Enabling the Digital Mine of the Future through autonomous underground data capture

Dr. S. Hrabar,

Note: Presenting author's name should be underlined.

CEO & Co-Founder, Emesent, Brisbane QLD 4000. Email: stefan@emesent.io

ENABLING THE DIGITAL MINE OF THE FUTURE THROUGH AUTONOMOUS UNDERGROUND DATA CAPTURE

300 word abstract here…(Use 'Body Text' style)

Data capture in the mining industry has been exponentially evolving over the last 10 years. We are capturing data at an increased resolution and accuracy. Rich information can be at ever-shorter intervals of time, enabling live modelling and dynamic planning that is continuously adapting in order to achieve the company's business goals. Furthermore, advances in data analytics and analysis optimise and influence future decision making. Only by automating the data capture process can we achieve these goals of advanced analytics and a "live mine" data models.

With continued depletion of near surface ore bodies, mines are getting deeper and hazards such as seismicity increases. Paradoxically, as companies increase data collection to better understand their mine and reduce worker exposure to hazards, the focus on safety mandates more inspections. The use of autonomous systems breaks this impasse by delivering a range of inspection and data capture methods without compromising the safety of personnel.

As the time it takes to access deeper mines increases the value of autonomy is not only through increased safety and understanding but efficiency through saving time from travel - empowering the technical teams on site to focus on the analysis of the data to drive increased safety and productivity.

We present examples of how the use of autonomous drones and other vehicles underground can overcome this challenge, reducing the risk and workload for personnel, and enabling increased consistency, speed, and frequency of data collection.