Ростех

Safe City

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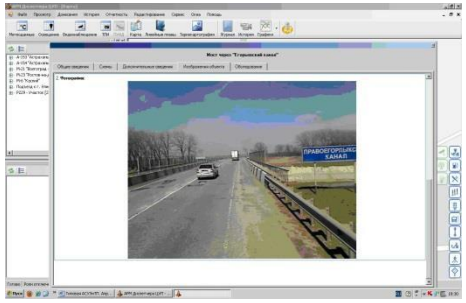
Solutions for the «Safe City» project

- Traffic management
- Public transport management
- Parking space management
- Intelligent Transport Systems

weight and dimensional

Weight and dimensional tracking

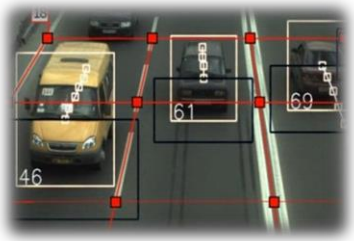
- Road maintenance management

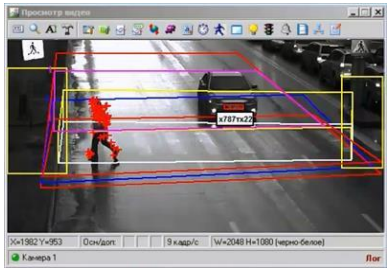


- Meteorological Supply

Traffic management

- Traffic lights
- Road controller
- Speed control sensor
- Video analytics system





- Equipment for safe crosswalks

- LED road signs

- Blank out signs

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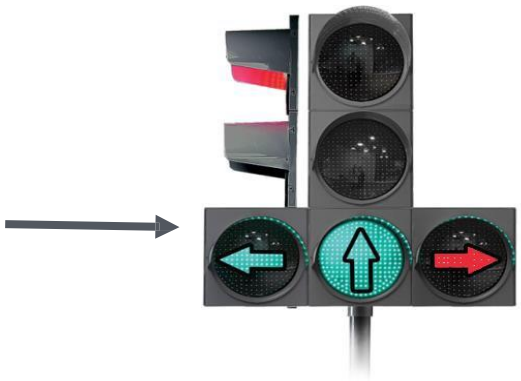
A set of options in traffic control systems

- Recognition, video-recording of traffic violations, web-camera, wi-fi
- Sound alert with night-time reduction function
- Reducing the brightness of the signal at night
- Vibrating device for warning of visually impaired traffic participants
- Built-in three-digit time count indicator
- Solar Powered
- Function of determining the workload of the road section and correcting the time of the signal activation
- The traffic light for color-blind (different form of sections) of an alternative color scale and the design of sections of a traffic light
- Information board in the traffic light section;
- The intersection register when driving on a prohibiting signal;
- Projector of the current signal on the roadway;
- Traffic signals (for example, in the yellow section).

«Red arrow» project



Traffic light with a three-digit time-counting board in the yellow section

Regulation of traffic and pedestrians movements while traffic signals are in action for a long period of time (large interchanges, highways)

Multifunctional road module system

An open light module duplicates traffic light signals, an available visibility of 360 degrees is provided

Road marking materials and paving

Classical marking materials with a high level of wear resistance :

- paints
- plastics
- stock molds

Specialized materials and paving:

- For pedestrian crosswalks
- for bicycle paths
- For parking zones
- For athletic fields and entertainment venues

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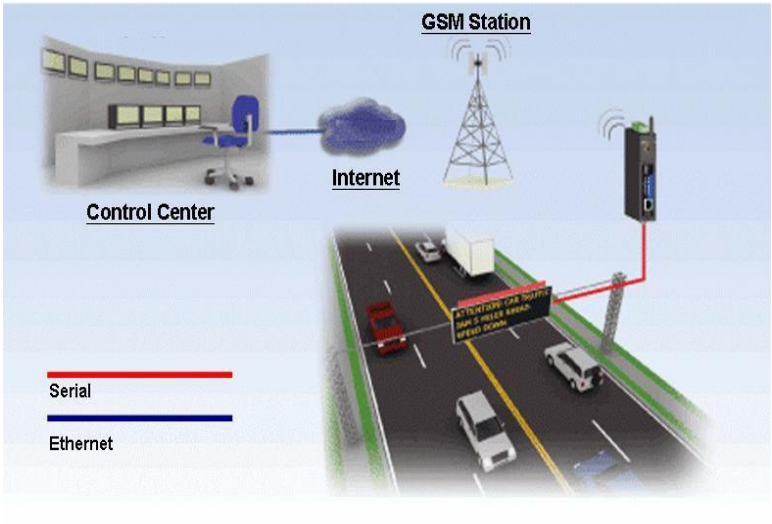
❑ LED road signs

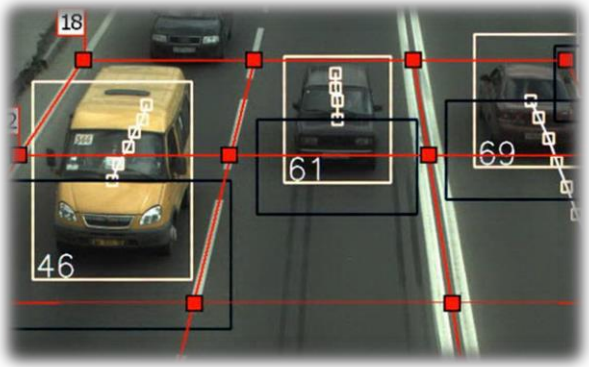
LED road signs, ZNDS line, are intended for the road-traffic safety. Optical LED light source system, designed for internal illumination of warning road signs according to GOST R 52290-2004, is made of impact-resistant material. No blinding effect.

Intellectual system of blank out signs produced by technology of media screens

Blank out signs are intended to provide drivers with mandatory or recommended information about the organization of traffic.



Laser speed sensors with photo fixation of a vehicle and its identification

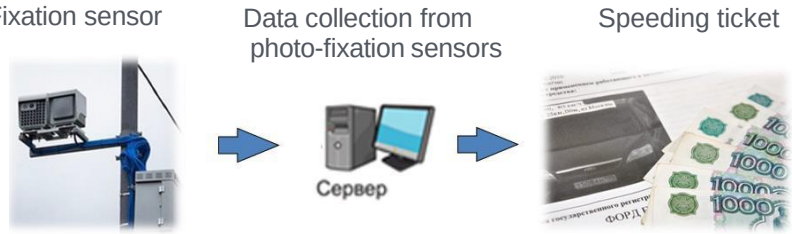


From January to September 2014, photo and video detection systems for violations of traffic rules revealed 32.4 million cases of non-compliance with traffic rules.

The ubiquitous appearance of photo and video violation centers is planned. This measure is necessary in the framework of the targeted program "Improving road safety in 2013-2020".

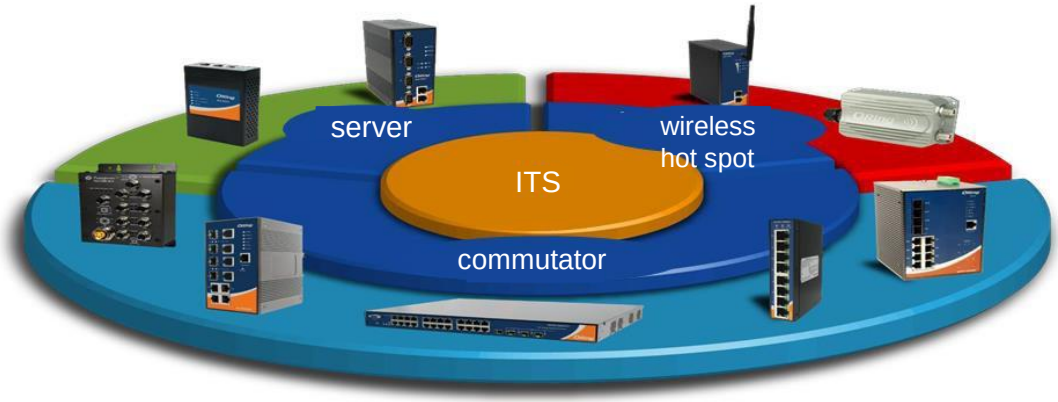
Advantages of speed sensors:

- ❑ Wide-ranging rapid fixation of the speed limit
- ❑ Minimum measurement error
- ❑ Vehicle number fixing
- ❑ Registration up to 5 traffic lanes
- ❑ High corrosion resistance
- ❑ Easy installation



Intelligent Transport System (ITS)

ITS — part of the road infrastructure, designed to ensure the safety and effective management of traffic, transport-operational condition, maintenance and preservation of highways, the collection of fines and compensation for damage caused to highways by heavy vehicles.



ITS users

Ministry of Transport and Road Facilities

Main Directorate of the Ministry of the Interior

Contract road organizations

Regional transport

Road users

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Objectives of ITS creation

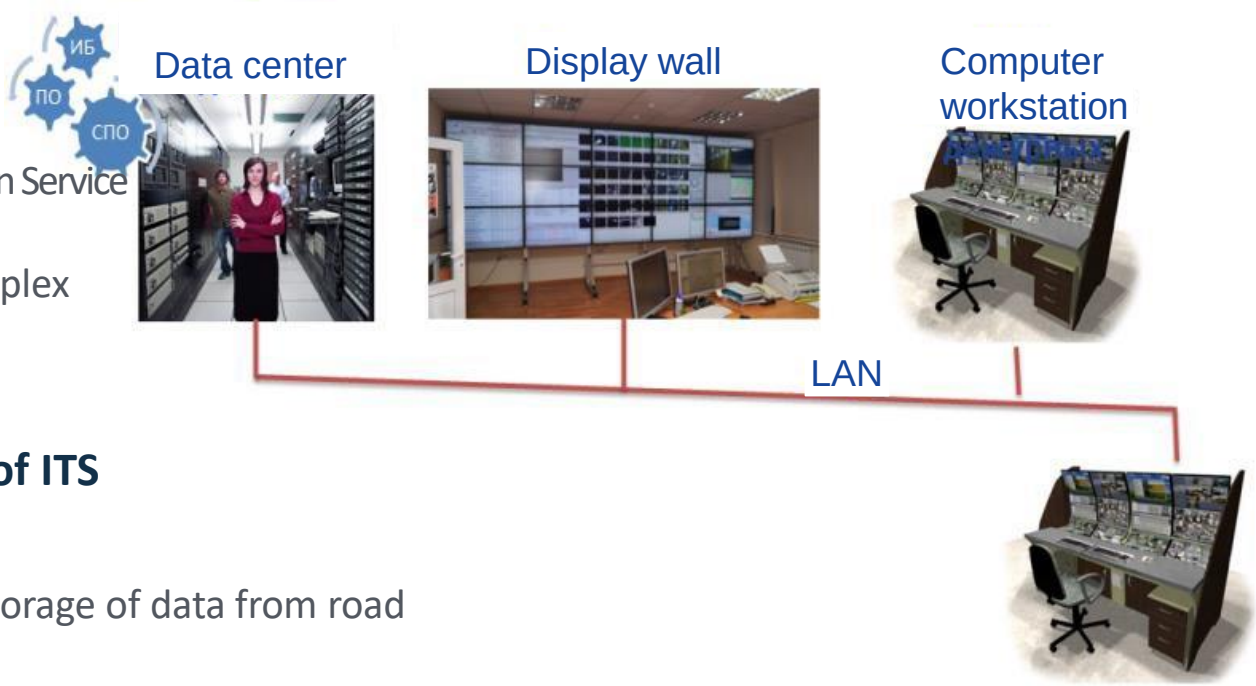
- Improve road safety
- Increase the preservation of the roads
- Increase road maintenance
- Raise awareness of road users
- Increase the collection of fines and fees for roads damage

№	*Indicator*	*Value*
1	Decrease in the number of road accidents	40%
2	Decrease in the number of dead and wounded	30%
3	Annual socio-economic effect	3 billion RUB
4	Annual effect from road and work control	100 million RUB
5	Decrease in the number of road accidents caused by road conditions	2 times
6	Reducing damage to roads	2-3 times
7	The annual average income to the budget from fines and fees for road damage	1,2 billion RUB

Interaction with external information and analytical systems

Operations control center interacts with :

- MIA
- GNSS
- FBSD
- Federal Transportation Inspection Service
- Federal Road Agency
- Hardware and software complex «Safety City»



Composition and functions of ITS

Main functions:

- Collection, processing and storage of data from road monitoring posts;
- Collection, processing and recording of operational status data elements of ITS;
- Preliminary processing of data on traffic violations;
- Submission of materials to CAFAV and CU;
- Organization of mobile posts work;
- Information support for ITS users.

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Technical composition of the system

ITS

Complexes of photo and video fixation of driving regulations violations

Automatic stations of weight and dimensional vehicles management

hardware-software complex of the control center

Relocatable transport weight-checking stations

Traffic police post

Meteorological road watch office

video monitoring stations

mobile complexes of road monitoring

Tools designed to inform road users

intensity recording station

Subsystem of weight and dimensional control

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Automatic stations of weight and dimensional vehicles management

Relocatable stations

Road Maintenance Management Subsystem

Road data

Counselor mobile computer workstation

Mobile applications of road specialists

Road custom vehicles location and condition data

Road custom vehicles

Meteorological service subsystem

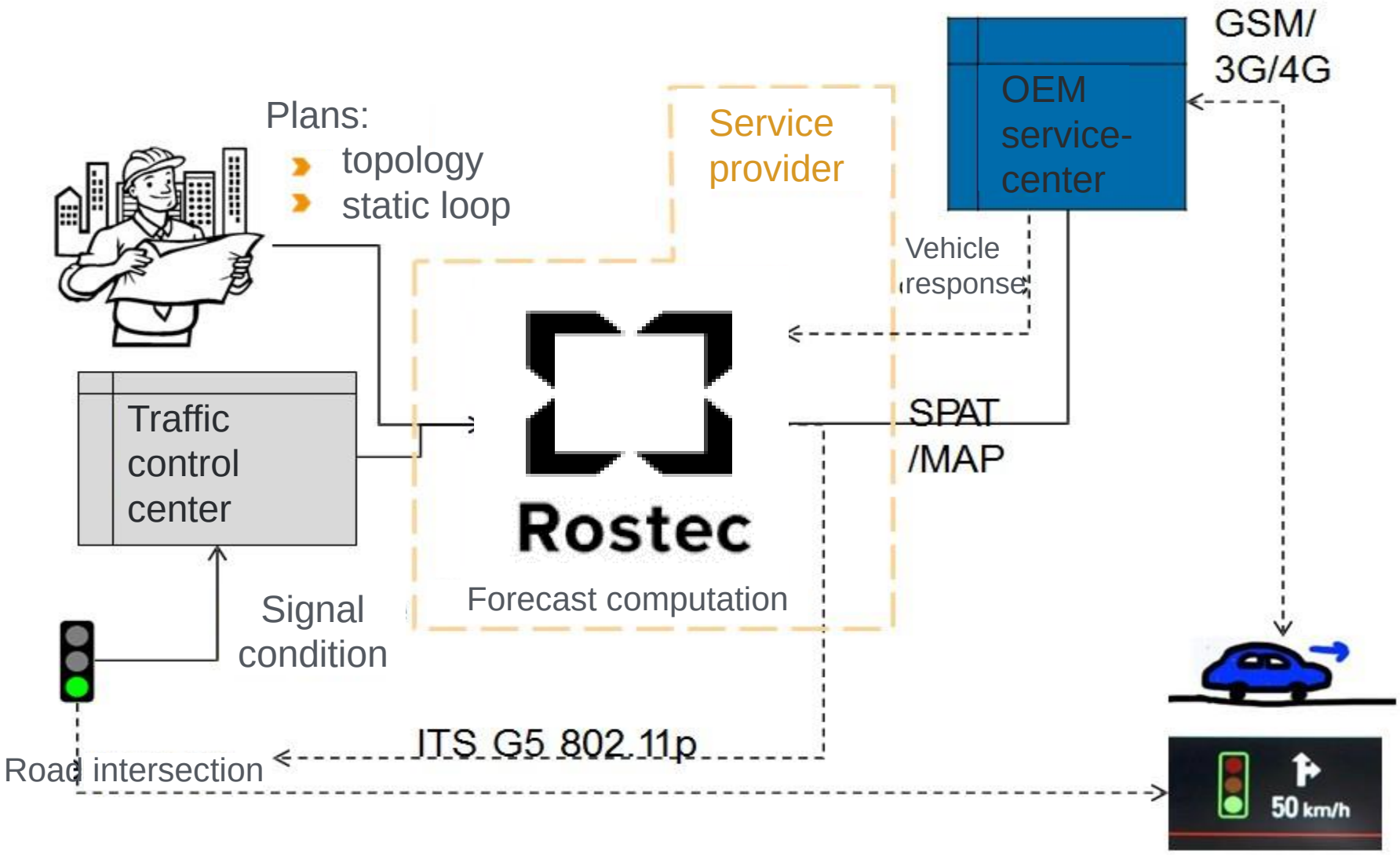




Meteorological sensors on motor counselors and custom vehicles

Permanently installed meteorological road watch offices

TLA Architecture



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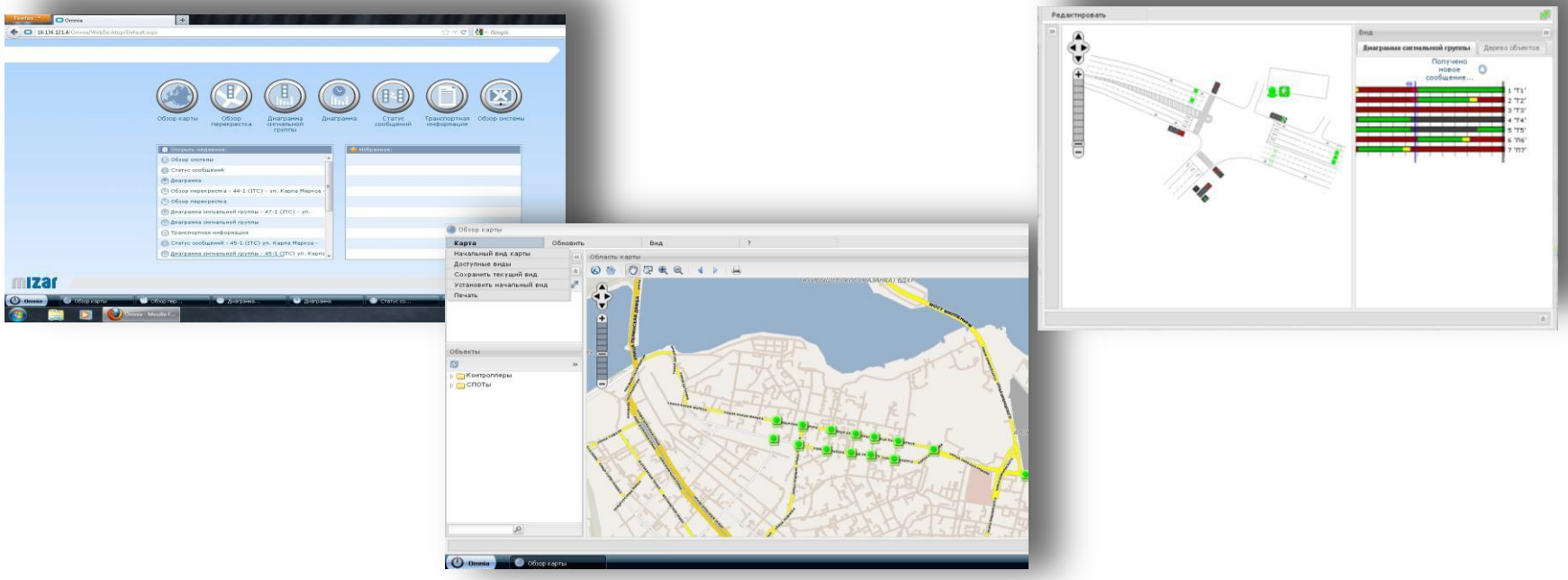
Managing the urban transport environment in a single interface

Single operator user interface for all integrated subsystems and work applications

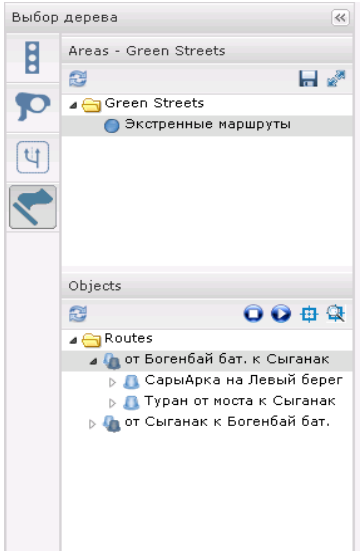
Mapping of objects of management of interactive layers of working applications with management function and direct access to current and statistical information.

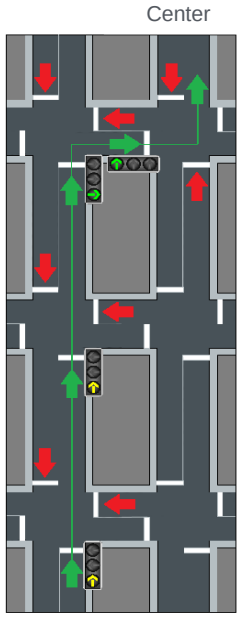
Display of general and detailed current and statistical information for each traffic light object in the system.

Communication with the selected object for sending control commands to the peripheral level of the system.

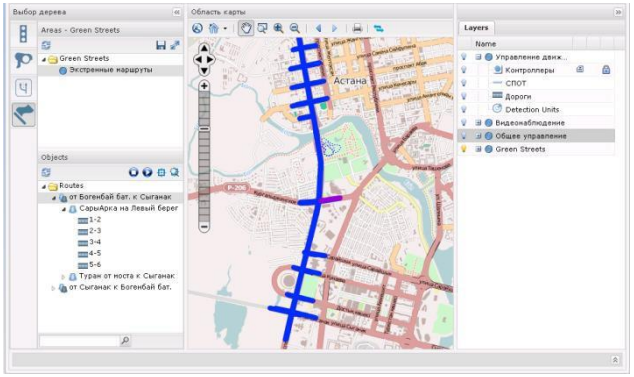


Priority functions "green street"





180 seconds



it is possible to manually activate the configured emergency routes both segmentally and completely, allowing the passage of special vehicles in the specified direction,

Activated segments and segments in the activation queue are highlighted in green and red, respectively.

System and components for management / dispatching of route transport / information for passengers

The dispatch system and / or passenger information system

- FLASHNET / INFOTRANSIT
- Information boards (at stops and on board)

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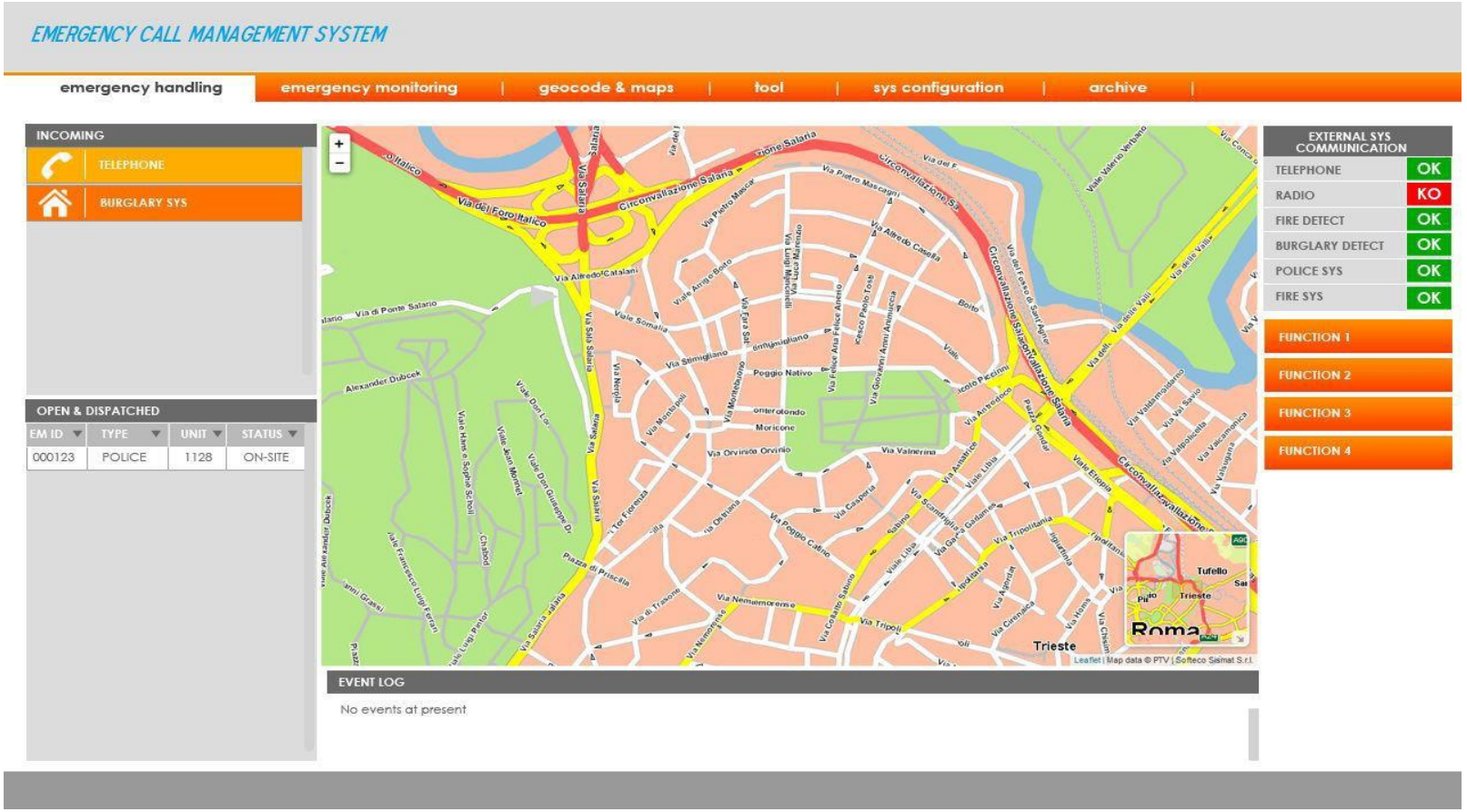
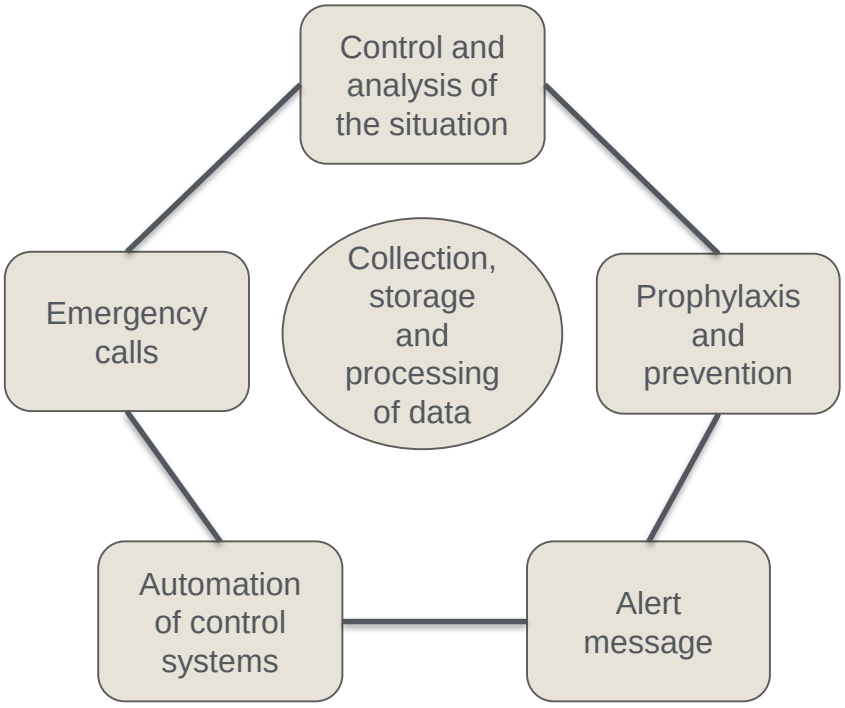
Emergency call management system

The emergency call management system is designed to manage all types of emergencies, with the help of appropriate services, such as ambulance, police, fire department, etc. through a user-friendly graphical interface.



Safe city. Ensuring the integrated security of the population and territory, as well as facilities located on this territory



To monitor the operation of all city systems, ensure the security of every citizen and all vulnerable points of the city infrastructure, obtain and archive information on all important events and promptly provide this information, all interested services need a comprehensive information system capable of accumulating, combining, analyzing and grouping disparate data, coming from a variety of sources.

This is the definition of the program «Safe City».

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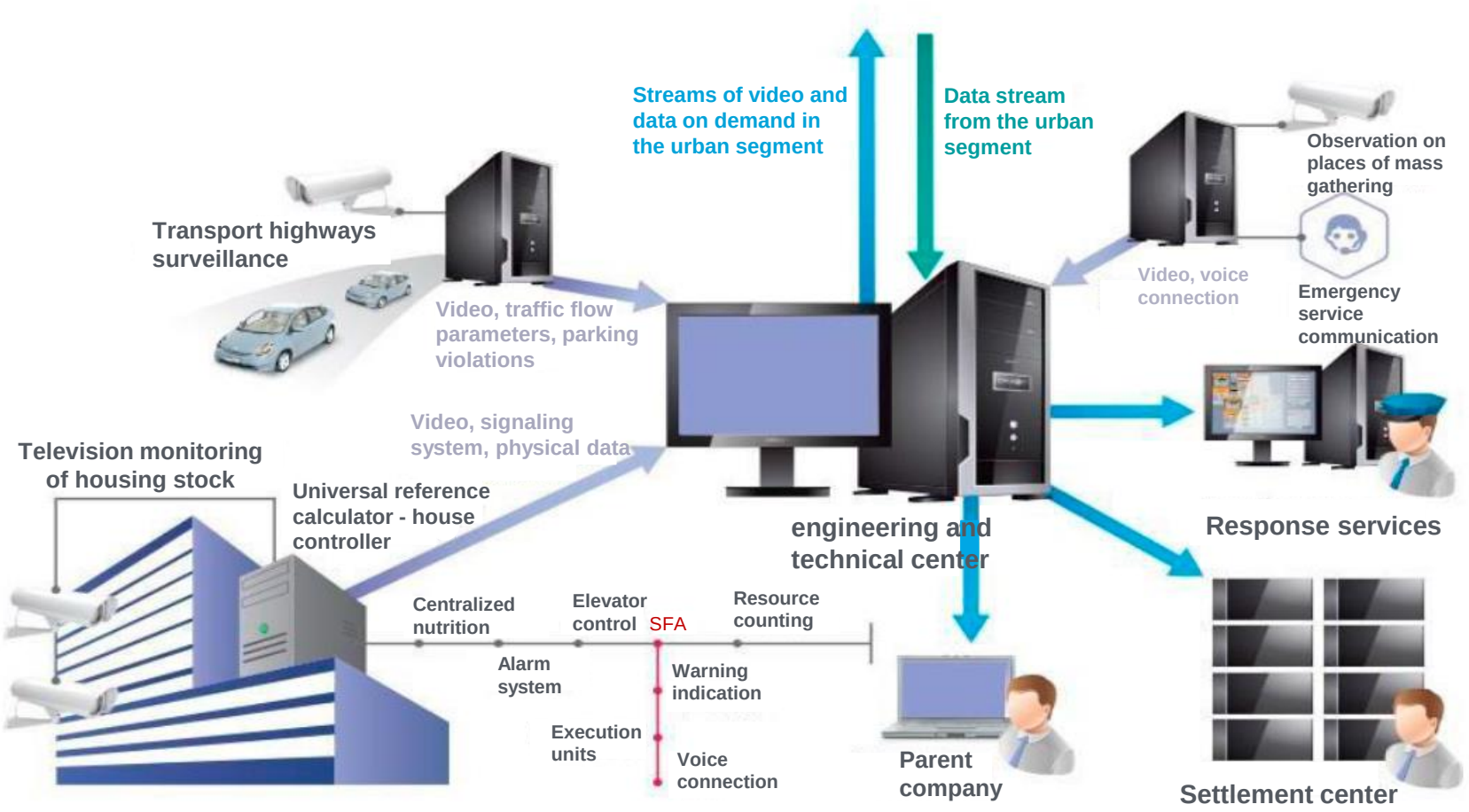
Safe city. General scheme



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The result of implementation

- Reducing the number of crimes committed in the streets and other public places and increase in their disclosure;
- Ensuring continuous monitoring of the operational situation in places where people spend a lot of time;
- Increase responsiveness to citizen communications;
- Preventing crimes and increasing the level of security of objects of special importance;
- Improvement of the traffic situation, reduction in the number of accidents and related consequences, boost in search for stolen vehicles and persons who committed theft, replenishment of the revenue side of the budget;
- Strengthening the protection of all forms of property, ensuring public order in residential sector;
- Strengthening anti-terrorist protection of transport infrastructure facilities, ensuring public order during the movement of crisis groups (sports fans, extremist groups, etc.);
- Increasing the investment attractiveness of the region.

Ростех

THANK YOU FOR YOUR ATTENTION!

Shvabe

Founded in 1837