



Company Profile

Abstract

The Sedna Company profile serves as an overview of the Business and its Operations and will give you a better idea of what we do as Sedna.

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1. Overview

Sedna is based in Johannesburg, South Africa. For the past 13 years we have operated exclusively in the mining industry. We set ourselves apart from our competition by the quality of our installations, the appropriateness of the solution which we offer and the high level of service which we give our customers. Although we are an IT company, we have built our business in the production areas of our mining customers.

We shy away from proprietary products and networks and always provide solutions which can be utilised by other systems, integrated into existing networks and systems and add value outside of the original scope of the project.

Sedna is committed to a safe working environment. Working in the mining industry we are constantly exposed to a variety of hazards and take our safety and that of our fellow workers very seriously. To this end we are committed to our policy on health, safety and the environment. From a more practical perspective we are old hands in efficiently completing contactors packs, complying with site specific and group safety requirements and getting our projects completed in this environment. Working on multiple sites we have made some valuable contributions to our customer's safety regimes based on our experiences on other sites.

2. Our Operations

Sedna specialises in bringing technology solutions to the operational areas of mines. We specialise in:

2.1 Autonomous mining

Partnering with **ASI** to deliver retrofit autonomous haul trucks in turnkey projects. Sedna will walk customers through the scoping phase, ensure that the operation is ready to accept the technology, implement the supporting technologies such as networks and command centres, implement the automation and maintain the project. Sedna has worked on both Haul truck automation and Drill automation.

With Anglo American and ASI, Sedna maintains and runs a small production section comprising of 2 automated ADT's at Anglo American Coal South Africa's Kromdraai opencast mine. This autonomous section had been a POC where we developed and adapted the technology to a mining environment but has evolved from being a head office funded development project into a mine site managed production section. This site has allowed us to understand how to maintain and run the ASI product without daily interaction with the OEM.

At Kumba's Sishen and Kolomela mines we have worked with Flanders and Atlas Copco to automate a total of 8 drills (two at Sishen mine and 6 at Kolomela mine). At both sites we are part of the automation team and are responsible for the supply and maintenance of the environment in which the autonomous system runs – servers, control room, GNSS, WLAN network. Once again, these drills have moved from a POC to being fully in production – Kolomela's entire fleet is automated.

2.2 Distributed Acoustic Sensing

through our partnership with **Optasense**, Sedna is able to use fibre optic cables runs of up to 60 km as sensors to pinpoint events along the fibre run. There are many applications: security, conveyer belt and pipeline monitoring.

This is a relatively new area for us, we have rolled out this technology on a Rio Tinto site where it is used to identify areas in which cables are being targeted by thieves (a major issue in South Africa). We have rolled out some POC's for conveyer belt monitoring in underground coal mines and pipeline monitoring in the platinum sector.

2.3 Fleet management

using their SVM platform Sedna is able to integrate the multiple systems typically installed on a mining machine, gather data from all of them, record this data in an open database and present managers with reports and dashboards. Examples are – collecting data from a CWS system so that both the health of the system and the CWS interactions can be monitoring. Rules can be applied on the machine such as not allowing the machine to start unless the CWS was healthy.

The SVM comprises multiple interfaces (digital, analogue, 232, 485, CAN, GNSS, Ethernet) through which data can be buffered and communicated to a remote server via GSM or Ethernet) according to rules configured. We have rolled this technology out at a Rio Tinto site where we collect data from a 3rd party engine protection system, OEM CAN as well as a collision warning system. We apply licensing rules to ensure that the operator is correctly licensed to operate the machine, apply rules based on the engine protection and CWS system (preventing start, retarding the machine or shutting the machine down) as well as presenting the data in a SQL server for analysis.

2.4 Wired and wireless data

Sedna partners with **Cisco** to deliver industrial networks underground and wireless networks in opencast mines which support the needs of systems such as automated mining.

We have rolled out a number of WLAN networks in opencast and underground mines, from high speed roaming networks suitable for the high bandwidth, low latency, zero handoff requirements of autonomous machines to simple point to point links to enable telemetry on stackers and reclaimers.