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Ausdrill collaboration makes safer rock scaling a virtual reality

The application of robotics and virtual reality technology to the mining industry is taking another step forward under a research collaboration between Perenti subsidiary Ausdrill, the University of Technology Sydney (UTS) and the Innovative Manufacturing CRC (IMCRC).

The three organisations have committed to developing a new system to make rock scaling operations safer. Dubbed Project HALO (High Access Localised Operations), the robotic system with high-level autonomous control will create a safer way to conduct rock scaling operations with the use of virtual reality (VR).

Rock scaling is the process of “cleaning” a rock surface that has been blasted, ahead of mining. The purpose of rock scaling is to remove any loose or unstable rocks from a blasted surface that could fall and potentially injure people working in the area or damage equipment.

The process has traditionally been done by manual means – by specialised teams who abseil along a rock surface to clear away loose rock. The introduction of robotics will have multiple safety benefits.

The \$460,000 project, jointly funded by Ausdrill and IMCRC, will create the next evolution of a HALO platform developed by Ausdrill and UTS in 2020. The project team, led by Dr Gavin Paul at UTS, will integrate a robotic arm that is suitable for performing rock scaling in a range of mining environments, and add a control system capable of translating human motion and commands into corresponding robotic actions. The project will also explore VR interfaces and devices to connect the HALO platform to an operator.

Ausdrill aims to develop a new prototype that can be tested within the field and produced in its Perth manufacturing facility.

HALO will solve multiple occupational health and safety problems and also create a range of technology-based value-added opportunities, such as addressing the current shortage of personnel qualified and certified to perform rock scaling activities.

Ausdrill Chief Operating Officer Roy Coates said the use of innovative virtual reality technology and 3D interfacing will create a safer and customisable process that has never been seen before.

“Halo is a revolutionary new technology that will improve the safety and efficiency of rock scaling operations while also reducing the associated costs.

“We are using technology to re-engineer how we perform rock scaling to eliminate the risks associated with working at heights and reduce our employees’ exposure to hazards. This project demonstrates our commitment to safety and eliminating hazards for our workforce.”

Simon Dawson, Director Industrial Transformation at IMCRC added “The fusion of these technologies, especially, the online control of a robotic system through virtual reality is a novel concept. It



demonstrates what's possible and how robotics, automation and virtual reality can be applied in a practical sense to support and advance the manufacturing industry within Australia.

"In times like these, innovation has never been more important. We are happy to be supporting Ausdrill in developing a tool that can be used across the world."

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