

Real-Time Mining Control Cockpit: A Framework for Interactive 3D Visualization and Optimized Decision Making Support

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ABSTRACT:

Real-Time Mining is a research and development project within the European Union's Horizon 2020 initiative and consists of a consortium of thirteen European partners from five countries. The overall aim of Real-Time-Mining is to develop a real-time framework to decrease environmental impact and increase resource efficiency in the European raw material extraction industry. The key concept of the research conducted is to promote a paradigm shift from discontinuous to a continuous process monitoring and quality management system in highly selective mining operations.

The Real-Time Mining Control Cockpit is a framework for the visualization of online data acquired during the extraction at the mining face as well as during material handling and processing. The modules include the visualization of the deposit-model, 3D extraction planning, integrated data of the positioning-system as well as the visualization of sensor and machine performance data. Different tools will be developed for supporting operation control and optimized decision making based on real-time data from the centralized database. This will also integrate results from the updated resource model and optimized mine plan. The developed Real-Time Mining cockpit software will finally be integrated into a wider central control and monitoring station of the whole mine.