VIRTUAL SENSORS

Case Study: COMPREDICT
AI-based Virtual Sensors with performance guarantee

The case

Because the smartest sensor is the one which does not exist, COMPREDICT has developed a purely software-based technology called Virtual Sensors, which combines automotive and durability expertise with machine learning approaches. It allows OEMs and Tier 1 suppliers to replace legacy hardware sensors and consequently to reduce the amount of electronics in vehicles. Virtual Sensors can also add new measurement capabilities to vehicles at low cost, enabling them to sense information that they usually cannot. COMPREDICT's Virtual Sensors has also the ability to monitor vehicle health and usage, and to sense the future by forecasting component wear and fatigue and detecting potential failures early.

COMPREDICT's mission is to transform raw vehicle data into insightful Virtual Sensors to close the loop between the development, usage, and service of vehicles, thus enabling a holistic consideration of the whole vehicle lifecycle to achieve component right sizing, weight reduction and efficient predictive maintenance. All of this contributes to reducing the environmental footprint of vehicles for more efficient and sustainable mobility.

The challenge

With the ever-increasing trends of connected vehicles and sustainable mobility, vehicle OEMs and Tier 1 suppliers must produce vehicles that are smarter and more efficient in terms of development, monitoring, safety and usage-based service. It is becoming extremely important for vehicle manufacturers to be able to analyse the in-vehicle data and get additional insights to understand usage, thus maintaining the vehicle in a healthy condition and achieving better sized vehicle components. Getting such insights would usually require the use of additional traditional physical sensors, which is largely unaffordable in terms of

cost or technical requirements. This is where AI-based Virtual Sensors comes in. However, developing accurate Virtual Sensors requires experienced data science teams with specific know-how and a well-established software infra-structure, both of which might be cost intensive. Furthermore, taking decisions based on AI models requires trust, which OEMs usually see as a risk. Therefore, it is important to have a solution which can get accurate data-driven insights to maximize the quality of products, while minimizing the risks for the automotive industry.

The solution

COMPREDICT's AI-based Virtual Sensors technology enables vehicle manu-facturers and fleet operators to gain a deeper insight into how their vehicles' safety-critical components are used. It converts vehicle data into vehicle insights by measuring quantities like loads, stresses, or wear. Additionally, Virtual Sensors estimates the remaining lifespan of vehicle components to identify issues early and cut down on expensive warranty and maintenance costs. By integrating Virtual Sensors in vehicles, COMPREDICT maximizes the quality of products and minimizes the environmental footprint of mobility over the entire product lifecycle, from design to fleet management and re-use, through an efficient combination of data science and in-depth vehicle know-how.

To convince its customers and partners of the reliability, robustness and performance of the solution, COMPREDICT is partnering with a Munich Re Group Company to provide customers with a performance guarantee for the event of underperformance by the Virtual Sensors.

A Munich Re Group company ran a due diligence on the performance of COMPREDICT's AI Virtual Sensors, adding an additional seal of quality, trust and credibility to the application. More specifically, COMPREDICT now offers its solution in combination with a performance guarantee for the accuracy of Virtual Sensors backed by a Munich Re Group Company.
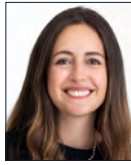
About Munich Re

Munich Re is one of the world's leading providers of reinsurance, primary insurance and insurance-related risk solutions. Since it was founded in 1880, Munich Re has been known for its unrivalled risk-related expertise and its sound financial position. It offers customers financial protection when faced with exceptional levels of damage. Munich Re possesses outstanding innovative strength. The company is playing a key role in driving forward the digital trans-formation of the insurance industry, and in doing so has further expanded its ability to assess risks and the range of services that it offers. The insurance for COMPREDICT is underwritten by a primary insurance carrier of the Munich Re Group, which is an S&P AA- rated international insurance company.

About COMPREDICT

COMPREDICT is a Germany-based provider of AI-based Virtual Sensors that enable large-scale exploitation of in-vehicle data, especially for monitoring vehicle health and usage. COMPREDICT's Virtual Sensors technology enables OEMs, Tier 1 and fleet operators to gain deeper insights into how their vehicles are used and how they behave under real-life conditions. COMPREDICT's unique approach combines automotive and durability expertise with machine learning, and allows value-added insights on both wearable and non-wearable automotive components. The solution can be implemented in any type of vehicle regardless of its development stage, either embedded or as a cloud solution.

Contact

Susana Latorre Bojanini
Market Lead Europe & Middle East
Tel.: +49 (0) 89 3891-3249
SLatorreBojanini@munichre.com