

Tread alert

AI helps to prevent tyre malfunctions

Kal Tire's Mining Tire Group and computer vision specialist **Pitcrew AI** have formed a partnership that will bring mines autonomous detection of tyre faults without the need for a vehicle to stop.



Tyre faults can be detected while a vehicle is still moving

With any inspection anomalies automatically transmitted into TOMS, Kal Tire's proprietary tyre operations management system, the integration between Pitcrew and TOMS enables action and decision-making that will further enhance fleet productivity and safety.

"Tyre pressure monitoring systems (TPMS) can give a strong picture of what's happening inside the tyre, but so much that can indicate the potential for failure happens outside the tyre. We knew if we wanted to give customers the ability to make better operational

decisions – and be a part of the future of autonomous mining – we'd need to add external telematics to the mix," says Dan Allan, senior vice-president, Kal Tire's Mining Tire Group.

"Autonomous inspection will be a requirement for the autonomous fleets of the future. Our partnership with Kal Tire will increase access to diverse site operational conditions and accelerate the maturation of Pitcrew AI inspection technologies," adds Tim Snell, managing director of Pitcrew AI.

The automated inspection stations monitor front and rear tyres of mining trucks passing by. The artificial intelligence (AI) software searches

the thermal imaging video footage for anomalies such as hot spots, belt edge and tread separations and other mechanical problems. These findings are reported into TOMS. The system then automates inspection work orders as part of a self-reinforcing feedback loop and then schedules tyre change work as necessary based on damage severity.

"We are really excited by the potential of what we might find when we combine the Pitcrew data with TPMS and our other data streams. Together, these tools bring incredibly valuable information about how the tyres are performing. We intend to build predictive models that will enable Kal Tire and our customers to make better and earlier decisions about preventive tyre repair or replacement, and that will have a significant impact on driving haul truck productivity and safety," says Christian Erdélyi, TOMS system and implementation manager global, Kal Tire.

With the system demonstrating proven success operating in hot weather regions in Western Australia, Kal Tire has worked with Pitcrew to develop a cold weather version capable of withstanding temperatures of -45 degrees Celsius. A test 'winter model' is currently operational in northern Canada.

"There is also great potential for this real-time inspection technology in underground mines where doing regular equipment inspections can be challenging as well as to support the growing move towards autonomous mining. That's why we're investing resources so heavily in this solution," adds Erdélyi.

With a range of customers showing definitive interest in the system, Kal Tire and Pitcrew expect to extend the number of automated inspection stations operating across Kal Tire serviced sites using TOMS in 2022. **MRA**