TECH
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TECHGARDEN 2.0

Industry 4.0 Ecosystem

Autonomous cluster fund
“Park of Innovative Technologies”,
acting under the Tech Garden brand

2023

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ABOUT FUND

TECH GARDEN ACTIVITY

ABOUT FUND

The Autonomous Cluster Fund “Park of Innovative Technologies”, operating under the Tech Garden brand, was established to form a high-tech innovation cluster in 2015.

To date, Tech Garden operates as a digital IT hub, using its tools to develop an ecosystem to support industrial enterprises of the Republic of Kazakhstan in their digital transformation, as well as stimulating the active implementation of advanced technologies of domestic production.

MISSION

Creating an effective ecosystem to support industrial enterprises in their digital transformation and nurturing domestic advanced solutions.

AIMS

Transforming innovative and scientific solutions into industry-available solutions through active implementation in upstream production processes.

TECH GARDEN IN NUMBERS

93
ENTERPRISES
number of subsoil users working with the Fund

36,4
BLN KZT
attracted for project financing

13
BLN KZT
available for financing

250
IT-COMPANIES
delivering solutions digitalization industries

300
TECH SOLUTIONS
from Kazakhstani companies

210
PROJECTS FINANCED
from Kazakhstani companies

ALSO:

- 13 TECHNOLOGY MARATHONS
- 4 INDUSTRIAL TOURS AND 3 ROADSHOWS
- FIRST INDUSTRIAL ACCELERATION PROGRAM
- 100/100 GRANT PROGRAM

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ECOSYSTEM
OF DIGITAL IT-HUB

COMMUNITY

- Subsoil users
- IT companies
- Industrial startups
- SICS
- Science representatives
- Students and schoolchildren
- Others

EDUCATION PROGRAMS

Training programs for industry

Training programs for Industry 4.0 companies

Basic courses on digital competencies

Science commercialization programs

The first Science Commercialization Reactor with the Science Foundation is scheduled for October 2023.

DEVELOPMENT PROGRAMS

Industrial tours to Kazakhstani enterprises

Roadshow to foreign enterprises

BUSINESS PROGRAMS

Acceleration 4.0

Industrial acceleration with the participation of international partners

Venture studio

Tech Mentorship Mentorship Program

FINANCE PROGRAMS

Tech marathons
Financing from the obligations of subsoil users (1%)

13 marathons
52 industry challenges
26 financing agreements

GRANTS

100/100
Free funding for pilots

Startup Battle
Free grants
Prize fund — $22 000

VENTURE FUND

Investing in Industry 4.0 startups
Annual investment allocation of up to $500,000

INFRASTRUCTURE

SIMP Digital platform
Innovation Marketplace (Industry 4.0)

ALMATY HUB

Implementation until 2025
The largest technopark in the field of Industry 4.0 in Central Asia

NEW MATERIALS CENTER

Implementation until 2025
Technology Center for New Materials and Additive Technologies

ROBOTICS CENTER

Implementation until 2025
The Center for Engineering Competencies in Industrial Robotization is being established under the CPS-1 program (World Bank Grant Program)

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INDUSTRY 4.0
MAP OF KAZAKHSTAN

INDUSTRIAL STARTUPS

Robotic & Automation
AG TECH, ABiTech, dBridge, COMMUNICATIONS, Epiroc, SERENE OIL, IDS METRA ROBOTICS, OST ENGINEERING, MED 365, GEOSERVICE LTD, ARP, itbox, gre go!, arcobo, AIMI Automation Services, qordata KAZAKHSTAN

Cloud Technologies
NORDAL, ATI IT solutions provider, qordata KAZAKHSTAN

IoT
AG TECH, OrionM2M, GEOSERVICE LTD, COMMUNICATIONS, NORDAL, ATI IT solutions provider

Additive Technologies
GEOSERVICE LTD, arcobo

Cyber security
Reksoft, AIMI Automation Services, COMMUNICATIONS, KAZPROM AVTOMATIKA, ATI IT solutions provider

Big Data
DAITAN, qordata KAZAKHSTAN, NORDAL, ATI IT solutions provider, AIMI Automation Services

Hardware Technologies
BE

Digital Twins
ATI IT solutions provider, qordata KAZAKHSTAN

Processing of man-made waste
CTS

Smart Field
GEOSERVICE LTD, OPTIMUM, Intelligent Digital Solutions, CTS, DAEDALUS

AR/VR
10Tech

AI
TargetAI, NORDAL, BELKA DIGITAL, BE, ATI IT solutions provider, qordata KAZAKHSTAN, DAITAN, IntelliSense.Lab

Industrial Safety
COMMUNICATIONS, GEOSERVICE LTD, AG TECH, CIS ENE RGY, Norsec Delta Projects #bestdeal, Cancan, POINT, awara IT, IES, DAITAN, BE, ATI IT solutions provider

Positioning Systems
COMMUNICATIONS, GEOSERVICE LTD, AG TECH

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INSTRUMENTS
OF INDUSTRIAL DIGITALIZATION

1.

IMPLEMENTATION OF DIGITAL SOLUTIONS AS PART OF R&D

Our fund is an operator for realization of research and development works for subsoil users as part of their obligations to contribute 1% of TAI/ZND.

2.

DEVELOPMENT OF THE TECHNOLOGY PLATFORM

The Smart Industry Management Platform (SIMP) helps to stimulate the development of digitalization of industry by introducing mature Kazakhstani IT solutions.

3.

LAUNCHING EDUCATIONAL BUSINESS PROGRAMS

Solving challenges as well as sharing experience in digitalization within the framework of technology marathons, accelerator programs, industrial tours and others

4.

EXPANSION OF IT-COMMUNITY AND COMMUNITY

Facilitating the development of the technology market and the emergence of new industrial startups in Kazakhstan.

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TOP PROJECTS
IMPLEMENTING THIS YEAR

FROM 500 MLN KZT

MANAGEMENT SYSTEM OF THE MINING TRANSPORTATION COMPLEX
AMK X AG TECH

FLOTATION ASSISTANT DIGITAL PLATFORM
AMK x BELKA AI

INTEGRATED SOLUTION FOR THE DIGITALIZATION OF A COAL DEPOSIT
SHUBARKOL PREMIUM X INTELLIGENT DIGITAL SOLUTIONS

100-500 MLN KZT

HARDWARE AND SOFTWARE COMPLEX OF THE PERSONNEL POSITIONING SYSTEM
BAKYRCHIK MINING ENTERPRISE X AG TECH

IMPLEMENTATION OF AN AUTOMATED SYSTEM FOR MONITORING OF QUARRY WATER DISCHARGES
KOMAROVSKOE MINING COMPANY X MINING RESEARCH GROUP

SOFTWARE FOR PERSONNEL POSITIONING
KOMAROVSKOE MINING COMPANY X COMMUNICATIONS KAZAKHSTAN

UP TO 100 MLN KZT

IRON ORE CONCENTRATE PRODUCTION TECHNOLOGY
BAPY METHALS X INSTITUTE OF PHYSICS AND TECHNOLOGY

ENVIRONMENTAL MONITORING AUTOMATION
BAKYRCHIK MINING ENTERPRISE X KOKTEM TECHNOLOGIES

SOFTWARE FOR DATA TRANSFER TO ISACOGC
COM-MUNAI / TASBULAT OIL CORPORATION X RSS + MANUL

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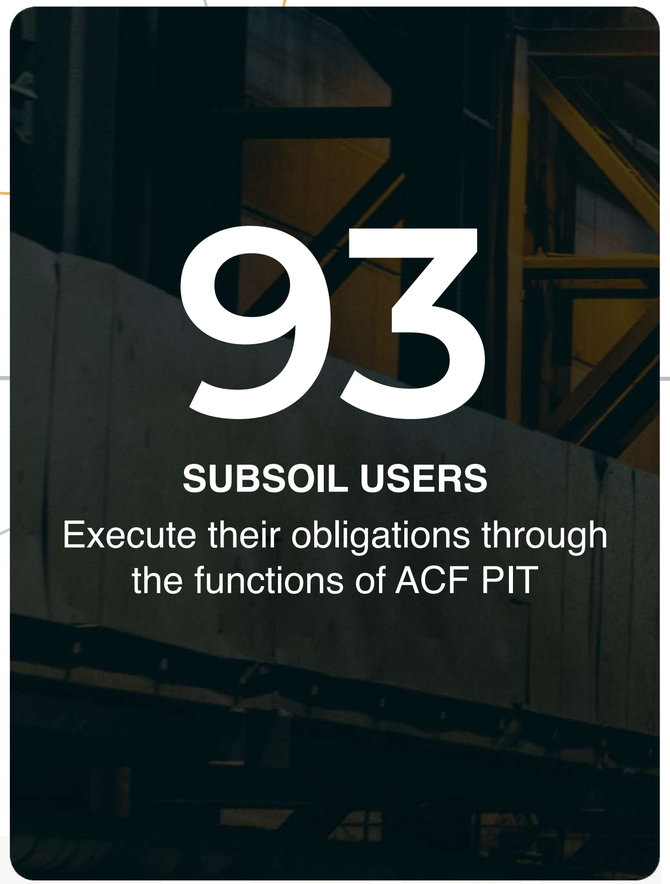
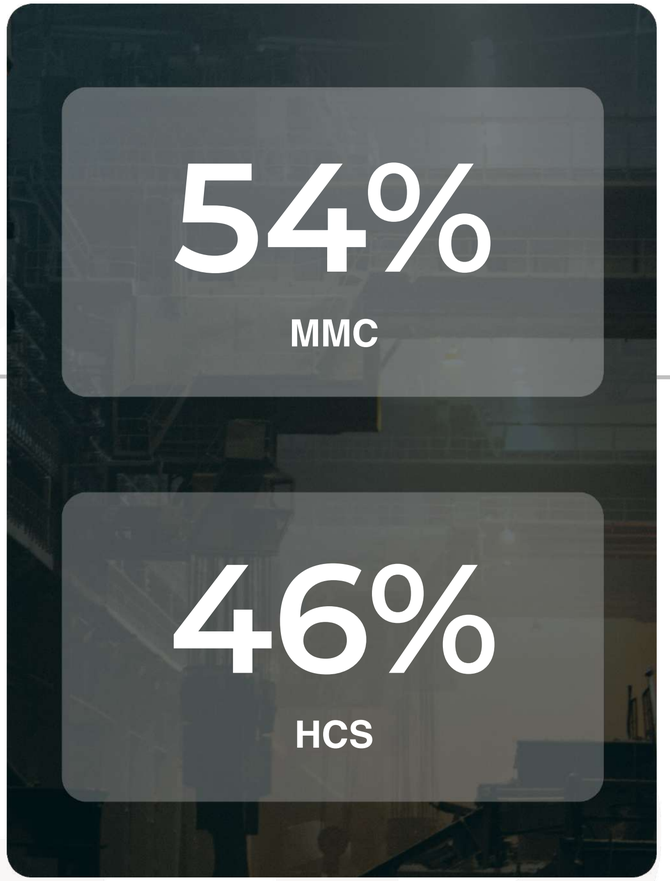
FUNDRAISING ANALYSIS

AS PART OF THE FULFILLMENT OF CONTRACTUAL OBLIGATIONS



SUBSOIL USERS
AS A PERCENTAGE BY INDUSTRY SECTOR

NUMBER OF DEDUCTIONS
AS A PERCENTAGE BY INDUSTRY SECTOR



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HARDWARE SOLUTIONS

IMPLEMENTES

OST ENGINEERING

Automated systems for monitoring emissions into the environment

AG TECH

Hardware and software complex of point and zone positioning and personnel security system

MINING RESEARCH GROUP

Automated systems for monitoring of quarry water discharges at water outlets

READY FOR IMPLEMENTATION

QUASAR

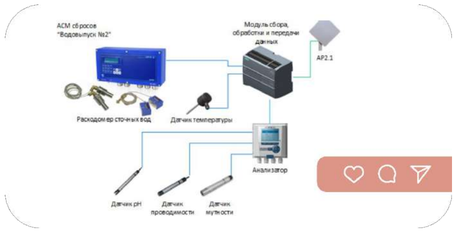
Software and hardware complex for pre-shift/ post-shift medical examination

MANUL

Adaptive platform for the realization of the digital field

OIL&GAS

Measuring sensors



ZEINET SSE

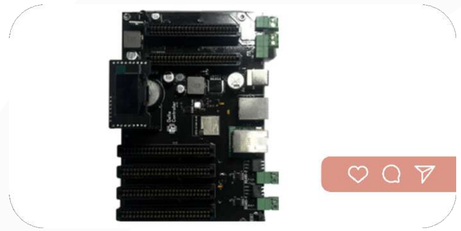
Automated system for monitoring of quarry water discharges

AG TECH

A module designed to ensure safe mining operations

IGD named after D.A. Kunayev

Automated positioning system

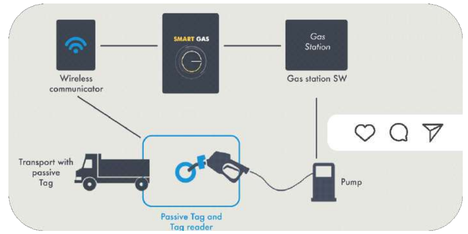


ISIDA ELECTRONICS

Instrumentation and automation equipment

ABITECH

Domestic production of SenseKZ temperature sensors



SMART GAS

Fuel Cost Management System

ECOSYSTEM DEVELOPMENT

BUSINESS-PROGRAMS

FIRST IN THE REPUBLIC OF KAZAKHSTAN STARTUP BATTLE IN THE SPHERE OF INDUSTRY 4.0

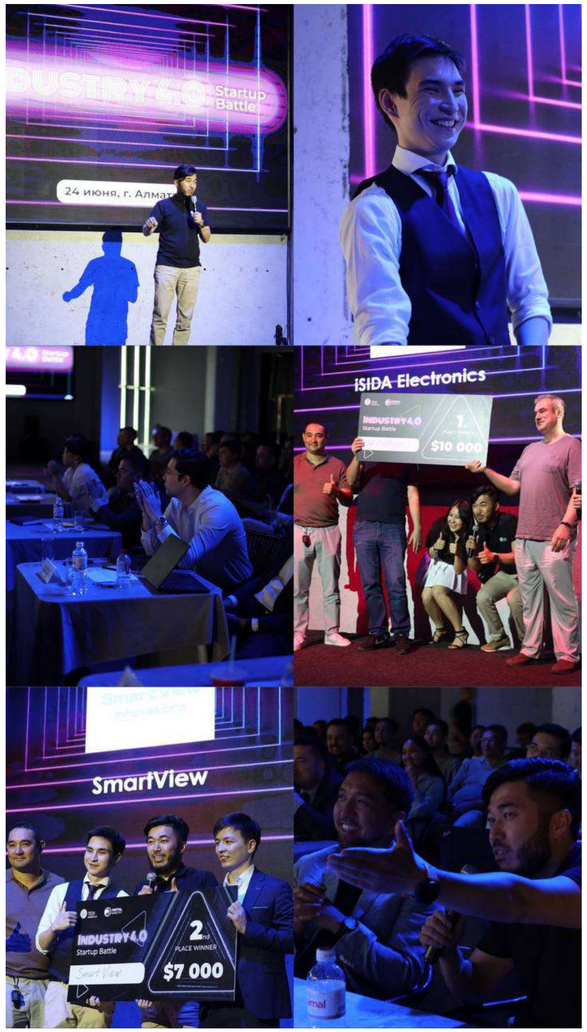
INDUSTRY 4.0
Startup Battle

59 APPLICATIONS

30 PITCHES

Project areas :

Industrial Safety, Cybersecurity, Smart Field, Automation, Agritech, AI, Computer vision, IoT, Robotics.



List of companies:

- SmartDabyl;
- Multicode;
- Cloudtek;
- Electronic permit system;
- Isida electronics;
- Brainpick.co.uk;
- NextTask.co.uk;
- Driver behavior monitoring system;
- Remote monitoring system for inter-casing/wellhead parameters;
- EQUIPMETRY;
- SmartView;
- Dattabane;
- DerekSuite by Dereknet;
- CUBA IoT Platform;
- RPA - software robots;
- Whoock;
- CropScan;
- Speech Lab;
- NeuronOil;
- Aq Zhol;
- AgriMo;
- Smart Gas;
- Parqour;
- Automate It!;
- eControl;
- New Power;
- Ligeia;
- Chipper;
- RobotX;
- Industrial 3D printer.

ECOSYSTEM DEVELOPMENT

BUSINESS PROGRAMS

THE FIRST GRANT PROGRAM FOR PILOTING PROJECTS
IN THE REPUBLIC OF KAZAKHSTAN

Acceleration 4.0

51
application

15
participants

Accelerator program purpose: Launch of a pilot project at subsoil users' enterprises.

Areas: MMC and NGS. Scoring model of 12 criteria.

Scheduled programs: Acceleration 2.0, Silkroad Innovation, Acceleration with Plug and Play.

List of companies:

- AARDVARK;
- Targetai Limited;
- Dereknet;
- FineFlot Inc.;
- Datarocks;
- Corporate wellbeing;
- Alaqan Technologies;
- sPoint;
- Nordal;
- SmartGas;
- NeuronOil;
- OST Engineering;
- Kab systems;
- SHION GROUP;
- Talpasolutions GmbH

ECOSYSTEM DEVELOPMENT
BUSINESS PROGRAMS

THE FIRST GRANT PROGRAM FOR PILOTING PROJECTS IN THE REPUBLIC OF KAZAKHSTAN

One hundred pilots

100 programs

$100 USD

50 applications

Technologies implemented :

Smart Field; Auto&Robo; R&D and NPD; Industrial Safety; ESG&GreenTech; Industry 4.0 Tech.

Areas:

Mining and metallurgical complex and oil and gas sector.

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List of companies:

- Cyfra Kazakhstan;
- 10TECH
- AIMI Automation Services;
- Nordal;
- Communications Kazakhstan;
- Aikod;
- Smart System Technologies;
- Figura IT;
- KAZPROM AVTOMATIKA;
- Techanalysis
- RSE Institute of Mechanics and Engineering named after Academician U.A. Dzholdasbekova
- ZymranKZ;
- KazBionics;
- Building ServiceKZ;
- Shabyt Robotics;
- DLC Automation;
- Python RPA;
- talpasolutions GmbH;
- AIMI Automation Services;
- IntelliSense-LAB;
- Alphamet;
- Datarocks;
- Equipmetry;
- InPro-Tech;
- SolGlow Innovations;
- Asau.z;
- GOLD-WAY;
- ITP Mining;
- Energy of Semirechye;
- DILAU Service;
- Techno House;
- Global-Systems Products;
- Advanced Business Technologies (ABiTech)

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ECOSYSTEM DEVELOPMENT

BUSINESS PROGRAMS: INDUSTRIAL TOURS

PAST INDUSTRIAL TOURS

KAZPETROL GROUP

Kazakhstan, Kyzylorda
May 15-16, 2023.

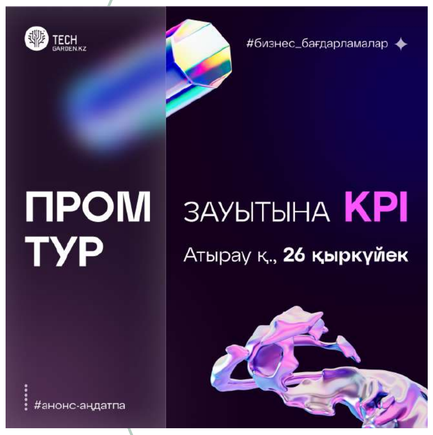
Attracted: **11 companies**

Polymetal

Kazakhstan, Ust-Kamenogorsk
August 24-25, 2023.

Attracted: **20 companies**

UPCOMING INDUSTRIAL TOURS



KPI

Kazakhstan, Atyrau
October, 2023

*** TBD by the company**

PetroKazakhstan Oil Products

Kazakhstan, Shymkent
October-November, 2023

*** TBD by the company**

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ECOSYSTEM DEVELOPMENT

BUSINESS PROGRAMS: ROADSHOW

PAST ROADSHOW

ROADSHOW TO GERMANY

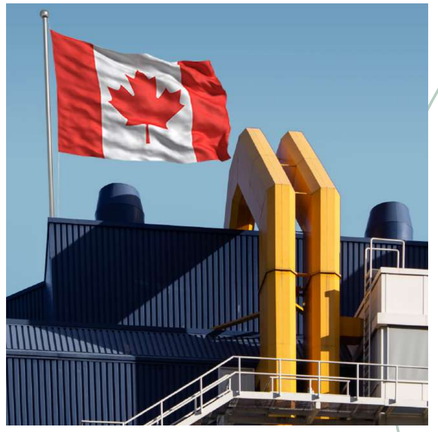
Industries in Germany
July 2-8, 2023.

Involved: **12 companies**

ROADSHOW TO UAE

Participation in
ADIPEC 2023
October 2-5, 2023.

FUTURE ROADSHOW



ROADSHOW TO CANADA

Industry Canada and participation in
PDAC 2024
March 3-6, 2023.

Up to **20 companies are planned to participate**

ROADSHOW TO USA

Participation in MINExpo International
September 2023

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ECOSYSTEM DEVELOPMENT

BUSINESS PROGRAMS: INDUSTRIAL TOURS AND ROADSHOWS

More information and feedback in video format from industry tour participants here :
https://techgarden.kz/promtours/

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Top implemented projects

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Development of technology for production of iron ore concentrates of small classes of magnetite ores by dry methods

Customer: Bapy Metals LLP
Contractor: Physico-Technical Institute LLP

Location: Karaganda

IMPLEMENTATION EFFECTS

Technology and hardware to be developed :

- Dry grinding of ore in a closed cycle;
- Dry beneficiation of magnetite ores;
- Demonstration prototype of a dry magnetic separator with a capacity of at least 300 kg/hour of feed ore for fine magnetite ore beneficiation

As a result, the iron content of dry concentrate will be at least 95% of the iron content of wet beneficiation, the recovery rate is comparable to wet beneficiation.

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Optimization of flotation process using artificial intelligence technologies

Customer: Bakyrchik Mining Enterprise LLP
Contractor: IntelliSense-LAB Technology Development Center LLP

Location: Kostanay

IMPLEMENTATION EFFECTS

Expected effect of a 1.0% increase in gold recovery as a result of the flotation optimization application (from 86% to 87%) with increased grinding capacity.

A 1.0% increase in gold recovery (10 pp = c 86% to 87%) would result in 360 koz * 87/86 = 364.2 koz (additional + 4.6 koz).

Total: the flotation optimization project will result in additional gold production of 4.2 koz.

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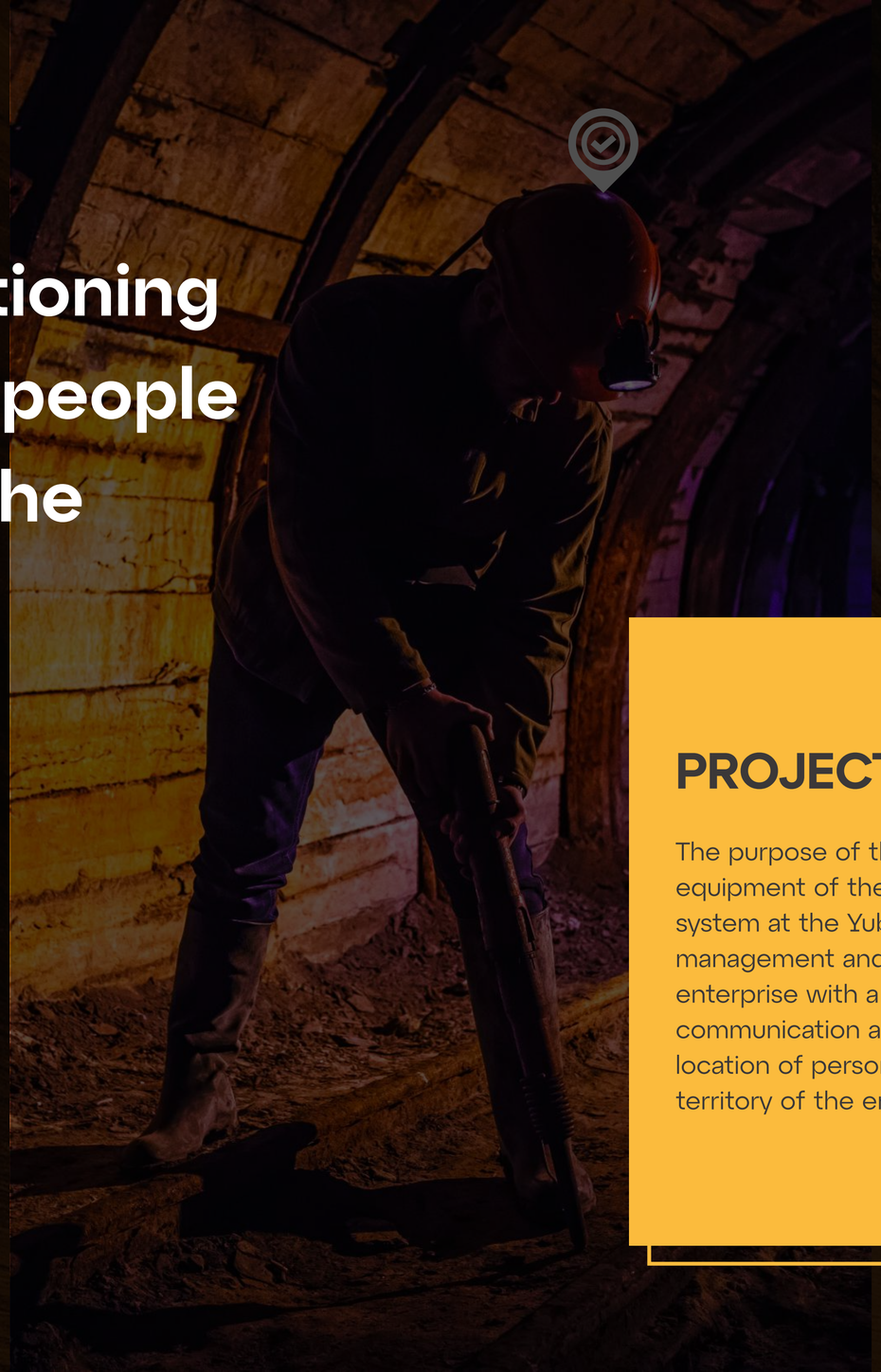
Equipment with a positioning and search system for people and transportation at the Yubileynoye field



PROJECT DESCRIPTION

The purpose of the project is to supply and install the equipment of the personnel positioning and search system at the Yubileynoye deposit, providing the management and dispatchers of the mining enterprise with a convenient and reliable tool for communication and real-time control over the location of personnel and mobile equipment on the territory of the enterprise.

Customer: AltynEx Company JSC
Contractor: Kunayev Institute of Mining Engineering

Location: Aktobe

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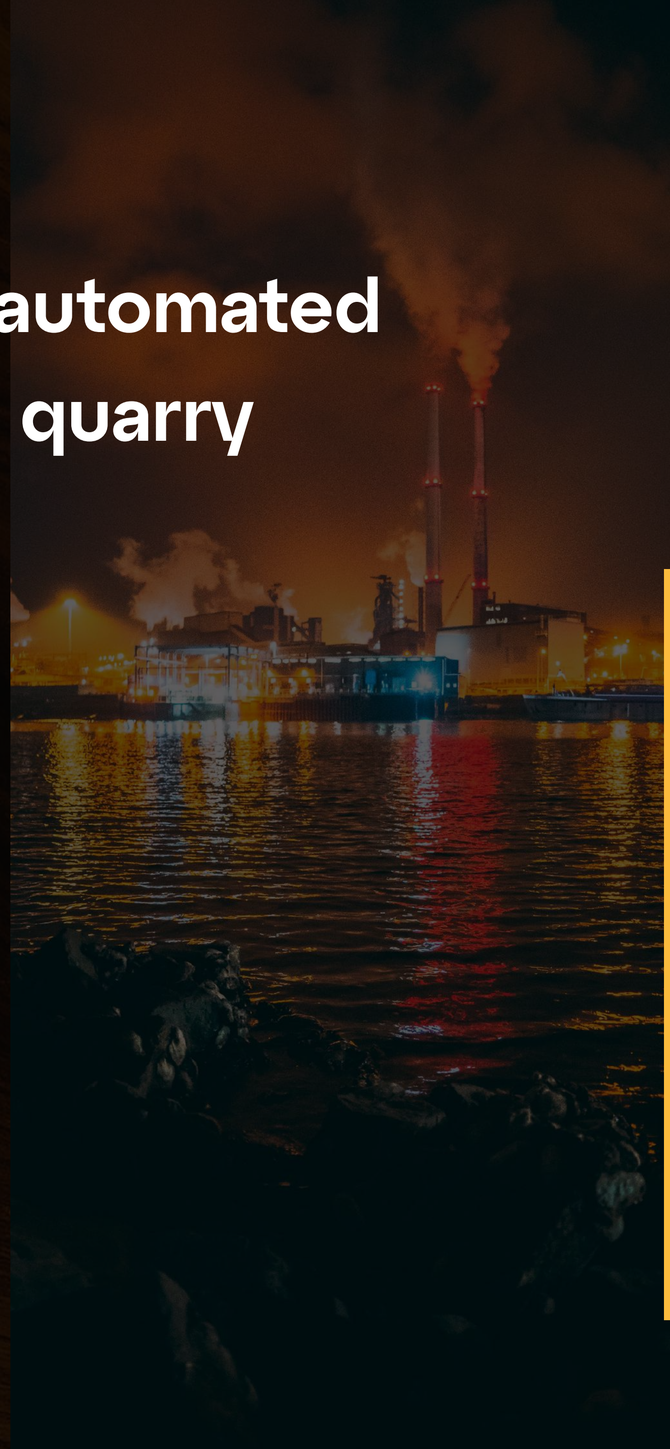
Implementation of an automated monitoring system for quarry water discharges



Customer: Komarovskoye Mining Enterprise LLP
Contractor: Mining Research Group LLP

Location: Kostanay

IMPLEMENTATION EFFECTS

Implementation of the system allows 24/7 monitoring of the degree of environmental pollution.

The analysis of discharges will allow timely identification of the causes and consequences of harmful substances entering the environment and taking appropriate measures.

Continuous monitoring and accumulation of data on discharges makes it possible to analyze the consequences of the company's operations in the long term.

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Performance of studies on geomechanical assessment of stability of the north-eastern sides and ledges of the open pit mine

Customer: Temirtau Electrometallurgical Plant JSC
Contractor: Mining Research Group LLP

Location: Temirtau

IMPLEMENTATION EFFECTS

As a result of the research performed, safe technological parameters for the development of the open pit reserves will be proposed and recommendations will be given on the production of surveying observations of the geomechanical condition of the field sides.

In addition, empirical coefficients will be obtained to improve the reliability of modeling of rock mass stability for the conditions of the deposit.

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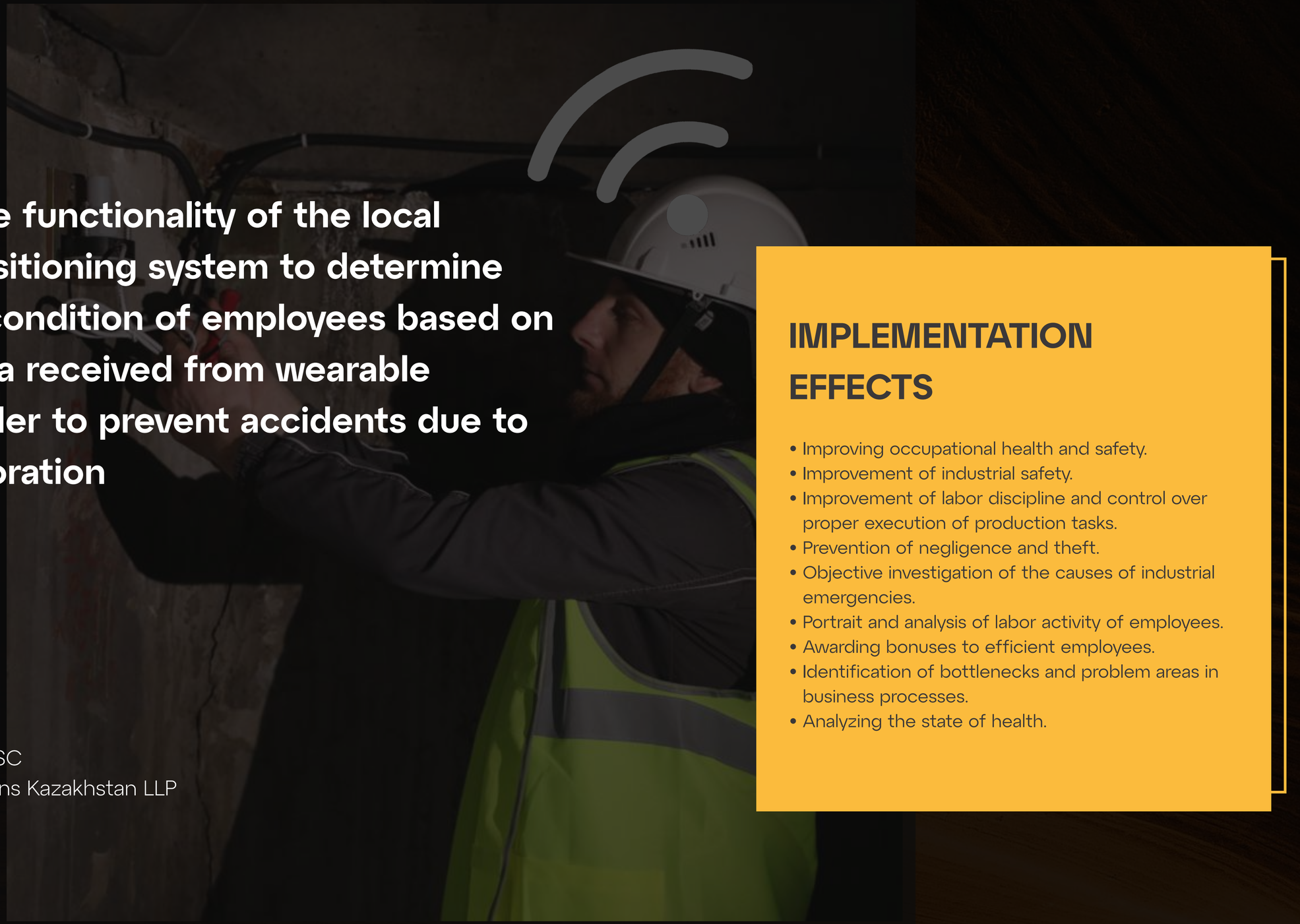
Expanding the functionality of the local personnel positioning system to determine the physical condition of employees based on biometric data received from wearable devices in order to prevent accidents due to health deterioration



IMPLEMENTATION EFFECTS

- Improving occupational health and safety.
- Improvement of industrial safety.
- Improvement of labor discipline and control over proper execution of production tasks.
- Prevention of negligence and theft.
- Objective investigation of the causes of industrial emergencies.
- Portrait and analysis of labor activity of employees.
- Awarding bonuses to efficient employees.
- Identification of bottlenecks and problem areas in business processes.
- Analyzing the state of health.

Customer: Varvarinskoye JSC
Contractor: Communications Kazakhstan LLP

Location: Kostanay

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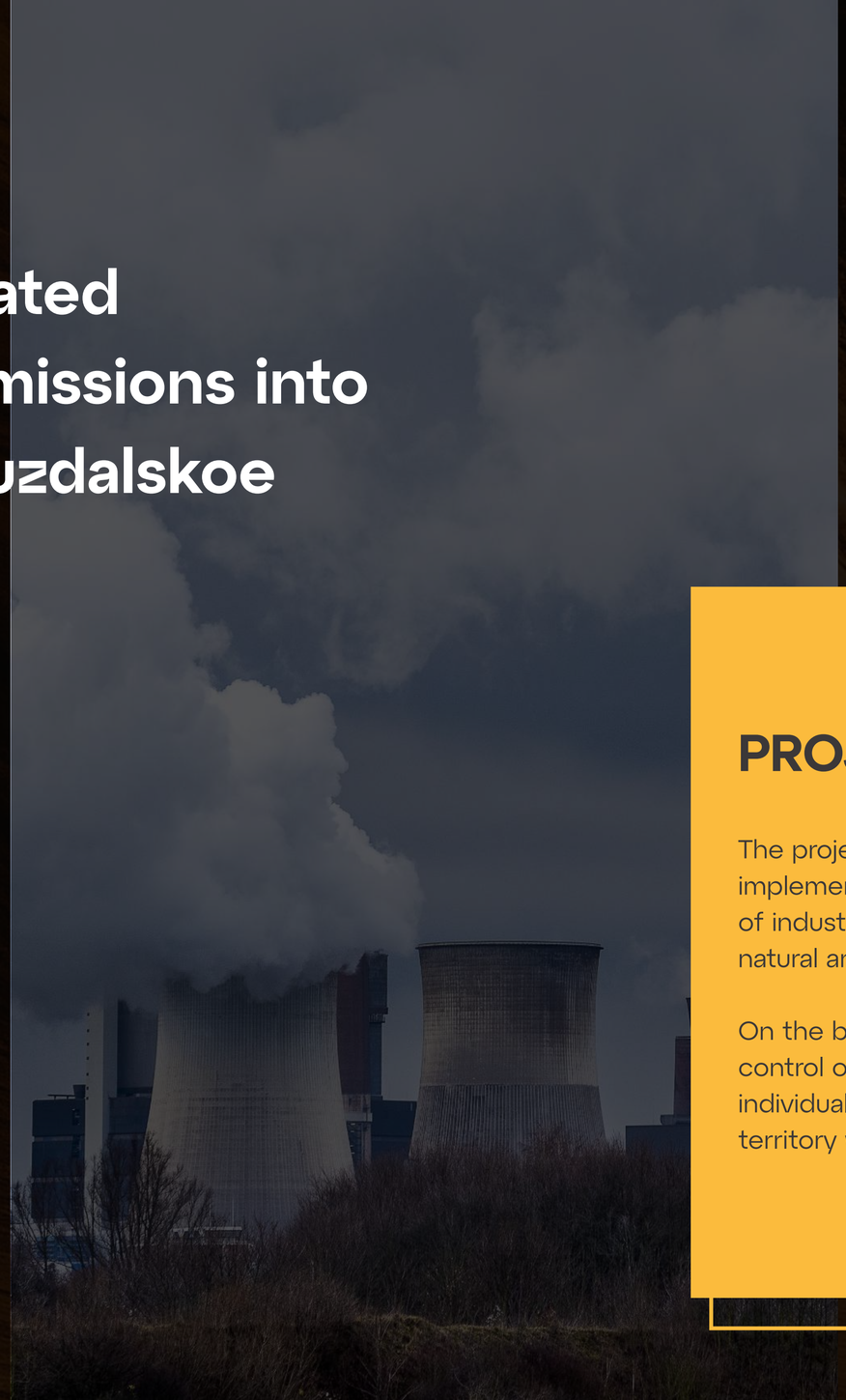
Implementation of automated systems for monitoring emissions into the environment at the Suzdalskoe field



PROJECT DESCRIPTION:

The project is related to the complex of works on implementation of automated systems for monitoring of industrial emissions, which have a direct impact on natural and climatic conditions.

On the basis of which it can be concluded that control over the environmental situation both at an individual enterprise and comprehensively at a certain territory will lead to positive results in the future.

Customer: FIC Alel JSC
Contractor: OST Engineering LLP

Location: Semey

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LIMS. Development and implementation of a technical solution for laboratory complex automation

IMPLEMENTATION EFFECTS

Economy

Reduction of unit costs per sample by 20% (due to automated data processing and corresponding increase in laboratory throughput).

Credibility

Improved reliability of geologic models and metallurgical plant data by reducing data processing errors, automation and reducing human error.

Efficiency

Identify further opportunities to improve the efficiency, speed and quality of the laboratory.

Customer: FIC Alel JSC
Contractor: Norsec Automation LLP

Location: Semey

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Automation of environmental monitoring, preparation and submission of environmental reports of the enterprise

IMPLEMENTATION EFFECTS

Social, improving the quality of life of the population/ employees of the enterprise through the establishment of an environmental pollution monitoring system will increase the level of interaction of government agencies with the scientific environment.

Environmental pollution monitoring system will help the enterprise to apply effective policies to reduce environmental pollution.

Customer: Bakyrchik Mining Enterprise LLP
Contractor: Koktem Technologies LLP

Location: East Kazakhstan oblast.

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Development of an integrated solution for the digitalization of a coal field

Customer: Shubarkol Premium JSC
Contractor: Intelligent Digital Solutions LLP

Location: Karaganda

IMPLEMENTATION EFFECTS

Implementation of a unified digital Enterprise Management Platform and industrialization by integrating physical objects, processes and digital technologies within the framework of Industry 4.0:

- More accurate planning and management of enterprise resources;
- Reduction of fuel costs by 10% (about 500 million tons per year);
- Efficient distribution of equipment, increasing production volumes by 10-12% with the current fleet;
- Reduction of tire wear by 10-15%;
- Creation of digital intelligent security system. This is a direction of transformations in the safety system in order to improve safety culture and labor protection, reduce production risks.

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Driver monitoring systems

Client: Komarovskoye Mining Enterprise LLP
Contractor: PROJECT GROUP TM LLP / Sapsan Firm LLP

Location: Kostanay

IMPLEMENTATION EFFECTS

The entire system is designed to maximize the safety of the driver and cargo.

The system monitors the permissible speed and trajectory of movement, and if the speed limit is violated, it gives an audible signal to increase the attention of the person.

The analytics system also monitors the driver, detects slow reactions and periodically reminds the driver to rest if the person does not stop driving for a long time.

In addition, the system helps analyze eye movement, blink rate, head tilt, smoking and talking on the phone.

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CONTACTS

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