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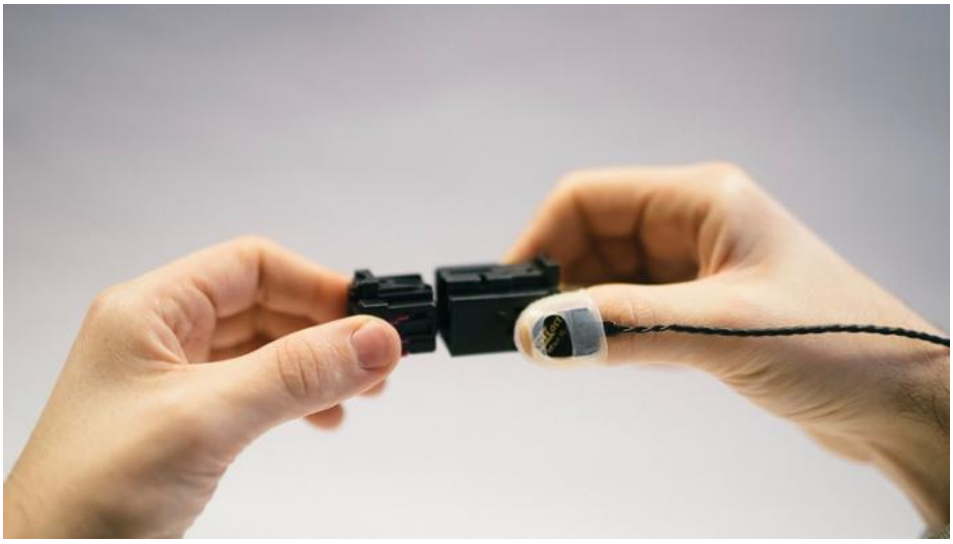
An eye for mistakes

Porsche develops artificial neural networks for Production 4.0.

Porsche has developed a new solution for preventive maintenance: Artificial intelligence recognises noises and vibrations and uses deviations from normal behaviour to interpret machine errors.
In collaboration with the start-up iNDTact, the Porsche Digital Lab in Berlin has developed a system that recognises problems based on anomalies in vibrations and reports them accordingly. This innovative solution utilises the vibrations that are generated by every moving system and every machine. They are as unique as a human fingerprint, which is why artificial intelligence can detect even the smallest anomalies.



The system recognises problems based on anomalies in vibrations

Predictive maintenance is a core component of Industry 4.0. It involves servicing machines and systems proactively in order to minimise downtime. Unlike preventive maintenance, service intervals are not defined in advance but are determined and optimised using technology. Predictive maintenance therefore has many advantages over preventive or reactive approaches to maintenance. Total system failures can be reduced by continuously monitoring a machine's current status.
The Porsche Tech Laboratory has identified various different applications for artificial intelligence, including the status of a connector during production, quality analysis of supplied parts and predictive maintenance.

Consumption data

Panamera 4 E-Hybrid: Fuel consumption combined 2.5 l/100 km; CO2 emissions 56 g/km; electricity consumption (combined) 15.9 kWh/100 km
Panamera Turbo S E-Hybrid: Fuel consumption combined 2.9 l/100 km; CO2 emissions 66 g/km; electricity consumption (combined) 16.2 kWh/100 km
Panamera 4 E-Hybrid Executive: Fuel consumption combined 2.5 l/100 km; CO2 emissions 56 g/km; electricity consumption (combined) 15.9 kWh/100 km
Panamera Turbo S E-Hybrid Executive: Fuel consumption combined 2.9 l/100 km; CO2 emissions 66 g/km; electricity consumption (combined) 16.2 kWh/100 km
Panamera 4 E-Hybrid Sport Turismo: Fuel consumption combined 2.6 l/100 km; CO2 emissions 59 g/km; electricity consumption (combined) 15.9 kWh/100 km
Panamera Turbo S E-Hybrid Sport Turismo: Fuel consumption combined 3.0 l/100 km; CO2 emissions 69 g/km; electricity consumption (combined) 17.6 kWh/100 km
Cayenne S E-Hybrid Platinum Edition: Fuel consumption combined 3.4 - 3.3 l/100 km; CO2 emissions 79 - 75 g/km; electricity consumption (combined) 20.8 - 18.6 kWh/100 km
911 GT3 RS: Fuel consumption combined 12.8 l/100 km; CO2 emissions 291 g/km
Model Range Panamera: Fuel consumption combined 9.5 – 6.7 l/100 km; CO2 emissions 217 – 171 g/km

Link Collection

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https://goo.gl/5cGSaK

Media Package
https://newsroom.porsche.com/media-package/porsche-production-4-0-artificial-intelligence-ai-neural-networks-indtact-predictive-maintenance-tech-laboratory-digital-lab-berlin

Videos
https://player.vimeo.com/video/257861263