

Telematics Improves Safety in Underground Mining

ECS partners with HED on collision avoidance system for Sibanye Stillwater project in South Africa

CUSTOMER

Engine Control Systems (ECS)

TECHNOLOGIES

CANect® Telematics

SERVICES

Data logger, Monitoring & Alert System

PROJECT TYPE

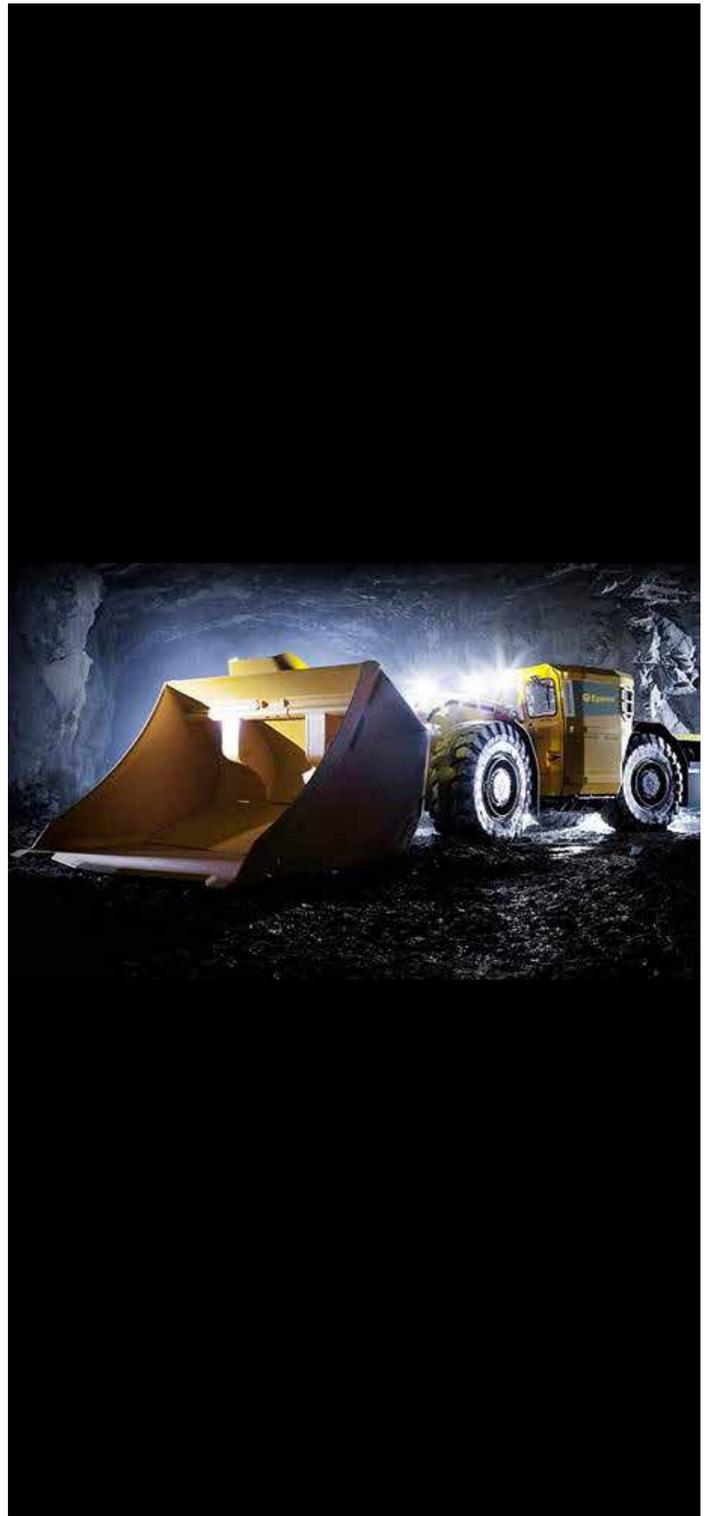
IoT

INDUSTRIES

Mining

Overview

Underground mining requires both miners and machines to navigate through tight spaces. Mining operations must diligently maintain safety to ensure hard-working individuals make it home at the end of the week or month of onsite work. As one of the leading mining groups in South Africa, Sibanye Stillwater implements international safety standard and prevention measures described in ISO21815 that are imposed by the Division of Mine Reclamation



HED[®]
Intelligent Vehicle Controls

CASE STUDY

(DMR), the mining council of South Africa. ISO21815 requires earth moving underground/surface machines to comply with what is known as a Level 9, slow down and stop intervention system. More specifically, a collision warning and avoidance system.

The mines in South Africa can be over 3km (1.86 miles) underground and have vast webs of over 800,00km (497,000 miles) of tunnels. The challenge was for Sibanye Stillwater to find a telematics system that will communicate, log and transmit data with no cellular services deep into the earth.

The Solution

Engine Control System (ECS) is one of the leading suppliers of slow down and stop systems for earth moving equipment. Sibanye Stillwater partnered with ECS for the solution.

To overcome the challenge, ECS chose to work with HED, Inc. for the capabilities of their CANect Telematics portfolio. Upon initial setup, the CANect system was implemented quickly and within a matter of hours the basic functionality was completed and offered the following capabilities:

- Local data logging and cache of log files
- File storage transport to an FTP server
- Local file downloads from machines through a local web interface

CANect Telematics is an end-to-end monitoring solution that includes a robust telematics module to withstand harsh elements, CANect Composer - an out-of-the-box, configurable Graphical User Interface (GUI), robust data logging capabilities and on and off-site access to data stored on a fleet of loader machines.

By simply leveraging the pre-existing Wi-Fi infrastructure within the mines, ECS together with HED developed software allowing the CANect Module to store and transmit critical information to the mine's servers each time a machine encounters a configured wireless access point. This functionality also allows data to be reviewed daily while being maintained on an internal network for security.

***“Engine Control Systems is one of the few companies in Africa that offers the best solution when it comes to telematics. With the support from HED and the CANect module, we have been the leading company in telematics technology across Africa. The performance and efficiency of CANect has made it possible for us to incorporate the unit into almost all of our systems we offer to our customers, ranging from slow down and stop systems, engine protection systems, all-purpose pump systems and much, much more.*”**

Together with HED, Engine Control Systems will ensure a bright future for all companies in Africa seeking telematics and remote viewing for their convenience and security.” Stated Rudi de Beer, CEO Engine Control Systems

ECS continues to develop the project and has added the CANect View™ application which allows local access to all vehicles using any smart device. Future development is planned for the use of mesh networking to connect and reach machines that are out of Wi-Fi range. To assist Sibanye Stillwater with data visualization, ECS developed an additional application to easily read, sort and display data using log files from the CANect modules.



HED CANect® module on mining machine

The Results

Firmware is programmed into the CANect Module to receive live updates allowing the machines to share data as they pass each other underground during production. Sibanye Stillwater receives all machine data even when there is an incident or the machine is broken down underground. This ensures the customer will never lose the data required to investigate production lost, incidents and break downs.

To date, over 150 Sibanye Stillwater LHD and UV machines have been updated with the CANect telematics unit and any rebuilt machines will also be fitted with the module. The Sibanye Stillwater Rustenburg / Kroondal operations has an estimated 250 machines in total.



Sibanye Stillwater mining machine

Solution Benefits



Speedy deployment

By streamlining the path to the cloud with fast connectivity



Reduced downtime

Ensuring proper maintenance



Lower cost of ownership

Provides owners visibility through remote monitoring of fleet and operator use



Improves safety

Data logging for a crash avoidance alert system

About ECS

Engine Control Systems (ECS) is a leading integrator of mobile electronics located in Johannesburg, South Africa. At ECS they are able to support customer specific needs through custom box builds, software and harness design. The main market served by ECS is mining but they have experience in other mobile markets as well. Visit them at <https://ecs-sa.co.za/> to learn more.

About HED

Located in Hartford, Wisconsin, HED, Inc. is a leading designer and manufacturer of electronic controls and telematics solutions for mobile equipment applications. Incorporated in 1986 and privately held, the company maintains a broad, comprehensive line of products to meet the growing and changing needs of the on and off-highway heavy equipment markets it serves. Whether a simple on-off control for a hydraulic valve or a complex distributed intelligence system for total machine control, HED's mission is to help vehicle designers engineer optimized solutions to challenging vehicle control and monitoring applications. Visit www.hedonline.com to learn more.

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