Volvo Cars and Varjo launch world-first mixed reality application for car development

The future of car development is here: Volvo Cars and Varjo, the Finnish maker of high-end augmented reality headsets, have created a world-first mixed reality approach to evaluating prototypes, designs and active safety technologies.

The collaboration will be further strengthened by the Volvo Cars Tech Fund’s decision to invest in Varjo. The Tech Fund is the car maker’s venture capital fund which invests in high-potential technology start-ups.

Volvo Cars and Varjo have made it possible for the first time to drive a real car while wearing a mixed reality headset, seamlessly adding virtual elements or complete features that seem real to both the driver and the car’s sensors, for development purposes. Until now, no other car maker has been able to do this.

The Varjo XR-1 headset, launched today, provides photorealistic mixed or virtual reality at a high-definition resolution better than anything currently available. As such, the XR-1 can radically reduce development timeframes by creating the new ability to evaluate features and designs almost immediately.

Compared to its predecessor, the XR-1 adds high-definition cameras to the headset and enables mixed reality. This allows Volvo Cars designers and engineers to ‘drive’ future cars and evaluate all features in a simulation environment many years before they exist, enabling the company to develop the safest cars with the most refined user experience possible.

“With this mixed reality approach, we can start evaluating designs and technologies while they are literally still on the drawing board,” said Henrik Green, chief technology officer at Volvo Cars. “Instead of the usual static way of evaluating new products and ideas, we can test concepts on the road immediately. This approach offers considerable potential cost savings by identifying priorities and clearing bottlenecks much earlier in the design and development process.”

The XR-1 also allows Volvo Cars engineers to develop and evaluate active safety solutions much easier. Safety experts are able to drive real cars while wearing the XR-1 headset at Volvo’s research facilities in Sweden, testing virtual active safety systems imposed via augmented reality on the real-life environment.

Highly accurate eye-tracking technology embedded inside the XR-1 makes it easy to assess how drivers use a new functionality and whether they are distracted in any way. This technology-based approach to measuring distraction levels ensures that Volvo Cars can develop new features without causing additional distraction.

“From the very beginning, our vision has been to create a product that can seamlessly merge the real and the virtual together,” said Niko Eiden, founder and CEO of Varjo. “The incredibly advanced ways in which Volvo Cars uses the XR-1 show that Varjo’s technology enables things that have been previously impossible. Together with Volvo we have started a new era in professional mixed reality.”

Volvo Cars is a trailblazer within the car industry in using augmented and virtual reality in its design and development work. The partnership with Varjo is the latest and most advanced manifestation of the company’s strong position in this area. Volvo Cars believes in the power of smart partnerships with leading tech companies to develop next-generation technologies.

“Varjo is a clear leader in its field,” says Zaki Fasihuddin, CEO of the Volvo Cars Tech Fund. “The company’s technology promises a lot for the future, but also offers clear applications already today for Volvo Cars. Varjo is a textbook example of the type of companies we seek to invest in.”
The Varjo XR-1 headset and Volvo Cars’ application of the technology are demonstrated as of today at the Augmented Reality World Expo in Santa Clara, California. A patent has been filed for the application of the technology.

Volvo Car Group in 2018
For the 2018 financial year, Volvo Car Group recorded an operating profit of 14,185 MSEK (14,061 MSEK in 2017). Revenue over the period amounted to 252,653 MSEK (208,646 MSEK). For the full year 2018, global sales reached a record 642,253 (571,577) cars, an increase of 12.4 per cent versus 2017. The results underline the comprehensive transformation of Volvo Cars’ finances and operations in recent years, positioning the company for its next growth phase.

About Volvo Car Group
Volvo has been in operation since 1927. Today, Volvo Cars is one of the most well-known and respected car brands in the world with sales of 642,253 cars in 2018 in about 100 countries. Volvo Cars has been under the ownership of the Zhejiang Geely Holding (Geely Holding) of China since 2010. It formed part of the Swedish Volvo Group until 1999, when the company was bought by Ford Motor Company of the US. In 2010, Volvo Cars was acquired by Geely Holding.

In 2018, Volvo Cars employed on average approximately 43,000 (39,500) full-time employees. Volvo Cars head office, product development, marketing and administration functions are mainly located in Gothenburg, Sweden. Volvo Cars head office for China is located in Shanghai. The company’s main car production plants are located in Gothenburg (Sweden), Ghent (Belgium), South Carolina (US), Chengdu and Daqing (China), while engines are manufactured in Skövde (Sweden) and Zhangjiakou (China) and body components in Olofström (Sweden).

About Varjo
For further information, please visit https://varjo.com/

Media Contacts
Volvo Cars Media Relations
Phone: +46 31-596525
media@volvocars.com

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ID: 253690
ID: 253687
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"With this mixed reality approach, we can start evaluating designs and technologies while they are literally still on paper," said Zaki Fasihuddin, CEO of the Volvo Cars Tech Fund. "The future of car development is here."