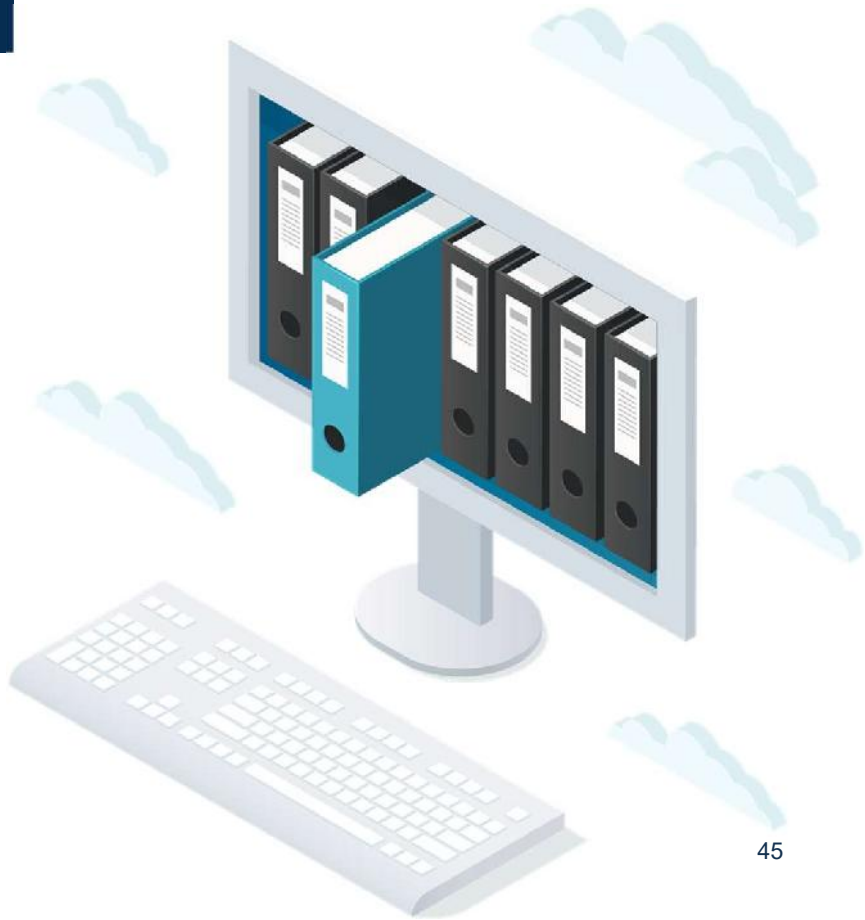
Beneficial and transparent collaboration

Sky Electronics supports you at all stages and guarantees:

- Simple and quick integration of our products with related customer services
- Customised solutions (web and mobile applications)
- Provision of a ready website
- Help in setting up digital advertising campaigns



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