



AG TECH

ON A WAVE OF NEW
OPPORTUNITIES

PRODUCTION MANAGEMENT SYSTEM

A TOOL FOR INDUSTRIAL DIGITAL TRANSFORMATION
SAFETY | TRANSPARENCY | EFFICIENCY



www.ag-tech.kz



www.dmms.kz



DMMS



MADE IN KAZAKHSTAN



COMPANY INFORMATION



Founded in 2008, AG TECH is a Kazakhstani company and a qualified provider of industrial automation systems, innovative IT software and hardware solutions, IT infrastructure support services, business analytics and design, and an advanced supplier of radionavigation equipment



KEY AREAS OF ACTIVITY



DMMS

DMMS SYSTEM



IT SYSTEMS MANAGEMENT

IT INFRASTRUCTURE MANAGEMENT



OMEN DESIGNS

ANALYTICS AND DESIGN



SKY CODING LABORATORIES

SOFTWARE DEVELOPMENT



ENTERPRISE & DATA CENTER SOLUTIONS AND SERVICES

HARDWARE SOLUTIONS



RNS RADIO NAVIGATION SYSTEMS

NAVIGATION SYSTEMS



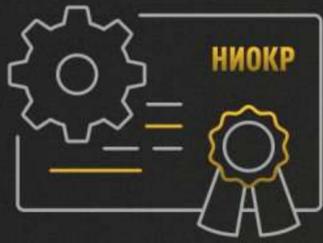
ACHIEVEMENTS AND AWARDS



Recognized as a domestic producer of goods, works, and services



Company processes comply with the criteria and requirements of international ISO standards



Accredited as an entity engaged in scientific and scientific-technical activity



One of the largest taxpayers in the IT sector of Kazakhstan

ACF PIT

Since January 2022, AG TECH has been a resident of the Autonomous Cluster Fund "Park of Innovative Technologies"



Digital Almaty 2024
Innovative Industrial Solution Award



Daktronics CY 2024
Outstanding Achievement of Custom Sales over \$1,000,000



Mining & Metals 2023
Best Product Presentation



Daktronics CY 2022
Outstanding Achievement of Custom Sales over \$1,000,000



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THE DMMS SYSTEM



DMMS (Digital Monitoring and Management System) - is the flagship product of AG TECH.
A one-of-a-kind production management system developed by Kazakhstani specialists in accordance with Industry 4.0 principles

DMMS system – the ultimate solution for operational and safety control, reliable analytics, and effective management of all industrial production cycles



THE MISSION BEHIND DMMS – ENSURING PRODUCTIVITY, DISCIPLINE, AND WORKPLACE SAFETY

 60 000 USERS



 INTERNATIONAL RECOGNITION

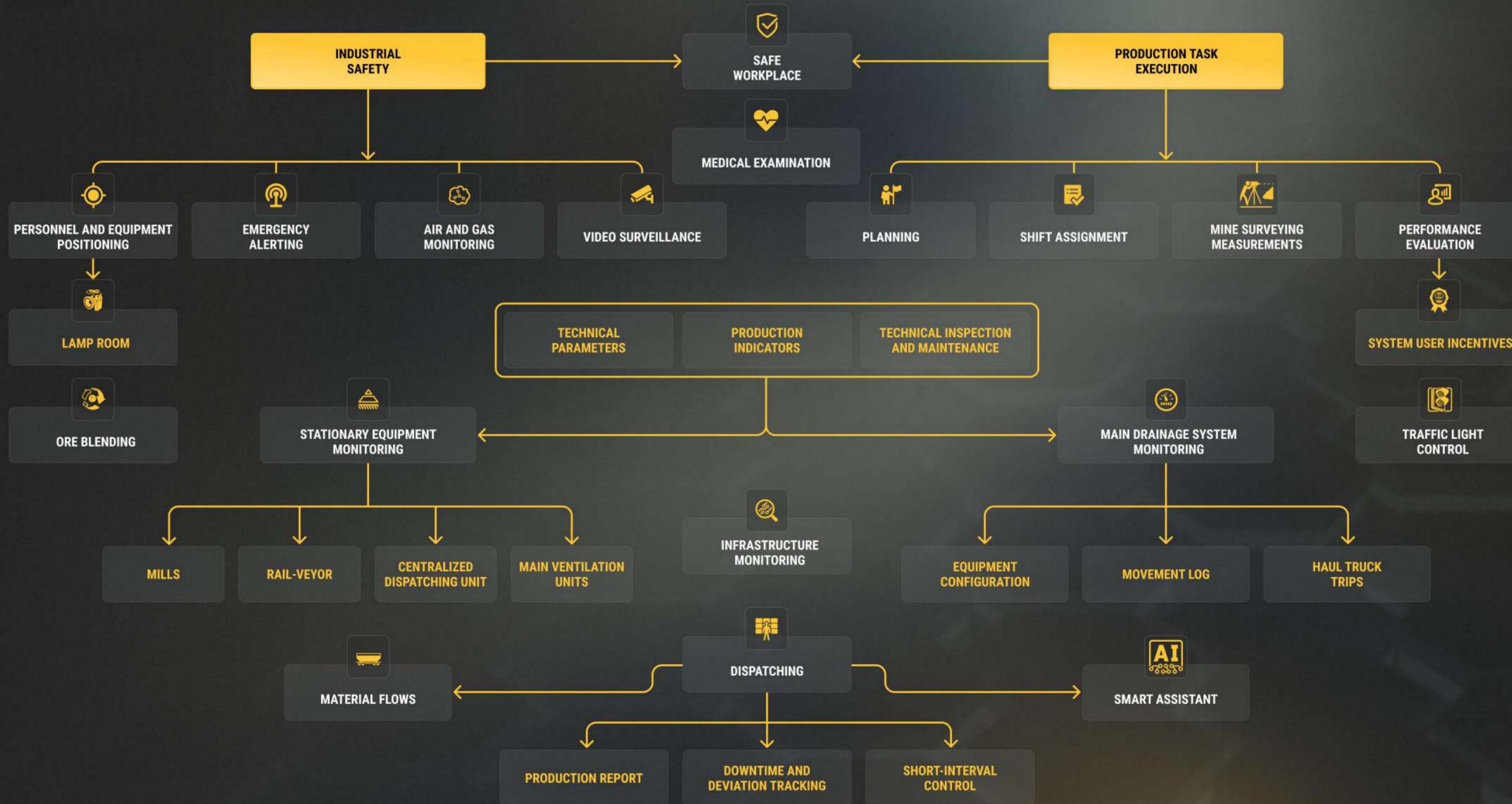


WWW.DMMS.KZ
MORE INFORMATION
ON OUR WEBSITE





DMMS SYSTEM MODULE STRUCTURE





AREAS OF SYSTEM APPLICATION



DMMS CORPORATE

Corporate enterprise management system



DMMS MINING

Mining enterprise management system



DMMS COAL

Coal enterprise management system



DMMS FACTORY

Factory and plant management system



DMMS ENERGY

Energy enterprise management system



DMMS



DMMS CHEMICAL

Chemical enterprise management system



DMMS OIL AND GAS

Oil and gas enterprise management system



DMMS AERO

Radar equipment monitoring system



DMMS VEHICLE

Transport infrastructure management system



DMMS INVENTORY

Material asset management system



DATA TRANSFER TECHNICAL SPECIFICATION



DATA SOURCES



POSITIONING SYSTEM DATA



DATA FROM SELF-PROPELLED MACHINERY



DATA FROM STATIONARY EQUIPMENT



MOBILE MMS



DATA FROM EXCEL FILES



MANUAL DATA ENTRY



DATA FROM THIRD-PARTY EQUIPMENT



DATA FROM THIRD-PARTY SOFTWARE



OTHER SOURCES...



REPORT VISUALIZATION IN THE SYSTEM INTERFACE



EXPORTED EXCEL FORMS



EMAIL AND MESSENGER DELIVERY OF NOTIFICATIONS AND REPORTS



COMPATIBILITY WITH ERP SYSTEMS INCLUDING 1C, SQL, SAP, MICROSOFT DYNAMICS, ETC.



DATA COLLECTION

- > Unified Standards and Automation of Data Collection and Transformation from Diverse Sources



DATA STORAGE

- > Centralized Data Storage
- > Compliance with Information Security Requirements
- > Regular System Audits and Data Backups



DATA PROCESSING

- > Big Data Analytics
- > Application of Artificial Intelligence and Machine Learning
- > Cloud and Edge Computing
- > Implementation of a Digital Twin



DMMS SYSTEM FUNCTIONALITY



HEADCOUNT AND EQUIPMENT DATA

Employee attendance and the number of deployed equipment and personnel by level



POSITIONING DATA

Location of personnel and equipment on the map



READER DATA

Name of the mine working, power parameters, signal quality, time of registration



EMPLOYEE INFORMATION

Full name, job title, photo, movement route



EQUIPMENT DATA COLLECTION

Equipment name, ID number, current location, movement route



EVENT COLLECTION AND PROCESSING

Event generation and data processing (late descent, early exit, etc.)

The screenshot displays the DMMS system interface on a tablet. At the top, there is a navigation bar with the DMMS logo, the date and time (10:08 19.СЕН.2024), and several menu items: ГЕОПОЗИЦИЯ, ПРОГРАММА ПРОИЗВОДСТВА, РАБОЧИЕ МЕСТА, СУЭЗ, СОБЫТИЯ, and ИНФРАСТРУКТУРА ГОРИЗОНТОВ. The main area is a 3D map of a mine with various levels and equipment locations. A detailed view of a specific equipment unit (3874) is shown, including its name, signal quality (85%), voltage (13.4), and status (В работе). On the right side, there is a search bar and a navigation panel with a table of equipment counts:

Категория	Счетчик	Счетчик	Счетчик	Счетчик
ЛАМПОВАЯ	241	-	-	1
РЕМБОКС	9	4	0	1
ПОВЕРХНОСТЬ	16	1	2	5
+520 ГПР	0	0	0	3
+490 ДОВЫЧА	116	9	2	72
+460 ДОВЫЧА	21	3	1	12
+430 ГПР	12	2	0	13
+400 ГПР	4	1	0	7
АКНОМЕТРИЯ	178	30	6	114

Below the table, there is a section for selected equipment (ВЫБРАННЫЕ) showing details for CAT 1700 №94 and Дровосек И.Н. At the bottom right, there are three gauges for production (64.9 т/ч), fuel consumption (31.2 л/ч), and fuel level (471 литр). A bar chart at the very bottom shows production levels over time from 4:00 to 10:00.



DMMS SYSTEM FUNCTIONALITY



WORK SCHEDULE

Workplace name, planned indicators by site (volume, content)



ELECTRONIC SHIFT TASK

Current shift tasks, personnel shift schedule, actual performance indicators, materials, PM and drainage system checklists



CAMERA FEED

Video surveillance of workplaces



DISPATCHING

Material flow movement, weight control and automated conveyor system (ACS) data



WORK EFFICIENCY EVALUATION

Comparison of planned and actual indicators by site and type of work



SAFE WORKPLACE

List of inspectors, inspection schedule for work areas, recorded violations and risks, remediation status



INFRASTRUCTURE

Feedback from installed sensors (Wi-Fi, emergency alerts, readers, cameras, MAP)

The screenshot displays the DMMS system interface on a tablet. At the top, it shows the time 10:08 and date 19.09.2024. The main area features a 3D perspective view of a mine's internal structure with various levels and equipment. A navigation table on the left lists different levels and their status. A camera feed window shows a real-time video of a mine interior. On the right, there are several data panels, including a table of planned vs. actual indicators, a list of tasks (наряды-задания), and a list of workstations (рабочие места и работы). The bottom of the screen has a status bar with various alerts and filters.

Level	Planned	Actual	Other	Other
Ламповая	625	0	0	6
+275 Портал Гор. 275	19	3	11	0
Конвейер	33	4	8	0
+200 Гор. +200м	5	0	4	0
+185 Гор. +185	27	3	8	0
+160 Гор. +160	2	0	2	0
+140 Гор. +140	0	1	3	0
+120 Гор. +120	0	0	1	0
+95 Гор. +95	6	0	2	0
+80 Гор. +80	0	0	2	0
+60 Гор. +60	6	0	4	0
+40 Гор. +40	16	3	4	0
-80 Горизонт	0	0	0	0
+20 Гор. +20	10	2	4	0
+1 Гор. 0	26	1	5	2
-20 Гор. -20	11	4	2	0
-60 Гор. -60, -40	39	6	4	0
-80 Гор. -80	0	0	0	0
шх. Нурказган	163	22	53	2
Аксометрия1	164	22	53	2
По всем горизонтам	527	71	170	6

Code	Planned	Actual	Other	Other	Planned	Actual
АС-41	11 768	4 176,7	376,8	-	771	771
АС-1	11 768	4 176,7	376,8	-	771	771
4xV	961	1 960,9	99,7	Работы в ямах	210	210
4xV	961	1 960,9	99,7	Работы в ямах	190	190
4xV	961	1 960,9	99,7	Работы в ямах	200	200
4xV	961	1 960,9	99,7	Работы в ямах	191	191
АС-4-В	65 794	32 825	1 195,5	-	3 898	3 878
АС-10-1	20 000	7 814,3	1 044	-	1 914	1 914
АС-10-2	4 000	1 562	198,3	Работы в ямах	190	190
АС-10-3	4 000	1 562,3	198,3	Работы в ямах	190	190
11xV-IV	284	89	79,3	Работы в ямах	168	168
АС-10-IV	197	47,9	6,3	Работы в ямах	190	190
АС-10-V	400	156,3	20,8	Работы в ямах	60	60
АС-10-VI	323	1 262,9	112,4	Работы в ямах	273	273
АС-10-VI	119	462,9	57,4	Работы в ямах	141	141
АС-10-VI	311	1 216,8	112,7	Работы в ямах	171	171

Task ID	Status	Planned	Actual	Other
30264	Завершено	1,200	1,200	100%
30231	Завершено	1,200	1,200	100%

Workstation	Planned	Actual	Other	Other
с/д на к2	100	2,400	0	2,400
с/д на к2	100	600	0	600
4xV	100	600	0	600
3xVI	100	600	0	600



DMMS SYSTEM FUNCTIONALITY



Analysis of underground infrastructure based on data on active equipment operability (roof falls, wall collapses, damage by machinery, etc.)



Analysis of energy efficiency based on power-off data of active equipment



Analysis of personnel workload, labor and technological discipline based on descent, movement, and mine exit data



Analysis of equipment operability or workload based on equipment movement data



Analysis of system component maintenance based on operability and downtime data of active equipment

The screenshot displays the DMMS system interface with the following components:

- Header:** DMMS logo, date (10:08 19.СЕН.2024), and navigation tabs: ГЕОПОЗИЦИЯ, ПРОГРАММА ПРОИЗВОДСТВА, РАБОЧИЕ МЕСТА, СУЭЗ, СОБЫТИЯ, ИНФРАСТРУКТУРА ГОРИЗОНТОВ. User info: 8.03.13.02.2022, Фамилия И.О. - Диспетчер.
- Main Map:** 3D visualization of underground infrastructure with various levels (+520m, +490m, +460m). Includes labels like 'Вент.сбойка 16', 'Двухсторонний штрек', 'Наклонный съезд', and 'ВЗУ'. A tooltip for 'Конвейер камера перегрузки' shows: 'Конвейер камера перегрузки с уч. конв. 2 на конв. 2', 'Качество связи 85%', 'Напряжение 13.4', 'В работе', 'В работе (с. 15.11.2023)'.
- Left Panel:** 'Основные обозначения' and 'Специальные места' sections with camera icons labeled '№1' and '№2'.
- Right Panel:**
 - ПОЗИЦИОНИРОВАНИЕ:** Table with columns: №, Наименование (место), Id номер, Качество связи, Кол-во ошибок, Питание устр-ва.

№	Наименование (место)	Id номер	Качество связи, %	Кол-во ошибок	Питание устр-ва, В
1	Квершлаг шх.№3	16108727	97%	108	11,6
2	Транспортная штольня	10816108	87%	61	10,9
3	Рудный отвал №2	16108	90%	34	12,1
4	ВЗУ на отм. +395	108	62%	16	12,0
5	Рудный отвал №2	16108	90%	34	12,1
6	Отм. +355, Орт 23	16	43%	16	12,0
 - РАБОТА ЛВС:** ОШИБКИ В РАБОТЕ СЕТИ, Количество ошибок: 25.
 - АВАРИЙНОЕ ОПОВЕЩЕНИЕ:** Журнал with status indicators (Эфир, Передачик) and counts (1, 2, 3, 4).
 - ГАЗАНАЛИЗАТОРЫ:** Table with columns: №, Наименование (место), IP номер, Статус, Последняя передача данных.

№	Наименование (место)	IP номер	Статус	Последняя передача данных
1	Квершлаг шх.№3	16108727	ВЫКЛ	23.02.2020 15:33 (2д.1ч.16м)
2	Транспортная штольня	10816108	ВЫКЛ	25.02.2020 15:33 (1ч.5м)
3	Квершлаг шх.№3	16108727	ВКЛ	25.02.2020 16:45 (2 мин)
4	Транспортная штольня	10816108	ВКЛ	25.02.2020 16:46 (32 сек)
 - ТЕЛЕФОНИЯ:** Table with columns: №, Место / IP, Статус / Номер, №, Место / IP, Статус.

№	Место / IP	Статус / Номер	№	Место / IP	Статус
1	CAT Сервис IP 162.168.12.20	4987	1	CAT Сервис IP 162.168.12.20	⚠
2	Транспортная штольня IP 162.168.12.24	4989	2	Транспортная штольня IP 162.168.12.24	⚠
3	CAT Сервис IP 162.168.12.20	4992	3	CAT Сервис IP 162.168.12.20	✓
4	Транспортная штольня IP 162.168.12.24	4993	4	Транспортная штольня IP 162.168.12.24	✓
5	CAT Сервис IP 162.168.12.20	4999	5	CAT Сервис IP 162.168.12.20	✓
6	Транспортная штольня IP 162.168.12.24	4901	6	Транспортная штольня IP 162.168.12.24	✓
7	CAT Сервис		7	CAT Сервис	✓
- Bottom Panel:** Timeline of events:
 - 14:22 13.ФЕВ.2022: Превышение время нахождения в точке
 - 14:12 13.ФЕВ.2022: Шахтер пришел на рабочее место
 - 14:22 13.ФЕВ.2022: Слив ГСМ - CAT-AD30 №15 в CAT-1700 №7
 - 14:12 13.ФЕВ.2022: Совершил ошибку

THE FIRST DOMESTIC AI SOLUTION IN THE FIELD OF INDUSTRIAL SAFETY DIGITALIZATION BASED ON ARTIFICIAL INTELLIGENCE

It is a chatbot based on LLM models, capable of connecting to databases of various information systems, analyzing and interpreting data based on user requests

An intuitive cross-platform interface and module functionality allow generating responses to user queries in the form of text, tables, and infographics



DMMS AI - SMART ASSISTANT

Наряд задания выдали: Марков Александр Михайлович, Петров Иван Максимович

Скачать EXCEL | Скачать CSV

Покажи список НЗ на октябрь и кто их выдал

Наряд задания выдали: Марков Александр Михайлович, Петров Иван Максимович

Скачать CSV

Покажи топ пять причин простоев - только график

42, 20, 17, 3, 2

Технологический простой, ЕО, Электрическая часть, Нет цемента, Технологический простой

Скачать CSV | Скачать график

Иванов Иван

НЗ 286 В работе 1/7

ЦИКЛЫ	ПЛАН	ФАКТ
3/29	1160	36.269

1 Погрузка руды

т.	40	1.250655...
1.1 К 8А-Штабель	20	0
1.2 К 12-Штабель	20	36.269

Место разгрузки: Фабрика 2

DMMS AI - SMART ASSISTANT

Вы можете создать запрос касательно данных в системе по персоналу и технике, как в примерах ниже:

- ОСТАТОК РУДЫ НА ШАХТЕ ЗА 15 ОКТЯБРЯ
- ПОКАЗАТЬ ПОКАЗАТЕЛИ ДОБЫЧИ ЗА 12 СЕНТЯБРЯ НА ШАХТЕ
- КРИТИЧЕСКИЕ СОБЫТИЯ АГЗ ШАХТА ЗА 1 ДЕКАБРЯ
- ТОП ПРИЧИН ПРОСТОЯ ВГЛ

14.11.24	8 541
15.11.24	7 924
16.11.24	8 323
17.11.24	8 210

Скачать EXCEL | Скачать CSV

Покажи список НЗ на октябрь и кто их выдал

SMART ASSISTANT

Наряд задания выдали: Максимов Иван Иванович, Карлов Виктор Олегович

*EXCEL | *CSV

Покажи топ пять причин простоев

Результат запроса:

*EXCEL | *CSV

SQL

Сгенерировать график

42, 19, 6, 3, 2

Тип | Скачать



IMPLEMENTED PROJECTS



THE DMMS SYSTEM AND ITS COMPONENTS HAVE BEEN DEPLOYED AT THE SITES OF LEADING INDUSTRIAL ENTERPRISES IN KAZAKHSTAN AND ABROAD

COMPLETED PROJECTS



LLP "KAZZINC"

Doliny Mine, RMPC

Implementation of an integrated Mining Production Management System (MPMS)



KAZ MINERALS

"Bozymchak" deposit

Implementation of personnel and equipment positioning system, emergency notification, and traffic light control of underground transport



JSC NC "KAZMUNAYGAS"

Head Office

Creation of a dispatcher-analytical center based on DMMS Oil & Gas



LLP "KAZAKHMYS CORPORATION"

Mine No. 67, "Zapadny" deposit

Implementation of MPMS and replication of industrial safety modules across 15 mines



LLP "KAZAKHMYS CORPORATION"

Balkhash Concentrator Plant

Implementation of a monitoring system for Technical Control Department staff



JSC "QARMET"

Coal Department

Creation of a dispatcher-analytical center based on DMMS

ONGOING PROJECTS



SOLIDCORE RESOURCES

LLP "Bakyrchik Mining Enterprise"

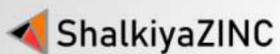
Implementation of precision, zonal, and satellite personnel positioning system at the concentrator



ERG / BUSINESS & TECHNOLOGY SERVICES LLP

JSC "Kazakhstan Electrolysis Plant"

Implementation of local indoor and global satellite outdoor personnel positioning



JSC "SHALKIYAZINC LTD"

Shalkiya Mine

Implementation of personnel and transport positioning, emergency notification, and rescue search systems



LLP "AKTOBE COPPER COMPANY"

Vesenne-Aralchinskoye deposit and Central Ore Warehouse

Implementation of an automated mining and transport management system



JSC "QARMET"

Coal Department

Deployment of industrial safety modules across five mines and two concentrators



JSC "AK ALTYNALMAS"

Zholymbet and Aksu Mining Plants

Implementation of personnel and transport positioning, gas-aero control, and emergency alert systems



COMPLETED PROJECTS



DEVELOPMENT OF A DISPATCH AND ANALYTICS CENTER FOR JSC NC "KAZMUNAYGAS" BASED ON THE DMMS OIL & GAS SYSTEM

PROJECT OBJECTIVE

To ensure centralized real-time monitoring, control, coordination, and analysis of oil and petroleum product extraction, transportation, processing, and distribution across the country

DMMS OIL & GAS SYSTEM MODULES

- Oil & gas condensate production and delivery by fields and companies
- Feedstock supply and petroleum product output at refineries
- Monitoring of refinery production activities
- Transportation and logistics of feedstock and petroleum products
- Monitoring of petroleum product inventories at depots
- Monitoring of sales at gas stations
- Prices and demand for feedstock and petroleum products
- Short- and long-term market analysis in Kazakhstan
- Marketing analysis of oil markets in Kazakhstan, Russia, CIS, Central Asia, and globally
- Global oil and petroleum product price quotations
- Draft petroleum product balance



Daktronics CY 2022
Outstanding Achievement of
Custom Sales over \$1,000,000



Kazakhstan, Astana



Implementation period: May – October 2022

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MORE INFORMATION





COMPLETED PROJECTS



DEVELOPMENT OF A DISPATCH AND ANALYTICS CENTER FOR THE COAL DEPARTMENT OF JSC "QARMET" BASED ON THE DMMS SYSTEM

PROJECT OBJECTIVE

To provide centralized real-time monitoring, control, coordination, and analysis of production processes at five mines and two concentrator plants of the Coal Department

DMMS SYSTEM MODULES

- > Dispatching
- > Underground personnel and equipment positioning system
- > Surface and railway transport positioning system
- > Underground digital video and radio communication
- > Surface and underground video surveillance
- > Emergency group alerts and individual staff paging
- > Personnel search in emergency situations
- > Air and gas monitoring
- > Main ventilation fan monitoring



Daktronics CY 2024
Outstanding Achievement of
Custom Sales over \$1,000,000



Kazakhstan, Karaganda



Implementation period: May – August 2024

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TECHNOLOGIES USED



WHEN DEVELOPING ISD, OPEN-SOURCE, WIDELY ADOPTED TECHNOLOGY STACKS ARE USED, ENSURING INTERACTION VIA APIS THAT SUPPORT MODERN DATA EXCHANGE STANDARDS (REST, JSON, XML, MQTT, ETC.)

BACKEND:



MESSAGE BROKER:



GIT REPOSITORY MANAGEMENT:



WEB-SERVER:



FRONTEND:



OPERATING SYSTEM:



CONTINUOUS INTEGRATION/DELIVERY:



WEB-SERVER:



DATABASE:



CONTAINERIZATION:



SERVICE DISCOVERY SYSTEM:



MONITORING AND LOGGING:



IN-MEMORY DATABASE:



CONTAINER MANAGEMENT:



PRIVATE DATA STORAGE:





KEY PARTNERS



AG TECH BUILDS STRONG AND LASTING PARTNERSHIPS WITH GLOBAL INDUSTRY LEADERS ACROSS VARIOUS SECTORS. WE COMBINE EXPERTISE AND INNOVATION TO CREATE RELIABLE HIGH-TECH SOLUTIONS AND DELIVER COMPETITIVE ADVANTAGES

Honeywell


**Hewlett Packard
Enterprise**


CISCO™

Schneider
 **Electric**™

aruba
NETWORKS


MRS
Underground Intelligence

 **OTN Systems**

easat®
RADAR SYSTEMS


DAKTRONICS

 **ZEBRA**

Lenovo

ORACLE®

SIEMENS

 **DELLEMC**

vmware®

 **PBE**



**THANK YOU FOR
YOUR ATTENTION!**



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