

Automotive News Canada

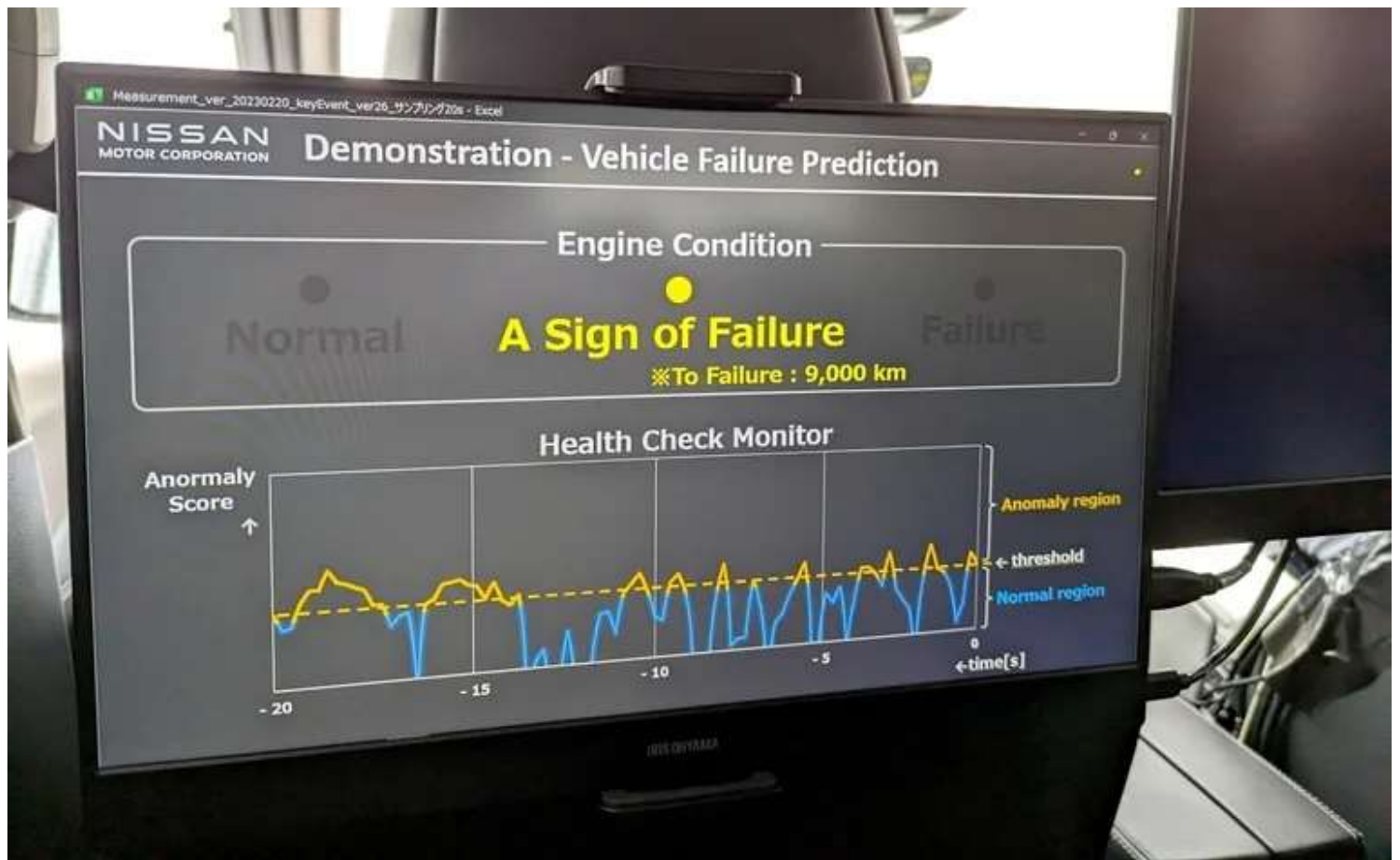
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Canada's Acerta Analytics Solutions, Nissan test AI tool made to prevent failures

New tool pulls data from the vehicle's electronic control unit and uses machine learning algorithms to predict outcomes

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Researchers from Nissan Motor Co., and Canadian tech firm Acerta Analytics Solutions Inc. are putting a new artificial intelligence tool designed to predict engine component failures through its paces.

On a snow-strewn test track in Waterloo, Ont. Feb. 23, researchers from [Nissan Motor Co.](#), and local [tech](#) firm Acerta Analytics Solutions Inc. put a new [artificial intelligence](#) tool designed to predict engine component failures through its paces.

A line representing the health of the engine bounced up and down on an onboard monitor like a cardiogram as the test vehicle made a short circuit, driving slowly along with nothing perceivably wrong with the engine.

But as the vehicle slowed to stop, yellow indicators lit up the monitor. “A sign of failure,” it warned, showing the condition of the engine had climbed into unhealthy territory a handful of times during the drive.

The tool, which pulls data from the vehicle’s electronic control unit and uses machine learning algorithms to predict outcomes, estimated the fuel injector in the vehicle would fail in 9,000 kilometres.

“Finding that early indicator of a failure, and predicting that failure is going to get worse over time and actually lead to an on-road failure ... has been a big leap,” said Acerta CEO Greta Cutulenco.

The early-stage tool is the result of a \$1.4-million research partnership between Acerta and Nissan’s Yokohama-based research division.

On-hand for the demonstration, Kazuhiro Doi, corporate vice-president of Nissan’s research division, said the collaborative project is just a “first step” for the company.

Eventually, Doi added, predictive analytics could become a standard part of Nissan’s service packages, preventing on-road failures before they occur. The current tool is limited to fuel injector failures, but the company is already looking at broadening its application to other parts of internal combustion engine powertrains, cameras in advanced driver assistance systems, as well as electric vehicle components.

Developing the series of machine learning algorithms for a fleet of test vehicles is also a new endeavour for Kitchener, Ont.-based Acerta. The company, founded in 2017, has been mainly focused on in-plant applications of artificial intelligence to detect part quality issues up to this point.

“From that perspective, it’s a bit of a different application, in terms of looking at one vehicle for a very long time, as opposed to many, many components that are passing through very short cycles of testing and assembly data,” Cutulenco said.

The research project, officially initiated last year, also has potential to catalyze closer collaboration between Nissan's global research office and Ontario's overlapping technology and automotive clusters.

'MORE POTENTIAL TO WORK TOGETHER'

Along with taking in the demonstration in Waterloo, Doi said his trip to Canada was designed to scout possible partnerships with other AI leaders.

"I think we have more and more potential to work together," he said, pointing to start-ups and university-based researchers in both Waterloo and Toronto.

Today, much of Nissan's North American AI research takes place at its office in Silicon Valley.

Raed Kadri, head of the Ontario Vehicle Innovation Network (OVIN), which backed the Nissan-Acerta project with a roughly \$350,000 investment, said the partnership and Doi's visit represent the type of collaborative atmosphere the province-backed auto development organization is designed to foster.

"It sends a message to the rest of the world and says, 'Hey, come knock on our door, we've got a lot to show here.'"

Acerta and Nissan are assessing possible next steps for their partnership, but to date, have not firmed up plans for future collaborative work.

Inline Play

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