

Contact point for this idea: Matteo Gerosa– FBK – gerosa@fbk.eu

Multispectral / multimodal analysis for the mining industry

Thematic Areas/Technology/Topic of focus + key elements of the idea/problem:

The objective of the project is to combine multiple parallel streams of data to support and assist professionals working in the mining industry. In particular the project aims to give added value to

- Geologists: multispectral analysis combining audio/video/infrared information to create enhanced maps and identify soil components;
- Managers and technicians: predictive maintenance based on deep learning techniques based on multimodal cues (audio, video...), data processing for automatic mapping and navigation.

FBK has extensive expertise on: AI, remote sensing, image processing, 3d reconstructions, audio analysis, multi-spectral analysis, big-data analytics, deep learning.

Expected synergies and complementarities:

The project respond to Upscaling activities and is strongly involved with KIC strategy.

- It relates two sides of knowledge triangle: research and industry.
- It addresses two of the four target markets: machinery and equipment.
- It is linked with the Exploration and Mining in challenging environments themes.
- It leverages on high TRL technology resulting from KIC EIT Digital.

Outcomes:

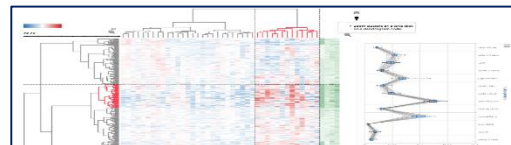
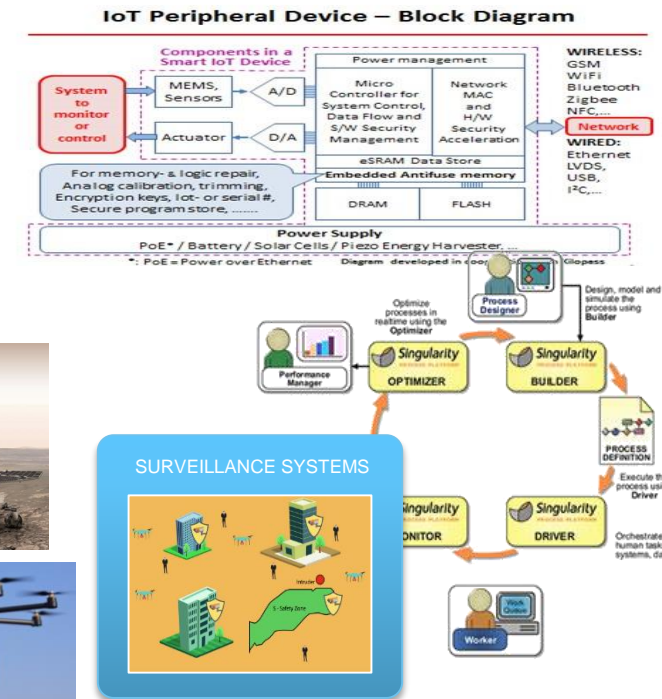
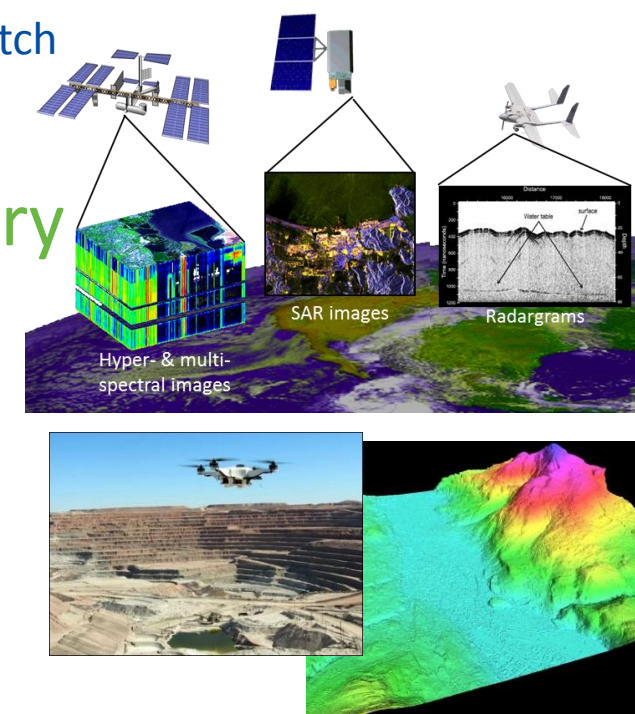
- Support to decision making for professionals in the mining industry
- Advanced processing of heterogeneous data (video, sensing, ...) for decision making

Partners already identified:

- Initial contacts with interested partners are ongoing

Wanted additional partners:

- Electronics HD providers and software designers companies in the mining sector
- Mining Companies
- Research institutes



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• FBK Key competencies

- Remote sensing image processing, 3D surveying and modeling, metrology, multi-sensors data fusion, spatio-temporal data analysis,
- Computer vision, deep learning, monitoring and video analytics, Visual Pattern Recognition, Semantic Image Labelling.
- Multimodal (audio/video) processing, Speaker verification and identification, Speech analytics.
- Process & Data mining, Semantic Information Extraction.
- Deep Learning from complex data, Data Analytics Infrastructures, predictive models Interactive network-based.
- Internet of Services, Planning for Collective Systems, Gamification.
- Cyber security for IoT data, techniques for accessing and removing authentications, authorizations and security problems.

