

NEOnet MINING ICT

NORTH EASTERN ONTARIO COMMUNICATIONS NETWORK INC.

Industry Newsletter

Swarm - Based Truck-Shovel Dispatching System in Open Pit Mine Operations

By Yassiah Bissiri, W. Scott Dunbar & Allan Hall

The dispatch of trucks and shovel has always been an important component in the success of open pit mine operations. Dispatch systems have evolved from manual to today automatic with almost no human intervention. Although dispatching systems available today are "pseudo real time" and efficient, the optimal dispatching is realized over subsets of the fleet when dealing with large fleets. This approach certainly raises the question of optimality. In fact decomposing the fleet into sub-fleets and then optimizing each one does not guarantee optimality for the entire fleet. Moreover the system is not flexible to changes in the operation environment such as emergency breakdowns and anticipated down times.

The swarm intelligence approach introduced in this paper is a new technique that uses the behaviour of social insects to model and simulate a dispatching system. Social insects are flexible in that they respond to any change in their environment, particularly those that threaten their survival. This flexibility occurs in response to chemical or physical cues produced in the environment either by the insects themselves or by external influences. Using analogies to these chemical and physical cues, a flexible dispatching system can be developed that can efficiently dispatch trucks of the entire fleet and that can adapt to changes in the truck/shovel/maintenance environment. Simulations of dispatching systems based on those concepts are presented and described.

[Full report.](#)

Development in Mining Technology

By Brayan Peter

www.ezinearticles.com

The development of mining technology plays an important role in the mining industry as well as in the environment. The mining industry plays a crucial role in our economy. The mining industry was very conservative in initiating and adopting new technologies in the past due to high capital requirements, environmental limitations and small profit margins. However, the mining industry has made significant progress in productivity, mining technologies used, environmental control, and worker health and safety. The mining industry has also introduced improved clean technology to carry out best mining processes and practices. Such practices have

been applied in developing countries which achieved best results. When mining technologies become more widely available, there will be only technology gap between mining industries and countries.

The mining industries continue to play their essential role in sustainable technological development to improve their performance, reduce environmental pollution to all media and enhance the quality of life within their operational work area. The mining industry aims at adopting and implementing innovative technologies through the usage of both mining and environmental technologies to create a better environment quality in mining industry areas, reduce negative impact to human health and environment, reduce water and air pollution, and land degradation.

[More info.](#)



Mine Trucks of the Future: Bigger, Faster, Smarter

By David Binning

www.mining-technology.com

Over the last few years there has been a trend towards larger-scale mining operations as companies seek better economies of scale and, more recently, protection against the sort of price shocks that occurred as a result of the economic crisis.

Output from these larger operations is expected to reach peak levels over coming years as markets return to normal and the developing economies of China, India, Brazil and others continue to challenge supply. Consideration investment in new technology and infrastructure, however, will be required if miners expect to meet these challenges.

In the area of road transport, a new generation of clever monster truck is emerging to reflect increase on-site demands. Lighter vehicles with larger capacities, better fuel and tyre efficiency and sophisticated on-board computer systems for maintenance and automated operations are some recent improvements.

Truck automation is an important new area for the mining industry, with a number of first-generation vehicles in use at sites around the world.

[More information.](#)

Exploration mobility with underground coring rig

www.im-mining.com

Boart Longyear Drilling Services has developed and tested a new mobile drill rig (MDR) in Australia and North America. Based on proven LM® underground technology, "this powerful and robust rig excels in demanding conditions," the company reports. A picture of the MDR is published in the May issue's underground drilling article. The MDR sets up quickly, and is versatile enough to handle both wireline and conventional drilling methods. It features powerful self-diagnosing CANBUS technology for efficient rig operation, and is completely self-contained-carrying rods, water pump, tools and safety equipment on board.

Integrated hydraulic rod making and breaking reduces manual handling for increased productivity and safety, and a self-contained, ergonomically designed operator panel ensures safe and efficient operation. The design of the MDR provides lower fuel consumption and reduced emissions, and offers superior vehicle stability. With up to 7 t of pull-back capacity, the ability to drill using electric or diesel power, and an AQ to HQ rod capacity, MDR testing has confirmed reliability, power, and versatility in underground applications.

[Read more.](#)

Sensor and Sensibility

www.mining-technology.com

Sensor technology seems of unlikely importance to the mining industry, but in recent years it has proved pivotal to the development of new technologies capable of increasing productivity and safety within operations. Nowhere is this more likely to be the case than in Australia, where the Commonwealth Scientific and Industrial Research Organisation (CSIRO) has been busy researching a number of projects that rely heavily on sensor technology.

The country's national science agency is rapidly rising in stature among the global mining community, having developed a number of solutions that have gone on to be adopted by the commercial sector. The government-funded research organisation first became involved in the mining sector in the mid 1990s – coincidentally for a project that has only recently proved fruitful, thanks in no small part to the role of sensor technology.

[Full article.](#)

Mining radar designed for harsh environments

By Petronel Smit
www.miningweekly.com



Supplier of advanced geotechnical monitoring and surveying systems for the mining industry

Reutech Mining, a subsidiary of radar solutions provider Reutech Radar Systems, reports that the movement and surveying radar (MSR) 300 is the only slope monitoring mining radar that can operate up to a distance of 2 500 m in severe weather conditions. The system, which was developed in Stellenbosch, is designed to operate reliably in harsh mining environments, says Reutech Mining business manager Jan de Beer.

He reports that the MSR 300 provides accurate, real-time surveying and slope movement measurements, which are fully georeferenced to an accuracy that allows on-system integration with standard digital terrain maps.

"The simultaneous execution of stability and surveying measurements, combined with the high-speed external data links for remote operation, makes the MSR range of products a real-time mining safety, planning and productivity improvement tool," De Beer asserts.

The system boasts full remote operation and wireless communication, and is lock-able with tamper-indication alarms and built-in test functionality. Further, it has an integrated weather station and advanced algorithms to reject the effects of atmospheric variations.

[Full article.](#)

Various Types Of Mining Equipment

By Brayon Peter
www.articlesnatch.com

The mining industry is one of the most dangerous working environments. Mining equipment are instruments that are commonly used in extraction of minerals from the earth surface. In the past, ancient times, miners used to excavate minerals and metals by using simple hand held tools. With the introduction of automation and modernization, today's mining world enjoys the benefit of many types of mining equipment that are used specially for mining purposes. Modern day mining equipment is powered mainly by electricity and hydraulic energy. Mining equipment is available for various types of mining methods that are performed around the world. There are various types of mining equipment available in the world.

A mining light system is important mining equipment used for all mining processes. A mining light system increases the efficiency and the speed of mining operations and guarantees optimum results in mining process. A mining light might consist of a heat sink, LED or laser, magnetic switch or a focusing cone. Gold pans, sluice boxes, metal detectors, digging tools, gold vials, snuffer bottles, etc., are equipments used for gold mining.

[Continue.](#)

Thoroughtec Cybermine mining simulators head for Canada's far north

www.mineweb.com

South Africa headquartered ThoroughTec has been designing and manufacturing simulators for over 20 years and is the number one simulator systems supplier to the South African Military and the largest supplier of both surface and underground simulators to the mining and construction industries globally, with over 490 simulator units deployed worldwide.

Now, the Yukon Mine Training Association (YMTA) in Canada has taken their training initiative to the next level with the introduction of two new Thoroughtec Cybermine surface and underground mining simulator systems. The YMTA is a partnership between the Yukon's mining and resource-related industries and the First Nations. YMTA is committed to working together to maximize employment opportunities emerging from the growth of the mining and related resource sectors in the North for First Nations and other Yukoners. The YMTA also ensures that safety training is developed and delivered, meeting industry standards.

[Read more.](#)



Mines Mapped Out

www.mining-technology.com

From the first day when man began digging up the earth, gathering resources and making a huge mess in the process, the conflict between effective mining operations and its environmental impact has divided societies. Beginning with the Industrial Revolution, the economic imperatives facing our society have powered the need to exploit mineral deposits. The hunger for resources that so characterised this 'new age' also tended to override the environmental impact of mining operations. However, in the 1960s community and consumer demands for sound environmental practices began to become an issue for the mining industry. Gathering resources while leaving the smallest

environmental footprint has become very much a mantra for modern mining enterprises.

This change in thinking has forced the adoption of a number of new technologies that if fully exploited would result not only in good environmental practices, but also have the potential to substantially reduce costs and improve productivity.

[Keep reading.](#)

Mining Company Selects ESRI as Platform for Global Enterprise GIS

www.gpsworld.com

ESRI Canada announced that Teck Resources Limited ("Teck") has selected ESRI as its platform for building a global enterprise geographic information system (GIS). Through a three-year enterprise license agreement (ELA), Teck will deploy ESRI technology throughout the organization to support the company's exploration projects, diverse business units and numerous operations.

According to the announcement, Teck is a Vancouver-based producer of copper, metallurgical coal and zinc, molybdenum and specialty metals, with interests in several oil sands development assets. It operates 13 mines in Canada, United States, Chile and Peru, and has active exploration projects in the Americas, Asia Pacific, Europe and Africa. The company's exploration group has used ESRI technology for more than 15 years to assist in identifying potential mineral deposits around the world.

[Complete Story.](#)

Additional Links

[World's first international conference on optimisation of mining technology assets set for November.](#)
[Resilient, Rugged and Robust: The Laptop Revolution. Seamless Delivery.](#)

[Software aims to tackle changing mining environments.](#)

[Datamine acquired by CAE, a world leader in modelling, simulation and training solutions.](#)

