



Specific applications of GLONASS/GPS system for various areas

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Russian Navigation Technologies

ТЕХНОЛОГИИ»

- 9 years at the market
- 13 representative offices
- 50 dealers in 40 regions of Russia
- 1000 + fleet management centers
- 60,000 + transport vehicles
- Experience in establishing large dispatching control centers (5,000+ centers)
- 100 + engineering developments
- 200 + qualified staffers
- Practical use of GLONASS technology



Project Geography

**MosMetrostroy,
Moscow**



**"Magnit"
supermarkets,
Krasnodar**

Gazpromneft'



**Tatneft', Altmetievsk,
5,000 units**

**Bashautotrans,
Ufa, 1,000 units**



**Bashneft',
Ufa, 4,000 units**



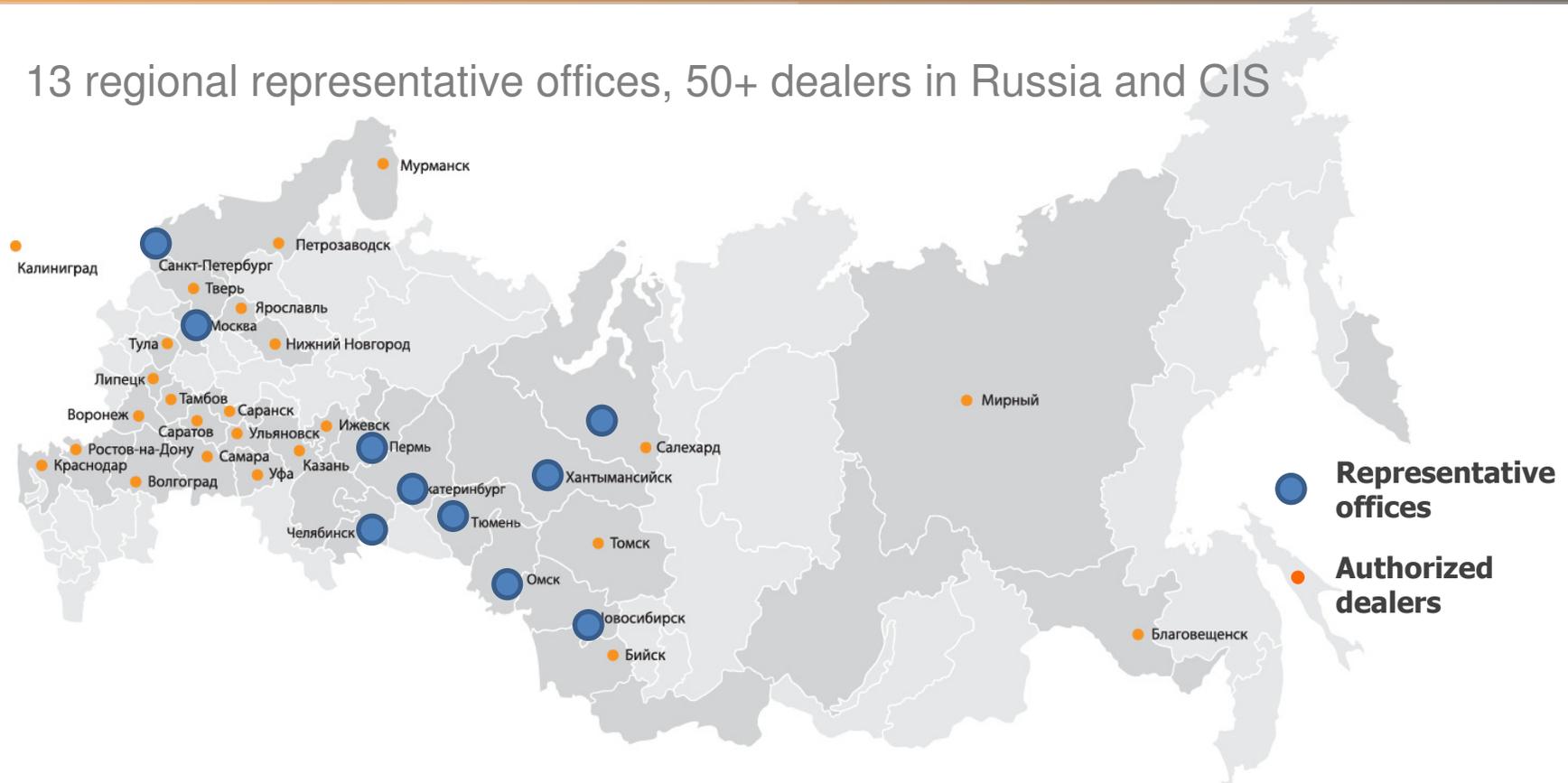
**UralAsbest,
Sverdlovsk Region**

**Mirninsky mining and
processing complex,
ALROSA, Mirny, Yakutia**



Regional Coverage

13 regional representative offices, 50+ dealers in Russia and CIS



AutoTracker Application

Automotive



River transport



Personnel Check



Agriculture



Oil&Gas



Railway



Air transport



Construction

Automotive Application

Automobile transport



Monitoring & Control of:

- Routes
- Running
- Stops and staying points
- Assets visiting
- Speed

Basic hardware:
Onboard unit
Dispatch and service software

Safety

- Operational communication with dispatcher
- Alarm signaling
- Protective functions
- Driver identification

Additionally to the basic system hardware:
Voice communication system
Alarm button
Door opening sensors
Switch starting sensors
Remote engine interlock system

Check of Specific Processes

- Fuel consumption
- Operation of units and equipment
- Operation of process subsystems

Additionally to the basic system hardware:
Fuel control system
Units and equipment status sensors (engine speed, driving style)
Rotation, position, temperature, etc. sensors.

Railway Application

Railway transport



Locomotive Control

Fuel consumption
Position and locomotion tracking
Traffic schedule discipline

Rolling Stock Control

Cargo and rolling stock real time positions

Basic system hardware:
Onboard unit
Dispatch and service software
Fuel control system

Independent onboard module
Dispatch and service software



Air Transport Application

Air transport



Helicopters flight watch
Positional tracking
Landing area tracking

Independent onboard module
Dispatch and service software

Tracking small aircraft flights
Positional tracking
Landing area tracking

Independent onboard module with satellite communication system
Inmarsat;
Dispatch and service software

River Transport Application

River transport



Monitoring & Control of

Route
Course
Stops and staying points
Speed

Basic system hardware:
Onboard unit
Dispatch and server software
Independent onboard module

Fuel consumption monitoring

Fuel monitoring system:
On-tank sensors based
Flow meters based

Oil & Gas Application

Monitoring of vehicle fleet and special machines operations

Control of route, running, stops and staying points, assets visiting, speed
Control of diesel-driven station, no-break systems, pump station operations

Oil & Gas



Oil products transportation control

Control of oil tanker arrivals at oil discharge stations
Control of unauthorized hatch opening
Planning of fuel measuring out
Accounting of fuel measuring out quantity from oil tank truck

Check of Specific Processes

Fuel consumption control
Operation of units and equipment of special machines
Control of indicators (battery voltage, fuel level, temperature of refrigerating fluid, oil pressure, run-up of engine indicator, disability indicator)

Safety

Operational communication with dispatcher
Alarm signaling
Protective functions
Driver identification

Construction Application

Construction



Monitoring of vehicle fleet and special machines operations

- Control of route, running, stops and staying points, assets visiting, speed, fuel consumption
- Control of path of motion of special machines on construction plant
- Round trip accounting
- Planning and control of delivery schedule of materials and special machines at construction project

- Operation of units and equipment of special machines
- Control of rate of revolution and direction of turning of mortar-carrying truck cistern
- Engine speed measuring
- Control of rig operations
- Control of body lift of dumping truck
- Accounting of cransmobile gibbet operations

Safety

- Operational communication with dispatcher
- Alarm signaling
- Protective functions
- Driver identification

Agriculture Application

Agriculture



Monitoring of agricultural machinery operations

- Control of route, running, stops and staying points, assets visiting, speed, fuel consumption
- Round trip accounting
- Control of technologic speed of units
- Control of motion path
- Measurement of farmland squares

Cargo safety

- Identification of trucks approaching to harvesters for loading (friend/foe system)
- Trucks' arrival controlling, unloading controlling (dump body erection, door opening)
- Precise place of truck loading

Safety

- Operational communication with dispatcher
- Alarm signaling
- Protective functions
- Driver identification

Personnel Check

Personnel



**Personnel location
monitoring and control**

Personal GLONASS/GPS– tracker
Personal GLONASS/GPS– communicator
Dispatch and server software



AutoTracker: Automatization

Building of integrated systems of automated recordings, controlling and transport safety





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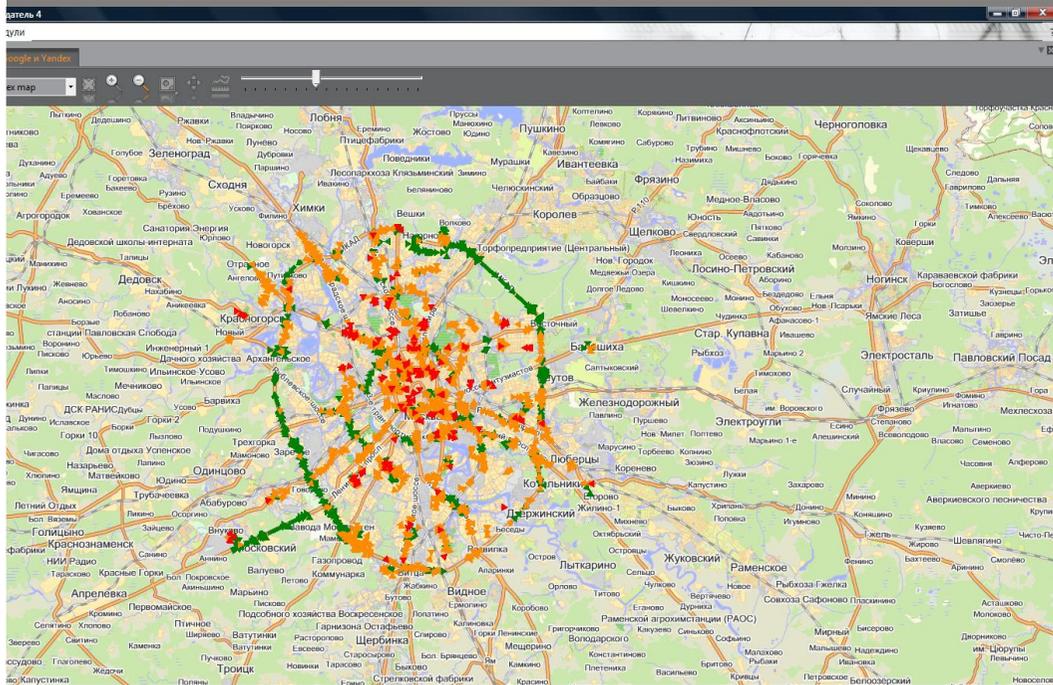
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Russian Navigation Technologies

Establishing Regional and Federal Dispatch Centers



“A T -traffic jams” service integrated to AutoTracker



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