Capgemini

Global OEM continues its journey to autonomous driving

Capgemini applies its engineering, data and technology expertise to develop end-to-end systems for gathering, analysing and storing testing data and advance automated driving technologies for our global OEM client.

The future is autonomous

The automotive industry is moving steadily towards intelligent automation, with Advanced Driver Assistance Systems (ADAS) increasingly integrated in today's cars through features like adaptive cruise control, parking assistance and forward collision warning. It's clear that the future is autonomous, with 15% of cars sold in 2030 forecasted to be fully autonomous and, by 2035, 95 million autonomous cars expected to be sold annually. This move to more intelligent driving systems will bring many potential benefits: fewer accidents due to human error, a drop in the cost and environmental impact of transport, safer and more accessible driving, to name just a few.

Achieving increased autonomy, however, brings a host of challenges for OEMs such as our client. They must innovate quickly while ensuring their technology infrastructure remains stable, scalable and reliable. In addition, to specifying complex systems by mission profile studies, an absolute focus on safety means verification and validation (V&V) of ADAS is paramount – involving billions of kilometres of road tests alongside simulated modelling, as well as huge amounts of data to be processed, stored and analysed.

Overview

Client: A global OEM

Sector: Automotive

Client Challenge:

To stay competitive, our global Original Equipment Manufacturer (OEM) client needed to advance its automated driving technologies quickly yet safely, which meant managing exponentially increasing amounts of data and systems complexity. The IT infrastructure needed to be rethought, to adapt to the architecture of data collection, storing and exploitation required by different teams.

Solution

Using Capgemini Engineering's unique combination of automotive engineering, data and technology expertise, the global OEM has been able to move further faster on the exploitation of the huge volume of data generated by the test campaigns.

Benefits:

- More connected and optimised end-to-end data mining

- New datasets, proofs of concepts and use cases for training models and algorithms

- More robust systems and processes for gathering, storing and analysing the vast amounts of data from road tests and simulated driving

Our client's opportunity

Our client is a global leader in vehicle automation. Through one of its flagship programme, it is working to make autonomous cars safe, intuitive and accessible to as many customers as possible across a number of its brands.

Thanks to early investments in AD/ADAS, our client was the first car manufacturer to test the autonomous car on open roads, which it did in France in 2015. It was also the first to experiment with non-experts behind the wheel in 2017. It's now working to move beyond the level 1 and 2 automation features already available in its cars (emergency braking, park assist, some hands-off automated functions) to equip its premium products with functions that facilitate automated 'eyes-off' driving in certain conditions, such as traffic jams or highways.

To do this, our client must innovate at scale while adhering to evolving environmental and safety regulations. As well as on-road testing with prototypes, this involves using virtual modelling and constant learning to create sufficient amounts of data. The advances in autonomous technologies and validation requirements are bringing exponential increases to the system complexity and volumes of ADAS test data, which must be kept for 30 years.

Advancing autonomy together

The collaboration began as part of the L3Pilot European automated driving testing project, which has so far involved 34 partners, 1000 drivers, 100 cars and 10 countries to test level 3 and 4 automated functions in situations such as traffic jams, motorways, parking and urban driving.

Using its unique combination of engineering, data analytics and technology expertise, Capgemini/Altran (now Capgemini Engineering) is also building and scaling both on-premise and cloud networks for our client's ADAS, providing a secure platform for the petabytes of data that validation and verification creates. The fully managed end-to-end platform provided allows the global OEM to enhance their proven validation processes, tools and technologies with an optimum blend of digital methodologies and testing environments. From July 2020, the global OEM and Capgemini/Altran have been applying this integrated approach to a government-funded project aiming to accelerate the development of autonomous vehicles.

The ongoing collaboration with Capgemini/Altran is helping the global OEM and its partners to excel in an industry under pressure from changing consumer behaviours, climate change and disruptive technologies. Through agile adaptation and intelligent innovation, our client continues to accelerate its journey to autonomous driving and safer, more comfortable journeys for its customers.

About Capgemini

Capgemini is a global leader in partnering with companies to transform and manage their business by harnessing the power of technology. The Group is guided everyday by its purpose of unleashing human energy through technology for an inclusive and sustainable future. It is a responsible and diverse organization of 270,000 team members in nearly 50 countries. With its strong 50 year heritage and deep industry expertise, Capgemini is trusted by its clients to address the entire breadth of their business needs, from strategy and design to operations, fuelled by the fast evolving and innovative world of cloud, data, AI, connectivity, software, digital engineering and platforms. The Group reported in 2020 global revenues of €16 billion.

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About Capgemini Engineering

Capgemini Engineering combines, under one brand, a unique set of strengths from across the Capgemini Group: the world leading engineering and R&D services of Altran - acquired by Capgemini in 2020 - and Capgemini's digital manufacturing expertise. With broad industry knowledge and cutting edge technologies in digital and software, Capgemini Engineering supports the convergence of the physical and digital worlds. It helps its clients unleash the potential of R&D, a key component of accelerating their journey towards Intelligent Industry. Capgemini Engineering has more than 52,000 engineer and scientist team members in over 30 countries across sectors including aeronautics, space and defense, automotive, railway, communications, energy, life sciences, semiconductors, software & internet and consumer products.

Learn more at:

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