CEMIS Solutions for Mining Industry

CEMIS (Centre for Measurement and Information Systems) is a contract based joint center of University of Oulu, VTT Technology Research Centre of Finland, Centre for Metrology and Accreditation MIKES, University of Jyväskylä and Kajaani University of Applied Sciences. CEMIS specialises in research and higher education in the field of measurement and information systems.

The Finnish mining industry is growing fast. There are 52 mines (2013) and the mining industry employs around 4500 people, this number is expected to grow well over 6000 by the end of the decade. The combined turnover of mines is growing, metallic ore mining alone is expected to grow from nearly € 1 billion in 2011 to € 5 billion by 2020. CEMIS aims to help mining companies through improving their processes, efficiency and safety through innovative measurement and information systems for various needs. Our advantage is in the possibility to create novel measurement solutions by combining the expertise of the various research units of CEMIS.

Mining and mineral processing related services and know-how of CEMIS

University of Oulu – CEMIS Oulu
- Development of sensors based on biosensing, electrochemistry, digital imaging and optical spectroscopy
- Online monitoring devices for harmful components in mine environment
- Bacteria profiling for bioprocesses
- Monitoring solutions for waste and process waters
- Expert services in analytical chemistry and bioanalysis services

Kajaani University of Applied Sciences – KUAS
- Bachelor level mining engineering education
- Mobile mineral processing laboratory
- Selected analysis services directly for mining companies (element composition and thermogravimetric analysis)

Centre for Metrology and Accreditation - MIKES
- National Metrology Institute’s calibration services of water flow, force, torque and mass for mining industry
- Traceable measurements of gases, e.g. H2S

VTT Technology Research Centre of Finland
- Sensor networks for very difficult environments, e.g. heap leaching process
- Ultra Wide Band Microwave Radiation (UWB) technology for work safety and size measurement of crushed ore
- Radio and energy harvesting technologies for environment monitoring systems
- Wireless technologies and embedded systems

We offer mining companies

- top-level research and development services
- extensive testing and calibration services
- special analytical services
- specialized training and consultation to realize reliable measurement and information solutions for your demanding operation conditions

Our key technologies:
- optical spectroscopy
- imaging technologies
- bioanalytics and biosensors
- force and torque transducers
- wireless, embedded sensor networks

Over 20 R&D projects are carried out in CEMIS every year with companies, universities and research centers. The aim is to identify and solve measurement related challenges of our customers or our partners. The projects can range from an individual measurement to planning an entire measurement solution. These projects are prepared in cooperation with our customers and funded through joint funding, by using public R&D financing instruments or through direct assignments from customers.

We sell expert and analytical services directly to mining and mineral processing companies as well as associated technology companies. For an extensive list of our technology portfolio visit our website at www.cemis.fi!
CEMIS Centre for Measurement and Information Systems

CEMIS is a community of 120 measurement and information system experts combined with excellent research and training environments. The combined annual funding of the various units is approx. € 10 million.

Competence focuses:
- Process and environmental measurements
- Sports, exercise and well-being measurements
- Vehicle information and measurement systems
- Computer games and simulators

Our aim is to be Finland’s leading research and training centre specialising in measurement and information systems within our selected top fields by the year 2015. With the support of our committed partners, we will create leading experts, new technology and new business operations in an innovative and international environment.

> www.cemis.fi

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Technology, Expertise and Innovations
Reliable Measurement Solutions | Vehicle Information Systems | Computer Games and Simulators