

Case Study

A|2|O Technology Group

Background

A|2|O Technology Group pioneers advanced on-board, fully active structural and condition health monitoring, as well as component usage insight. Their 'CHASM' system delivers robust, real-time structural and condition monitoring.

Key applications include predictive maintenance and enhanced safety for high-reliability, safety-critical systems such as Connected Autonomous Vehicles (CAVs) and Renewable Energy Systems.

The on-board CHASM system identifies and monitors potential structural failures before they escalate into critical problems, thereby reducing the reliance on lengthy and expensive preventative maintenance strategies that are typically employed. The information gained can also be used to inform design and validate usage profiles. This innovative system was developed in collaboration with commercial partners and a team of highly skilled scientific engineers.

Delivery Partner

VEC

Challenge

Business owner Dr Chris Berg reached out to the VEC to continue their long-term and ongoing collaborative relationship.

Chris explained that the concept behind A|2|O's CHASM system was difficult to communicate to potential partners and investors. The unprocessed data collected by the system can be challenging to articulate to non-experts and hard to present in a user-friendly manner.

A visualisation demo that intuitively displayed data captured by the CHASM system would help A|2|O convey its value to a wider audience.

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Solution

By working closely with A|2|O, the VEC gained a comprehensive understanding of the technology, processes, and outputs through an in-person visit to witness a supercar chassis equipped with the CHASM monitoring system. This hands-on approach allowed for a detailed exchange of insights and data.

VEC received the chassis data, organised a transfer session to obtain the 3D model, and secured A|2|O's data-processing scripts. With these inputs, VEC set up a test environment to process the vehicle chassis data.

With direct access to the raw data, VEC validated the processing scripts, built a repeatable data-processing pipeline, and produced an interactive visual demo. This proof-of-concept tool visually demonstrates the end-to-end workflow and its outputs, supporting better communication and enhanced understanding of external partners and potential investors.

Delivery Partner

VEC

Impact

Going forward, this solution gives A|2|O a robust framework for analysing and presenting data. The collaboration has empowered A|2|O to leverage these insights in their operations and engage stakeholders more effectively, clearly communicating benefits such as support for preventive maintenance, design validation, and the related cost implications.

Furthermore, the project concept was submitted to the Horizons UKSPF Grant and approved by an impartial panel. This approval allows Chris and his team to use the resource to further develop the tool, make enhancements where feasible, and adapt it as their systems evolve.