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MINING TECHNOLOGIES AND SERVICES

With increasing production needs and challenging field conditions, the mining industry demands smarter, greener and safer solutions. Artificial intelligence, sensor and Internet of Things (IoT)-based smart mining management systems developed in line with this need enable real-time monitoring of field operations, early detection of risks and efficient use of resources.

Values

Operational Efficiency: Smart systems increase production capacity by eliminating inefficiencies in processes.

Occupational Health and Safety: Thanks to advanced early warning mechanisms, potential risks are proactively managed and occupational accidents are prevented.

Environmental Sustainability: Energy efficiency and reduction of carbon emissions minimize the negative impact of mining operations on the environment.

Cost Effectiveness: Significant savings in operating costs are achieved through automation and digitalization.

System Components



Uninterrupted Sensor and Data Collection: All critical data is collected by instantly monitoring field conditions.

Operational Process Optimization: Production and maintenance planning are optimized with artificial intelligence algorithms.

Risk Management and Early Warning Systems: Ceiling movements, equipment failures and safety risks are detected in advance.

Field and Terrain Management: With drone and laser-based mapping, land structure and resource distribution are precisely determined.

Communication and Monitoring Systems: Personnel and equipment tracking is ensured with uninterrupted underground and surface communication.

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Smart Technology Components

Data Driven Decision Support Systems

Increases efficiency and sustainability in areas such as production planning, financial modeling and process optimization with artificial intelligence supported decision support systems in the mining sector.

Integrated Facility and Field Management

Personnel and visitor management, biometric in the field with verification and access control systems security is enhanced, operational transparency is ensured.

Remote Control and Technical Support

With mixed reality (MR) technologies and mobile solutions, field inspections can be performed remotely and technical problems can be solved quickly.

Drone and Laser Based Precision Mapping

Fast and detailed terrain mapping technologies improve planning processes by enabling accurate analysis of resource distribution and terrain structure.

Detailed Drilling and Structural Analysis

With optical and acoustic televiewer technologies geotechnical data is obtained by examining the internal structure of boreholes at high resolution.

Underground Communication Systems

Using Wi-Fi infrastructure and VoIP technologies reliable, uninterrupted data and voice communication is ensured in undergroundmines.

Electric and Energy Efficient Mining Vehicles

Zero-emission electric vehicles support environmental sustainability and provide energy efficiency while reducing operational costs.

Artificial Intelligence Assisted Management

With real-time data and predictive models operations are optimized and resources are managed automatically. Failure and occupational safety risks are reduced and operations continue without interruption.



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