M2M-REGION

Regional GLONASS-enabled navigation and data system for transport industry
Major task of transport industry in regions of the Russian Federation

1. Implementation of Government public policy in area of transportation safety and security supply
2. Delivery of various transport services for population needs on inter-regional routes
3. Analysis of population and economic needs in transportation services
4. Control and recovery of losses to carriers with government contracts at the expense of regional budget
5. Transport control on inter-regional and interurban routes
6. Maintaining the registry of interurban, inter-municipal and local route network
7. Public reporting about the organization of transport services in the territory of the subject of the Russian Federation
Prerequisites to establishing of regional navigation and data systems for the transport complex

The necessity of integration of intellectual, technical, financial and administrative resources to provide safe, effective, ecologically clean and comfortable transportation and goods delivery creates prerequisites to creation of unified transportation management system.
Basic normative documents on GLONASS system implementation in the Russian Federation

- **Federal Law**
  14/02/2009 N 22-ФЗ "On Navigation Activities"

- **Presidential Decree**
  17/05/2007 N 638 «On the use of global navigation satellite system GLONASS for socio-economic development of RF»

- **Regulation Federal Government**
  25/08/2008 № 641 «On the transport equipment, facilities and equipment of satellite navigation systems GLONASS or GLONASS / GPS»

- **Regulation Federal Government**
  27/08/2005 № 1314-p «On approval of the concept of a federal system of monitoring of critical facilities and (or) potentially hazardous Infrastructure Russia and dangerous goods»
M2M-REGION System – innovative solution based on GLONASS/GPS satellite navigation technology and GPRS data transfer technology

M2M-REGION - navigation and information system, designed to automate the supply of regional transport services by local authorities, enterprises and organizations of the subjects of the Russian Federation

Main tasks handled by the system are:

1. Maintaining and controlling the regulations of implementation of regional transport sector public functions and services
2. Management the transport of variable functionality (including transport of organs of the law and order)
3. Public reporting on the organization of transport services in the region
4. Providing information on law violation and emergency on the transport to the Situation Center in real time
5. Monitoring of security of transport and passengers
The aim of automation within the bounds of creation M2M-Region System is control and management of mobile and stationary objects of regional and municipal services and organizations.

- **Mobile objects are listed below:**
  - motor and electrified transport
  - construction and road-building machinery
  - rail transport
  - water transport
  - mobile units with and without chassis: compressors, electric generators, etc.
  - mobile amenity and accommodation buildings: workers' cabins, site huts, etc.

- **Stationary objects include guarded buildings and facilities**
M2M-REGION
Objects of implementation
M2M-REGION Structure

Control Center <- Information and data accumulation Center -> Local emergency Center

Government/Municipal agencies

External systems

Companies

Public

Public transportation

Police

911

Emergency service

SMS to phones

Dangerous cargo transportation

Utility service companies

Transport and Delivery companies

Information panels
M2M-REGION
Composition

M2M-REGION
Monitoring and control of passenger traffic on routes of regular communication subsystem

M2M-REGION «Пассажирские перевозки»

M2M-REGION ЖКХ
Monitoring and control of Housing and Communal Services vehicles subsystem

M2M-REGION «03»
Monitoring and control of mobile emergency teams and ambulance subsystem

M2M-REGION «Опасные грузы»
Monitoring and control of traffic particularly dangerous goods subsystem

M2M-REGION МЧС
Monitoring and control of transport in regional and local Emergencies Ministry units subsystem

M2M-REGION «Патруль»
Monitoring and control of mobile forces of law and order in the regions of the Russian Federation subsystem

BusinessNavigator®
Monitoring and control of transport for carriage on the route of irregular communication subsystem
M2M-REGION
Element of Intelligent Transportation Systems

M2M-SAFE CITY
Information flows

M2M-Safe City

Subway systems
Antitheft satellite systems
Traffic information

Whether (Meteo) information
Payment systems

TRAFFIC MANAGEMENT SYSTEMS

TRAFFIC MANAGEMENT CENTER

Movement sensors
Cameras
Lights

Information kiosks
PC, Laptop (WEB access)
Information panels
Stops panels
PND
Pocket PC, smartphones (WEB access)
Mobile phones (SMS-services, JAWA-applications)
Technological basis
Software

M2M telematics platform
BN™-Complex server software
A core for building a telematics system of any degree of sophistication

Client software
CyberFleet®
Dispatcher workstation software for tracking and online management of the transport fleet in real time with a possibility to address logistical tasks

Client software
M2M-CityBus
Software for workstations of the dispatcher and passenger fleet operation and management service

Client software
M2M-Utility Infrastructure Administration
Software for automated remote monitoring of municipal contract performance by housing and utility enterprises

Client software
MoMeSecurity Systems
Superintendent workstation software for tracking and securing vehicles and stationary objects

WEB access service
CyberWeb®
Dispatcher workstation software for tracking and online management of the transport fleet in real time with a possibility to address logistical tasks

Client software
M2M-Security Systems
Superintendent workstation software for tracking and securing vehicles and stationary objects

Client software
M2M-Utility Enterprise
Software for automating remote monitoring of the transport fleet of a utility enterprise
Technological basis

Telematics terminal

Telematics platform M2M-BusinessSolution®
Server software BN-Complex®
Basis for building telematics systems of any complexity

Telematics terminal
GPS/GLONASS/GPRS
M2M-Cyber GLX

Vehicle positioning and movement tracking — GLONASS/GPS. GLONASS is the priority system
Communication with the telematic server:
GSM GPRS
Status log: up to 16,000 records
Voice communication
Connection of various analog and digital sensors
Special bus for connecting extra devices
  • Fuel level sensors
  • Information display

Telematics terminal
GPS/GPRS
M2M-Cyber GX
Technological basis

Accessories

Telematics platform M2M-BusinessSolution®
Server software BN-Complex®
Basis for building telematics systems of any complexity
M2M-REGION
Implementations
Project: Sochi Monitoring and Dispatch System
Customer: Administration of Sochi

The first project phase was completed in late 2008. Buses of the local carriers SochiAvtotrans and Lazarevskoye and municipal vehicles of Special-purpose Automobile Company were equipped with subscriber terminals receiving and processing signals from GLONASS and GPS satellite navigation systems. Automated workstations based on M2M-CityBus software have been set up at dispatcher stations of the municipal enterprises.

The project can potentially evolve into the creation of a regional navigation and data system of Sochi that would encompass all municipal vehicles, including those carrying hazardous materials, public transport, and vehicles of the uniformed services.

System trials started in the spring of 2008 in a test zone within Sochi. A demonstration of the test zone was given to First Deputy Prime Minister Sergey Ivanov, Transport Minister Igor Levitin, and Sochi Administration Chairman.

In May 2008, the Sochi Automated Monitoring and Dispatch System project was presented to Prime Minister Vladimir Putin during the Transport Week 2008 expo.

Full-scale deployment of equipment at transport enterprises, software configuration, and user training have been carried out between November 2008 and February 2009.

The AMDS project was presented to International Olympic Committee (IOC) Coordination Commission head Jean-Claude Killy on January 31, 2009.
М2М-РЕГИОН
Successful implementations – Astrakhan Oblast

1. ТС МВД
   - Подсистема информационно-тактического обеспечения правоохранительных органов.
   - Связь с МЧС.
   - Связь с ТС МЧС.
   - Связь с ТС Службы безопасности губернатора.
   - Связь с ТС ОС.

2. ТС МЧС
   - Подсистема информационно-тактического обеспечения МЧС.
   - Связь с ТС МВД.
   - Связь с ТС Службы безопасности губернатора.
   - Связь с ТС ОС.

3. ТС Службы безопасности губернатора
   - Подсистема информационно-тактического обеспечения службы безопасности губернатора.
   - Связь с ТС МВД.
   - Связь с ТС МЧС.
   - Связь с ТС ОС.

4. ТС ОС
   - Подсистема контроля применимости транспортных средств.
   - Связь с ТС МВД.
   - Связь с ТС МЧС.
   - Связь с ТС Службы безопасности губернатора.

5. Единый центр мониторинга
   - Подсистема сбора, обработки, хранения и обмена телеметрическими данными и мониторинговой информацией о движении и состоянии транспортных средств.
   - Связь с ТС МВД.
   - Связь с ТС МЧС.
   - Связь с ТС Службы безопасности губернатора.
   - Связь с ТС ОС.

6. Сеть GSM/GPRS
   - Связь между подсистемами.

7. КАНАЛЫ СВЯЗИ
   - Связь между подсистемами.

8. Телематический сервер
   - Хранение телеметрических данных.

9. АРМ ЕЦМ
   - Административно-техническое управление.

10. АРМ ДЦ МВД
    - Административно-техническое управление.

11. АРМ ДЦ МЧС
    - Административно-техническое управление.

12. АРМ ДЦ СБГ
    - Административно-техническое управление.

13. АРМ ДЦ ОС
    - Административно-техническое управление.
Project: Krasnoyarsk Krai Regional Navigation and Data System (RNDS Krasnoyarsk Krai)

The project was implemented by «M2M telematics» at the own expense with the support of Federal State Unitary Enterprise «RISDE»in the works on the commercialization of GLONASS for demonstration of Russia’s Global Satellite Navigation System.

The uniqueness of this project lies in the fact that the monitors of the Unified Monitoring Center receive information on the status of vehicles in several regions - Norilsk, Kaluga, Moscow, Mozhaisk, Sochi and Krasnoyarsk. This network of control units and the Unified Monitoring Center allows different authorities to manage their resources.

Passenger, road-building, municipal and specialized vehicles of Interior Ministry, Emergencies Ministry and ambulance were equipped.
M2M-REGION
Federal network of telematic operators
The effectiveness of implementation

• Economy
  Enhancement of transport efficiency and productivity. Reduced transport costs.

• Rationalization effect
  Establishment of an integrated system for management of a city/country transport complex, coordination of the activity of different agencies, enterprises and organizations

• Social effect
  Improvement of transport service, higher transportation safety

• Safety and security
  Establishment of a centralized system of vehicle management information support

• Business effect
  Gaining income from commercial use of the navigation and information system to the benefit of private organizations and individuals
Thank you for your attention!

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