

SUCCESS STORY | AUDI BUSINESS INNOVATION

VIRTUAL REALITY PERSONALIZES THE LUXURY CAR BUYING EXPERIENCE



Customer view of 2017 A8 next-generation dashboard in virtual reality



AUDI Business Innovation embraces VR to give life to their customers' dream cars.

ELEVATING CUSTOMER SATISFACTION



The Audi VR experience gives customers a close view of the 2018 A8 headlight details

REASONS FOR QUADRO P6000

- > Fueled by NVIDIA® Pascal™, NVIDIA's state-of-the-art GPU architecture
- > 3,840 CUDA parallel processing cores, 24GB GDDR5X RAM, with PCI Express 3.0 x16 interface
- > 12 TFLOPS 32-bit floating point performance
- > Low latency, even with large models with millions of polygons
- > Professional support for software applications

Audi is one of the world's leading manufacturers of luxury cars with nine global production facilities and more than 80,000 employees. The virtual reality development team is located at Audi Business Innovation GmbH in Munich, Germany where a team of 20 people work on VR for marketing and sales. Audi employs more than 100 people across all of its VR initiatives.

Audi manufactures more than 50 models, and each model is available in many different configurations. For example, the Q3 alone can be produced in over 3,000,000 different combinations. This means that no dealership can stock a truly representative sample of each model. Each purchase therefore requires a detailed walkthrough of each customer's unique requirements from the engine type and exterior color to the wheels, interior color, decorative inlays, steering wheel, and accessories.

This meticulous process becomes even more challenging if the customer changes their mind. Each change requires at least a phone call to the dealership and perhaps another visit. In fact, the average customer visited the showroom or dealership seven times following changes to their initial order, resulting in wasted time and often some frustration before concluding the transaction. From the dealership perspective, each repeat phone call or visit represents time and effort that cannot be invested in helping another customer

CUSTOMER PROFILE



Organization
Audi

Industry
Automobile
manufacturing

Location
Headquartered
in Ingolstadt,
Germany

Employees
Over 80,000
employees

Website
www.audi.com



Inside Customer Private Lounges clients experience their custom tailored Audi in a fully immersive digital environment.

PRODUCTS

NVIDIA Quadro P6000

Oculus Rift and HTC Vive headsets

“The dealer hands the customer a VR headset for an immersive 360-degree experience that feels just like walking around and sitting inside their very own one-of-a-kind luxury automobile.”

Thomas Zuchtriegel
Head of AR/VR Process
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and also introduces the possibility of error. It may even be too late for the dealer or factory to implement the desired changes in the finished automobile, such as switching exterior paint colors. All of these hurdles impact customer satisfaction and retention.

NVIDIA EMPOWERS THE DISCERNING LUXURY CAR BUYER

Audi began exploring virtual reality for sales in 2014. The process used the original models created in Dassault Systèmes CATIA and then prepared and finished in 3DEXCITE Deltagen. Two NVIDIA Quadro GPUs in SLI mode rendered the final experience. Audi debuted the first VR sales experience at three dealerships in Brazil to test the visualization, interaction, and overall value of this approach.

“A customer receives the Audi Code, an eight-digit code representing their unique car configuration” explained Thomas Zuchtriegel, Head of AR/VR Process & Technology at Audi Business Innovation GmbH. “The dealer inputs selected options on a tablet and generates a 3D visualization of the proposed configuration on a 98” HD screen for initial approval and the ‘wow’ of seeing their dreams come to life. The dealer then hands the customer a VR headset for an immersive 360-degree experience that feels just like walking around and sitting inside their very own one-of-a-kind luxury automobile.”

The 3D models used for visualizations contain about 5,000,000 polygons because annual model changes and short lead times don’t allow enough time to manually create low-poly versions. With earlier versions, latency

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exceeded 100ms, which can induce motion sickness. Ongoing Quadro software driver improvements as well as doubling the available frame buffer by upgrading to NVIDIA Quadro P6000 GPUs in HP Z840 workstations reduced latency to under 20ms. This low latency provides a smooth, motion sickness-free customer experience. Current VR setups in the dealerships include the car interior and space for customers to walk around the virtual car as if it were on the showroom floor—or in their driveway.

Giving dealers the ability to display any Audi model in any possible configuration has transformed the car buying experience. Customers who experience their cars in VR need only visit the dealership once or twice to select their perfect car. They are able to make customization decisions more effectively, for instance visualizing the difference between Ibis White and Glacier White exterior paint. Dealerships have more time to focus on other important customer interactions, and last-minute change requests are a thing of the past. The time taken to present the immersive VR experience is more than made up for by savings across the entire sales process.

“Adding interior and exterior VR experiences bring the customer’s wants and needs to life in an immersive, real-time environment,” continued Zuchtriegel. “The VR experience is enjoyable and elevates car buying to the premium level our customers expect from the Audi brand. The NVIDIA Quadro P6000 provides fantastic realism with virtually no latency. The result is that the dealer profits by reducing the time required for each sale and being able to attend to more customers. They may also be able to introduce upgrades and other premium options. Most importantly, customers can be sure that the cars they are buying truly match their specifications.”

Audi currently has 30 VR setups in nine countries, with 100 expected by the end of 2017. The company will have a VR presence in 26 markets in 2018, and plan to expand in up to 60 markets, including the United States.

To learn more about NVIDIA
Quadro VR Solutions, visit:
www.nvidia.com/quadrovr

www.nvidia.com



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