VIST Group
Information Systems & Technologies

VG Karier Fleet Management System Benefits
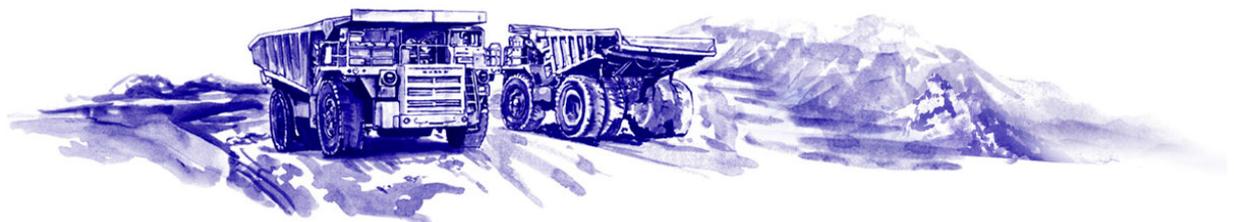
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Contents

Software

1. **Flexible solutions**

   As the developer of the software VIST Group provide flexible solutions for the customers. Software of VG Karier system consists of tens of modules, such as:

   - Automatic optimization and dispatching
   - Remote diagnostics
   - Tire management
   - Security management
   - Maintenance and repairing planning
   - Automatic Road Quality Monitoring
   - Full Cycle Fuel Monitoring
   - Etc.

   Also we can in the shortest possible time develop new functionality. For example, one of the customers need to monitor gas pollution in the open pit. So we carry out the experiment to select the gas sensors, then on-board and server SW were developed. Now dispatch managers monitor also the gas pollution and unique Management center of VG Karier system.

   Our competitors in Fleet Management Systems usually can not provide many of solutions, that we have for mining.

2. **Web-interface**

   Most data in VG Karier system is available via web-interface, including reports, on-line monitoring, administration tools etc. Web-interface extends the number of users and provides remote access from any part of the world.

   Dispatch manager uses the "fat" client - VG Explorer to manage the fleet in the real time with minimum latency and have built-in web tools in VG Explorer.

3. **Data base**

   The main part of VG Karier SW is Oracle data base. It is used as the main part of real time management and optimization and is also used in reporting. This feature is typical for modern SW systems, as against to old systems, that have been started to develop at 1980th, where the data base is only the attribute of reporting system.

   The main advantages of using data base for real time management are:

   - Dozen of raw data can be used to create real-time reports, e.g. fleet work diagram, on-line remote vehicle health monitoring, history of vehicle moving for a long period (up to 1 year)
   - Any changes to real-time management process can be done in a short space of time

Wireless transmission

On-board equipment and SW provides 100% data transmission to the server.

Each on-board computer collects data from many sensors, store it and instantly send data to the server using the wireless system (e.g. WiFi). If there is no WiFi coverage collected data stores at the memory of the device and transmits to the server immediately when the WiFi is available.

Automatic dispatching and optimization

The optimization module ensures the enhancement of performance by accurately estimating the required number of vehicles and directing those vehicles to the proper positions at the proper times. This functionality enables management and control actions that result in significant performance enhancement as compared to a manual system without intelligent computer based algorithmic optimization.

The main features of optimization module:
- Several optimization criteria can be used simultaneously, each with a proper weight ratio. Thus dispatch manager can combine them to a typical strategies.
- Numbers of optimization criteria can be created:
  - Productivity
  - Quality
  - Queue minimization
  - Etc.
- Priority for excavators can be estimated to refer truck to this excavators at a first time.
- The Optimization module uses the algorithms of artificial intelligence. So there is no limits to develop specific functions for the customers

Quality management

VG Karier SW is able to monitor the quality of the ore, hauled to the reloading stock using the quality of the ore in each excavator and calculate the weight of each trip. The quality of each excavator can be changed during the shift and all the trip will be recalculated.

To manage the quality High precision navigation with the accuracy up to 2 cm can be installed.

In case on using the "quality" criteria in Optimization module trucks will be assigned to maintain the quality.

Fuel monitoring

The Karier System provides for "end-to-end" fuel logging including logging of fuel in immobile storage tanks, loading of refuelers, fuel feed form refuelers to transport vehicles, and control of fuel consumption by transport vehicles.

Every stage of this process is subject to double and triple checks. For instance, in loading of refuelers the possibility of a discrepancy is checked in three measurements: change of the fuel level of an immobile storage tank, change of fuel level in a refueler vessel and fuel volume passed through fuel-handling facilities. This type of check is also applicable for transport vehicle refuelling.

VG Karier for Management Company

All the data from VG Karier SW can be transmitted to ERP, EAM etc. systems. Also Karier.Holding SW Module can be installed to get the aggregated in Headquarter office.

General benefits

- Over 20 years of experience in development and deployment of advanced IT and telecom systems in the mining industry
- Our clients are almost all major industrial and mining companies in Russia and the CIS
- Exclusive partnership and on-board electronic system supplement for mining equipment manufacturers (BELAZ (Mining Dump Trucks) OMZ Group (Excavators)) and dealers.
- Network of branch offices and subsidiary companies
- Highly professional team of engineers and developers allows us to maintain the technological leadership on the market
- We use the most advanced technologies available on the market
- High quality support
- Flexible approach to problem solving
- Creation of uniquely tailored solutions and continuous development of existing systems
- Fast ROI in our solutions -> high competitiveness
- VIST Group VG Karier system awarded the 2009 Russian Goverment Prize