

De Beers uses IoT geofencing safety solution on mining vessel

In line with its Zero Harm objectives, De Beers has teamed up with Orange Business Services to provide geofencing to maintain safe working distances for crew around the heavy machinery involved in marine diamond mining operations.



The customised internet of things (IoT) solution was successfully piloted on board the MV Mafuta, currently the world's largest offshore diamond mining vessel owned and operated by Debmarine Namibia and operating up to 150 km off the coast of Namibia, in southern Africa.

In the pilot, Orange Business Services imported the Mafuta's AutoCAD files and undertook an onboard site survey to map antenna locations to geofence a predetermined area on the vessel. Ten crew members were equipped with wrist sensors. If one of the crew breached the geofenced area onboard the vessel, the ship's bridge was alerted immediately.

De Beers Group Technology SA, an R&D arm of De Beers Group, is now further exploring additional applications, such as a breach alert function to link the sensors directly to the mining machinery via a SCADA (supervisory control and data acquisition) control system and PLCs (programmable logic controllers), to facilitate a failsafe cut-off in the event of a breach in the geofence.

Pilot phase

"Debmarine Namibia has a very clear aim of 'zero harm' across all our operations, and we are constantly looking at ways of enhancing employee safety and especially around the heavy machinery required for diamond recovery operations. The initial engagement consultation and joint workshop with the team from Orange Business Services was very productive and quickly identified the potential for an IoT solution to ensure the wellbeing of personnel onboard the vessels. We quickly moved to a pilot phase, which has now confirmed the potential of this innovative approach that we could embed within our existing safety processes and procedures," says Gerhardus Theron, vessel manager of the MV Mafuta.

“This smart IoT solution developed with De Beers is a great example of innovating and co-creating with our customer. The geofencing pilot has already proved successful in one of the most challenging heavy industrial environments - a floating diamond mine at sea, with prolonged exposure to strong vibration and corrosive saltwater. The next phase of its development will aim to refine the interface and data collection capabilities, and include testing a trigger function to deactivate machinery in the event of a breach of the geofence by a crew member,” said Keith Matthews, country manager for South Africa, Orange Business Services.

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