Thu, 10 August 2023
Weekly Newsletter

DVN-I
Automotive Interior

NEWSLETTER #173

Editorial

Lighting Makes Interiors Sing!

AUDI IMAGE

Driving is more than just getting from point A to point B. It's about the whole experience, and every detail counts. What you see, touch, and interact with is paramount to the experience, and interior lighting plays a central role. In this week's in-depth article, we look at how interior lighting gives users a better sense of control, with minimal distraction and maximum intuitiveness.

Reading it is a very fine primer for the upcoming DVN Interior Deep Dive session happening soon, on 29-30 August in San Francisco. Registration is still possible **here**, so don't miss it!

Also in today's newsletter: diverse technologies which makes automotive interiors so exciting and complex. Apple CarPlay in new applications; new semiconductor developments; lightweight PU cockpit parts; cleaner in-cabin air; movable screens along the dashboard; lighted seats and panoramic roofs, and even slate finishes! Enjoy it all. We're looking forward to meeting all of you in San Francisco in just two weeks' time!

Sincerely yours,

Philippe Aumont
DVN-Interior General Editor

In Depth Interior Technology

Interior Lighting Makes HMI Smarter, Safer

PEUGEOT 508 HYBRID (PEUGEOT IMAGE)

Today's car interiors take center stage as buyers focus on the interior experience more than ever before. Historically, many individual buttons in the cabin had a specific function. Interior screens and remaining switches in modern vehicles are more complex, with multiple functions, menu options, and interactive displays. Adding to the complexity, HMI windows are used to control driver assistance systems and other content. Automakers and suppliers are implementing new HMI with smart interfaces; interior lighting; and other technologies such as voice or gesture activation. The transformation from mechanical to electronic HMI controls has revolutionized the driving experience.

Crucial roles for HMI; comfort; convenience, and safety are played by lighting for tasks; for decoration; for displays, and for alerts—among other categories.

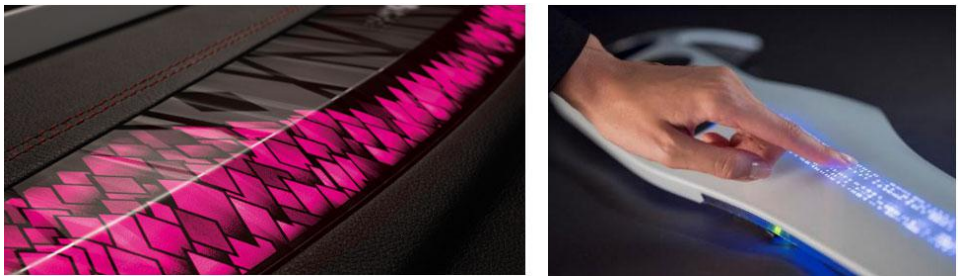
Task lighting systems used to be the only kind provided inside an automobile. They provide light to enable the driver or passengers to see something else. These systems include dome lights; mirror lights to illuminate a face; map and reading lamps; storage lights, and so on. For these systems, the key metrics are the geometry of the illuminated area; illuminance levels, and uniformity. Color can also a factor, both for visibility issues and for mood lighting.

That's a lot more complexity now than back in the old days, when there was nothing other than task lighting. Today we have sophisticated, controllable solutions for interiors that also enable dynamic lighting effects. While these solutions were virtually nonexistent in the past, apart from backlighting functions, they are now becoming the de facto standard. These solutions allow the driver to control the cockpit's internal via HMIs with ambient and direct light settings.

Synchronous communication between different light-capable modules poses an important challenge. For example, manufacturers of L^3 autonomous vehicles want to use dynamic lighting effects alert drivers to hazards. For example, the car might ask the driver to resume actually driving. If there is no response after 10 seconds, the car will begin to change the lighting color throughout the interior from left to right to shades of yellow or red. Just before the driver has to take control of the steering wheel again, the color will flash red. This functionality can only be made possible with a new generation of integrated interior lighting technology.

KURZ IMAGE

With a smart duo of metal mesh structures and plastic substrate, Kurz and PolyIC developed a technology with touch sensors as prerequisite for backlighting concepts for electronic control elements. The plastic substrate is very thin and highly transparent. The silver-based metal mesh is color-neutral. Thanks to their performance security and custom tail for easier integration, the sensor foils can be used universally in all backlighting HMI modules indoors and outdoors.



KURZ IMAGES

The components were manufactured using the Kurz IMD varioform process, and equipped with a preformed PolyTC sensor during injection. For the integration of the touch sensor, Kurz developed a 3D insert specially preformed for this application to place the sensor precisely to the geometry of the concept bezel while retaining its functionality.

Displays and indicators may be simple and standard for urgent information, or more complex for information from a navigation system, menu-driven display, or multimedia device. Color, luminance, and luminance uniformity are the most important metrics for display and indicator lighting.

Ambient or accent lighting provides styling cues, and guides the driver in finding controls such as those for power windows and sound system adjustment—as well as the likes of cup holders and charging ports—in a darkened interior. The goal is to highlight the relevant item or area without illuminating other objects.

OVERVIEW OF INTERIOR LIGHTING COMPONENTS (SYNOPSIS IMAGE)

To reduce driver distraction, many car makers are starting to implement multi-information displays as part of interior lighting in cars. Specifically, the information will be split into two or more screens based on its relevance for the driver and passenger.

In addition, drivers and manufacturers alike can customize the HMI software to suit their own personalized interactions—harnessing 2D and 3D graphics, intuitive light signals, and tactile button feedback, and even augmented-reality systems. These fully-personalized features build an instant synergy between the driver and the vehicle and increase confidence in the automotive brand.

ELEKTROBIT IMAGE

Differentiating HMI and infotainment interface displays is a kind of catching-up to the user experience and technological advances now common in smartphones, tablets, and TV displays. Drivers are supposed to expect and demand intelligent cockpits, the most innovative technology, and intuitive software. They're said to want to download and install apps, access their music library, and otherwise to personalize their in-car experience to make their ride comfortable, entertaining, and connected. Defined light signals simplify the handling and control of many in-cabin applications, provide visual feedback as confirmation of function or warn the occupants from malfunctions and dangers.

Interior lighting and digital HMI are increasingly connected to each other. It’s much easier to integrate a display in a cockpit and update the software once you see whether something works or doesn’t, than to design a set of physical controls and then have to redesign it. Another reason is market expectations; users are assumed to expect extensive and multifunctional interior lighting and HMI in the car they purchase today.

VW ID LIGHT STRIP (VW IMAGE)

These converging HMI and interior lighting systems have great power to improve the user experience of drivers and passengers. They help drivers to make informed decisions by providing visualization of real-time data; contribute to a safer driving experience by informing drivers about environment conditions, and establish a more natural interaction between humans and machines. As development and implementation criteria, these systems should give users a strong sense of control, with minimized distraction (light when needed). They should be intuitive and easy to use, and otherwise user-friendly. They should spark positive emotional response from users, and be maximally helpful—for example by learning user preferences and suggesting changes proactively, but without making a nuisance of themselves.

Interior News

Porsche, Toyota Get Onboard With Apple CarPlay

INTERIOR NEWS

PORSCHE IMAGE

The My Porsche app will now be available within Apple CarPlay; Porsche says they are the first vehicle manufacturer to enable easier access to vehicle functions within an app using CarPlay.

The My Porsche App enables customers with CarPlay and an iPhone to digitally manage and control their vehicles, such as by sending destinations to the navigation system and adjusting the HVAC via their smartphone. The App links existing accounts with third-party providers, such as Apple Music, to the associated apps in Porsche Communication Management.

New functions include being able to adjust audio and climate control settings, and change radio stations and the car's ambient lighting. Apple's voice assistant Siri can be used to change various settings, as well.

The app will be updated regularly to ensure that Porsche customers benefit from new CarPlay features as they are released. The functionality is currently available in the new Porsche Cayenne, and will be rolled out to additional model lines in the future.

TOYOTA IMAGE

Meanwhile, at the other end of the vehicle spectrum, the Toyota Yaris Cross—at least in Indonesia—features Pioneer's Display Audio units, compatible with wireless connectivity available in Apple CarPlay and Android Auto.

Pioneer's Display Audio unit benefits from voice-activated control including audio playback, air conditioning, and ambient lighting.

In addition to playing music and video content from USB flash drives and being able to place or receive phone calls hands-free via Bluetooth, the Display Audio screen can also be used as a compass, clinometer, and altimeter. Additional vehicle information such as energy efficiency and distance to empty can also be displayed.

Lattice Semiconductor to Accelerate Automotive Application

INTERIOR NEWS

LATTICE SEMICONDUCTOR IMAGE

Oregon-based Lattice Semiconductor has announced their Lattice Drive solution stack to accelerate development of advanced, flexible automotive system designs and applications. The solution has been designed for in-vehicle infotainment display connectivity and data processing; ADAS sensor bridging and processing, and low-power zonal bridging applications for driver, cabin, and vehicle monitoring.

The first release of Lattice Drive delivers features including multi-resolution scaling and support for display sizes up to 4K; image and video enhancement with a scalable full-array local dimming solution, and the bridging of multiple displays, providing a DisplayPort interface up to 50 per cent faster than similar devices on offer.

The Lattice Drive solution stack delivers application-specific solutions which partner reference platforms and designs, demos, IP building blocks, and field-programmable gate array design tools to speed up the development of applications and resultant time-to-market.

The new stack portfolio includes solutions for market applications including AI with Lattice sensAI, embedded vision with Lattice mVision, factory automation with Lattice Automate, Platform Firmware Resiliency Root of Trust with Lattice Sentry, 5G ORAN deployment with Lattice ORAN, and now advanced adaptable automotive designs with Lattice Drive.

Marelli PU Parts Win Lightweighting Award

INTERIOR NEWS

MARELLI IMAGE

Altair is a major technology company providing software and cloud solutions for simulation; high-performance computing, and artificial intelligence. Together with the Center for Automotive Research, they've named Marelli a 2023 Enlighten Award winner in the Future of Lightweighting category for the supplier's lightweight urethane interior products.

Marelli has a new lightweight PU foam that can be applied to all foam-in-place (FIP) applications, particularly the main dashboard panel. It reduces weight by 40 per cent with new tooling—8 per cent with existing tooling; halves foam thickness to support styling æsthetics, and reduces raw material costs by 20 per cent and VOC emissions by 80 per cent compared to ordinary foams. This new foam meets—and often exceeds—customer specifications for high-quality feel and appearance of interiors. FIP technology efficiently achieves a much-desired soft feel in primary touch-surface parts such as the main dash panel; door panels, and the center console armrest.

The new foam arose from joint development with materials partner Covestro, aimed to create a more efficient and sustainable material.

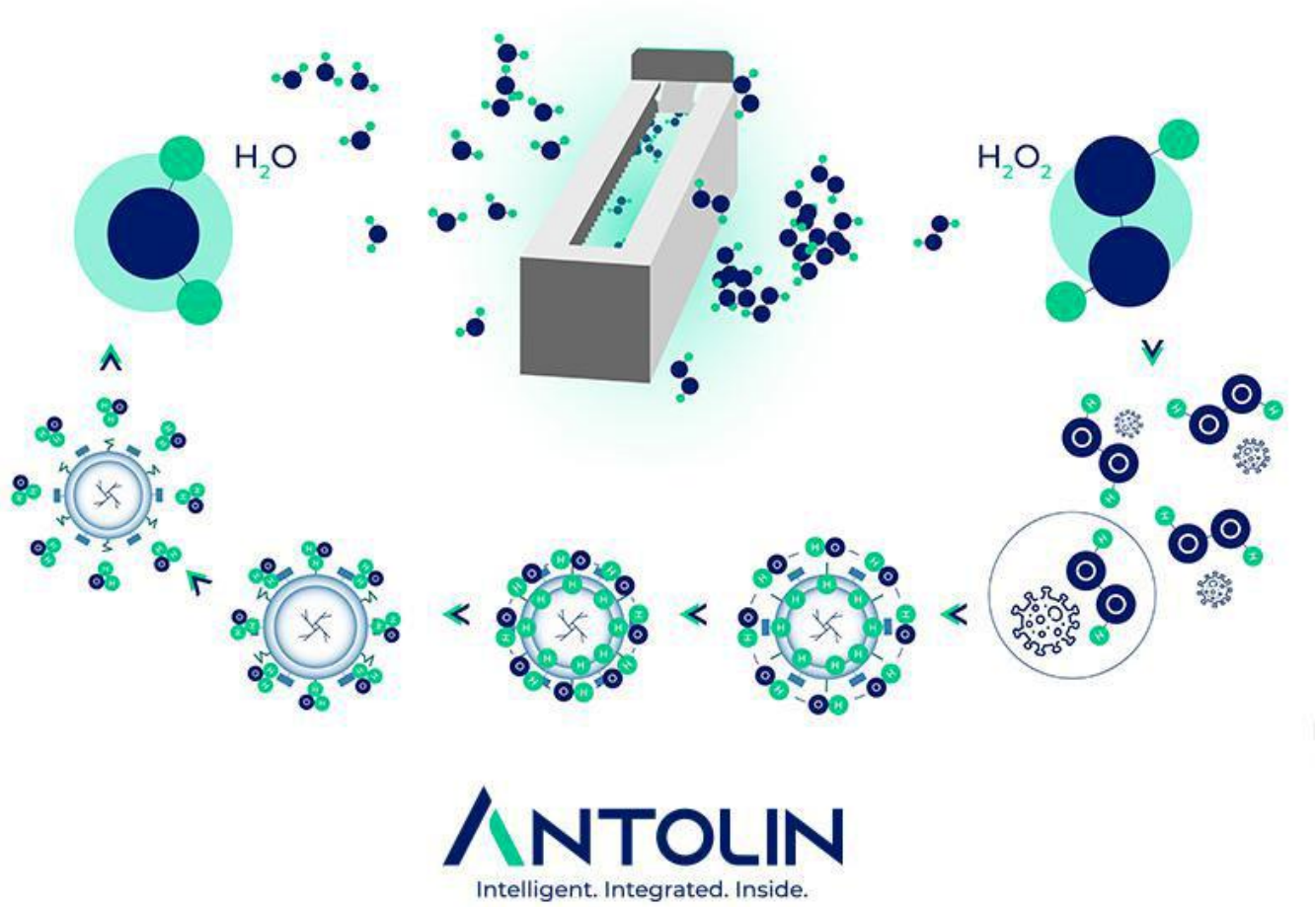
Considering plastic parts are an area where it is difficult to save weight without sacrificing strength; durability, or function, the targets reached are even more relevant. The application of this new foam, as for any FIP product, will not require changes to the shop floor and will immediately provide a lighter-weight product. This presents a significant opportunity for the automotive industry to improve the performance and efficiency of production vehicles, including notoriously weight-critical EVs.

Created in 2013 to specifically acknowledge innovations in vehicle lightweighting, the Altair Enlighten Award honors the world’s greatest achievements in sustainability and lightweighting that successfully reduce carbon footprint; mitigate water and energy consumption, and leverage material reuse and recycling efforts. Other award categories and recipients this time around include:

- Sustainable Process: ArcelorMittal's use of biomass for carbon-neutral steelmaking
- Responsible AI: Volteras; novel way to connect the EV ecosystem
- Enabling Technology: Toyota, BASF, and US Farathane's resin frame for an isodynamic seat
- Module Lightweighting: Toyota, Adient, and Multimatic's isodynamic seat with Accra superstructure

Interior Sanitization by Antolin, Sanz Clima, and CleanAir Spaces

INTERIOR NEWS



Auto interior supplier Antolin; HVAC system experts Sanz Clima, and photocatalysis specialists CleanAir Spaces have co-developed the first prototype vehicle interior air purification system based on advanced, ozone-free photocatalysis.

CleanAir Spaces has been involved in the development as a supplier of catalytic substrate technology; Sanz Clima as an adapter of technology to the environment, and Antolin as a developer and integrator of the product inside the vehicle. In order to adapt it to customer needs and as a first step to potential commercialization, the project is being presented to automakers.

Advanced photocatalysis technology is based on hydrogen peroxide (H_2O_2) generated from the humidity of the air when light of specific characteristics falls on the purpose-designed substrate. Hydrogen peroxide envelops pathogens; viruses, and bacteria in the air and on surfaces, neutralizing their infectious capacity. Thanks to its oxidizing power, it also effectively removes VOCs and odors.

Testing under European regulations, in real-world settings, conducted in collaboration with a laboratory implementing a quality procedure according to the ISO UNE 17025 (ENAC) standard for occupational atmospheres, has confirmed that the technology is effective and does not generate compounds harmful to people or animals; in fact, it increases their wellbeing and safety. The maximum concentration of hydrogen peroxide is less than 0.1 ppm—90 per cent below the safety limit established by national and international regulatory agencies, making its use compatible with the presence of passengers in the vehicle cabin.

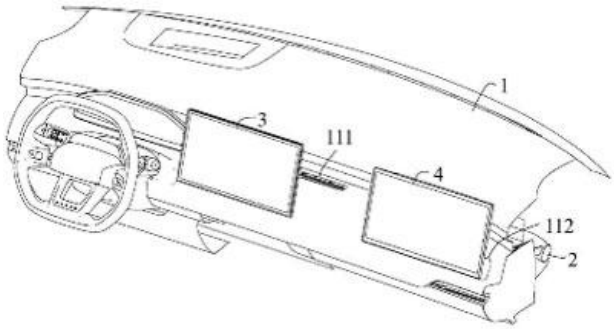
The manufacturing products and processes are ISO-, CE-, and ROHS-certified.

One of the Zeekr CS1E's Three Screens, One Can Move

INTERIOR NEWS

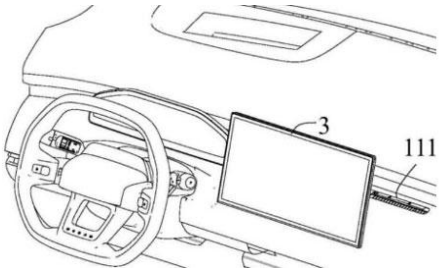
ZEEKR IMAGE

Geely's high-end Zeekr EV brand recently started accepting pre-orders in Europe. The model line includes the 001 liftback; 009 MPV, and X SUV. In July 2023, Zeekr sold more than 12,000 units in China. This year, another Zeekr model will join the range: the CS1E EV sedan.



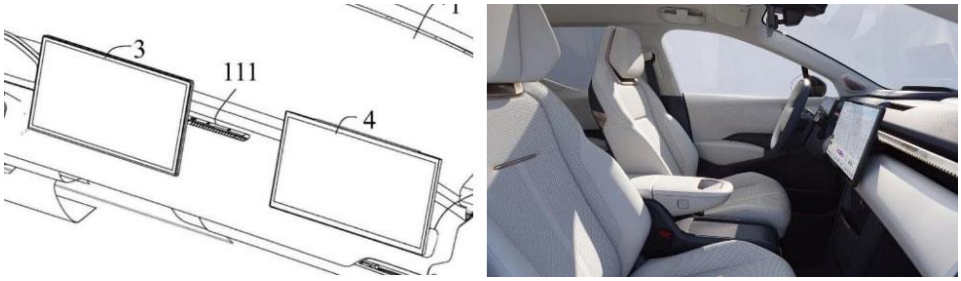
The interior of this vehicle was exposed in the patent image. It has appeared that the CS1E has three screens, one of which can move towards the passenger or the driver.

The CS1E is build on the SEA platform that also underpins other Zeekr vehicles as well as the Radar RD6 pickup truck, Smart #1, Volvo EX90, Polestar 3, and more.



CS1E ZEEKR 001 (ZEEKR IMAGES)

The CS1E has a totally new steering wheel with a ‘double D’ shape and three spokes. It is also equipped with a Face ID sensor that monitors the driver. Behind the wheel, there is the gear selector, and an LCD instrument cluster, complemented with a HUD, showing information directly in the line of sight.



CS1E ZEEKR 001 (ZEEKR IMAGES)

The center console looks close to the latest Zeekr X, with a bi-level layout. One screen is located right in front of the front passenger. It is mounted on the center console with a 14.6” display.

The third screen is a center control monitor. It’s floating, and can slide left or right thanks to the special rail on the center console. When this screen slides to the right, it joins the front passenger’s screen.

Renault Rafale Interior Innovations

INTERIOR NEWS

RENAULT IMAGES

DVN Interior recently published about the new Renault Rafale revealed at the Paris Air Show. Overall cabin volume is close to that of the Espace, which shares the same 2.74-m wheelbase. The rear seats therefore offer spacious legroom with 302 mm in radius at the knees, and in headroom with 880 mm (892 mm for rear passengers in row 2 of an Espace).

More information is available right now about the three main interior innovations:

Front seats with light animation: even before entering the Rafale Esprit Alpine, you will be greeted by a luminous animation of the A-for-Alpine on the front seatbacks. The Alpine logo will animate like a heartbeat as soon as the hands-free card holder approaches the vehicle. The lighting color is also adapted according to the driving mode selected. The lighting is provided by a flexible plate, so no discomfort should be felt in the backs of the front passengers

The Rafale is equipped with a Solarbay opacifying panoramic roof, which can dispense with a roof canopy. Instead of being heavily tinted, it benefits from a technology from Saint-Gobain, the French glass supplier, which allows it to become opaque in segments. This large glazed roof (1,470 × 1,117 mm) includes molecules that will move under the impulse of an electric field. This technology is called DPLC for Dispersed Polymer Liquid Crystal. The nine segments can become opaque with an animation, to create a striking visual effect for passengers.

For a unique cabin signature, the designers of the Rafale used natural slate inserts, as well as tinted cork. The very thin slate sheets can bend easily: they face the front passenger at the level of the hand rest.

The Techno finish will be fitted with tinted cork inserts. This is a first for Renault, and the car will also do without animal leather. The Alcantara upholstery is made of 61-per-cent recycled material, accompanied by faux leather in coated fabric (TEP) with a more pleasant touch than leather.

The trunk volume is also high, with a capacity of 647 liters. On the multimedia side, the Rafale uses the Austral OpenR Link multimedia system with its two 12″ screens. It has been customized for this car, and benefits from Android Automotive 12 which simplifies navigation and improves Bluetooth pairing.

The Design Lounge

"Babe" Barnato: Luxury From Train to Automobile

THE DESIGN LOUNGE

WIKIMEDIA COMMONS IMAGE

By Athanassios Tubidis

Platinum, white gold, sapphires, emeralds, and diamonds, all in one object, is where CMF (Color, Finish & Materials) meets Lighting, through a myriad of sparkling reflections. Way before CMF was even pronounced as a car design practice, the strong demand of high aesthetic values was flirting with the upcoming social trend of the automobile. During the roaring 1920s, an unprecedented record of vanity and extravaganza was coupling the novel, pioneering domain of automobilism and pure-breed mechanics. The superb art deco, gem-set vanity-case, at Christie's auction, is a great witness of that defining moment of the automotive adventure.

Car races of all shorts were becoming popular among the elites. In the attempt to confirm the style of the new era, the approaching dream of individual mobility had to match personal definition and lifestyle. Previously, the elites had lost part of their social freedom, indeed, due to mechanized transportation. Independently of social classes, railways had unified people under the clock (departure and arrival times) and a ticket. First class traveling was equally unified with VIPs in a luxury cabin, yet all strangers between them. With the growth of the automobile the freedom of movement was reinterpreted and gained an extensive social expression. Because, not only they could travel at any time, pace, place, and path, but also with travel partners of their choice. The upcoming challenge was to incorporate 1st class cabin luxury into the automobile. It was like saying, matching pearls'n'diamonds to a loud, violent, smoky and oily contraption, engulfed by gasoline-smell and gravel dust. Just unimaginable.

Among the race-against-the-machine trends, was The Blue Train Races. The aim was to compare the contemporary automotive performance with locomotive dominance and establish automobiles as an

aspirational mode of transport for the individual traveler. In March 1930, at the Carlton Hotel, Cannes, Woolf Barnato, raised the stakes, claiming he could not only beat the Blue Train from Cannes to Calais, but could reach London in his 6.5-liter Bentley Speed Six, before the train even reached Calais, on a bet of a hundred pounds sterling. He did win by four hours! Driving non-stop, he covered the 830 miles (1,340 km) in 22½ hours, at an average speed of 43.43 miles per hour (69.89 km/h).

The Blue Train (Le Train Bleu) was a nickname, as much for the color of the coaches as to the destination - from the gray skies of Paris to the brilliant blue skies of the Cote d'Azur. It is this subject which is represented in the vanity case by Van Cleef & Arpels with the Train Bleu in sapphires. But the deeper message is that mobility was already embedded as lifestyle.

'Babe' Woolf Barnato was the British financier that with his cash held back bankruptcy of the original Bentley Company, thus he became a glamorous promotional hero and one of the ‘Bentley Boys’. The personal twist in the story is that the very moment of March 1930, he had to choose between the race and his girlfriend’s birthday. ‘Babe’ being ‘Babe’ had planned everything out. He had placed in advance this amazing commission to Van Cleef & Arpels, not only as a souvenir of the moment, but also as the apology birthday gift to his girlfriend.

Pininfarina's New Pura Vision Concept

THE DESIGN LOUNGE

PININFARINA IMAGES

Pininfarina has created a new luxury vehicle concept called the Pura Vision, an electric luxury utility vehicle or 'e-LUV'. It was revealed last week, ahead of its public debut at Monterey Car Week.

The elegant silhouette; dramatic proportions, and clean surfaces continue the work started with the Battista hyper GT, reflecting more than 90 years of design heritage in a bold new form.

We see exterior materials and color finishes accentuating the Pura Vision’s purposeful stance. There's a glossy body contrasting with exposed carbon fiber elements, a narrow glasshouse, and gloss black floating roof.

In profile, we see dramatic cab-rear proportions and short overhangs, emphasized further by matte black 23” alloy wheels. Hidden headlamps and ultra-slim nanofiber lighting technology provide a barely-there daytime running light signature, while an anodized aluminum beltline incorporates rear-facing cameras and the distinctive Pura Vision signature at the rear.

Accessed by tri-opening pillarless doors, the car's light and luxurious interior features an innovative panoramic glass roof, its fixed ‘biscotto’ center section illuminated by a ring of gentle LED lighting that links front and rear while supporting the large curved single-piece side windows. The driving position is sporty, yet the overall impression is of a light and airy cabin. Its electric powertrain also allows for generous cabin

dimensions, with a flat floor creating an expansive interior space—a sensation heightened by the panoramic roof.

The ‘floating’ front seats are suspended like a yacht’s foil, while the center console resembles the boom of a sail. From behind the wheel, the expansive dashboard appears to merge with the exterior, extending the distinctive lines of the hood into the cabin.

The technology-rich cabin has been designed to serve occupants with all the information they need, when they need it, using an intuitive central touchscreen, advanced digital instrumentation, and a head-up display, all of which can be personalized by the driver.

The central display rises from the console when required but can be stowed to minimize distractions, while speakers in the headrests provide individual sound zones for each occupant.

The use of highly tactile cabin materials contributes to a unique sense of handcrafted contemporary luxury. Soft semi-aniline leather mixes with a signature textile fabric throughout, while exposed carbon fiber and anodized aluminum echo the finishes applied to the exterior. As part of its production, Pininfarina used waste aluminum from the Pura Vision’s wheels to craft bespoke protective kickplates for the door sills.

Seating has a 2+2 configuration which is likely to be accessed without difficulty, thanks to the presence of inverted rear doors without a central pillar. The front seats appear to float, while the center console is inspired by the stern of a boat. There is a wine cooler is integrated between the rear seats. The Pura design philosophy is described in an **online video**.

News Mobility

Continental Innovations at Mobility Tech Expo

NEWS MOBILITY

CONTINENTAL'S SCENIC VIEW REDEFINES HUDS (CONTINENTAL IMAGES)

Continental showed off more than two dozen solutions for a wide variety of products from tires to software, to vehicle cockpits and autonomous driving systems, to visiting reporters from 20 countries on June 15. After announcing the UltraContact NXT, which they call the most environmentally friendly tire ever made, CEO Nikolai Setzer pivoted to Continental's numerous other advanced technologies: practical approaches to autonomous driving; liquid-cooled, plug-and-play in-car supercomputers; breathtaking cockpit displays, and interior materials made from used coffee grounds.

Setzer said everyday consumers don't need L4 autonomy in their personal cars, but specialized commercial vehicles do. The shortage of long-haul truck drivers is becoming a long-term crisis that almost certainly will have to be solved by technology.

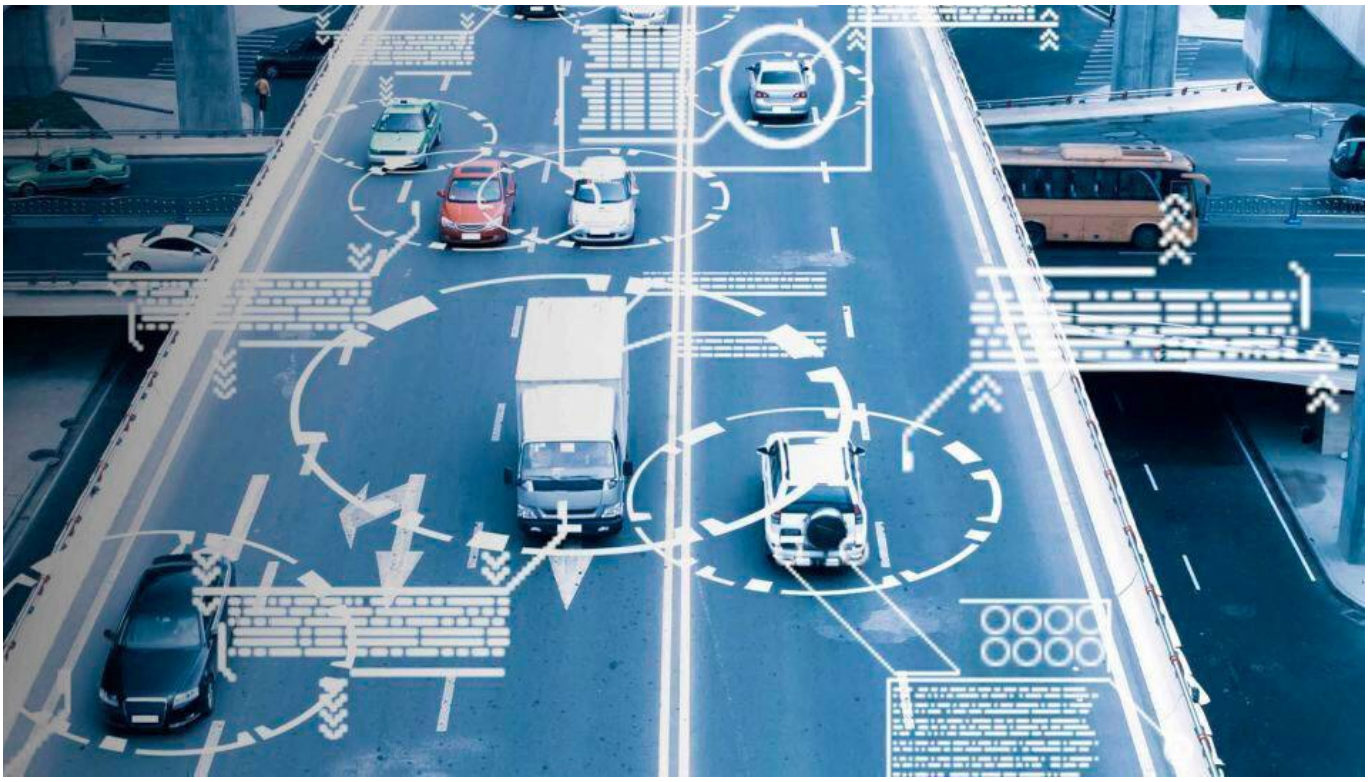
Continental's spectacular cockpit displays promise to transform vehicle cockpits by mid-decade and become the company's most-famous consumer-facing products. The new Scenic View head-up display puts all relevant information on the lower edge of the windshield where it can be seen by the driver without having to take eyes off the road. Occupants no longer have to choose between the intuitive presentation of a HUD for the driver and the sharp image quality of a classic display for the driver and front passenger. Environmental factors such as harsh sunlight and polarizing sunglasses do not impair the readability of the pillar-to-pillar display. The technology won an innovation award at CES in January in the "Vehicle Tech and Advanced Mobility" category.

Continental's Curved Ultrawide display also was highlighted. It spans a vehicle's entire width with highly functional, high-definition displays that can appear and disappear on demand. As the name suggests, the main screen is curved and at 51 inches (1.29 m), it connects both A-pillars. It also has a lot of surface area with even more functions: Besides the matrix backlighting for better picture quality and 'local dimming technology, one thing in particular stands out: the In2Visible control panel. The panel, positioned below the main display, introduces a camouflage feature. When not in use the control panel merges seamlessly with the instrument panel surface and is invisible. It provides a clean, minimalist design and prevents superfluous information from distracting the driver. In addition, the panel, which is placed close to the driver, provides haptic feedback for precise and safe controls.

Continental presented as well the Driver Identification System from Continental and trinamiX. It uses a unique technology to recognize specific facial traits and provides foolproof biometrical authentication with many features. An Automated Parking Fusion System combines a proprietary ultrasonic sensor design with surround view technology, and an ultramodern AI-based camera works with Continental Automotive Edge framework and Amazon Web Services; high-performance computers, Zone Control Units, and hydraulic brakes for the efficient development of software for service-oriented vehicle architectures in the automotive industry.

Europe Gets Closer to Accident-Free Driving

NEWS MOBILITY



SEAGATE IMAGE

One priority in more autonomous driving is to reduce the number of traffic fatalities. What is important here is not only the system's technical capability, but also its ability to follow traffic rules when a driver is no longer responsible for doing so, and to follow drivers themselves. The software must always know where the vehicle is and correctly classify other road users or static objects. Sensors and artificial intelligence will enable the car to learn and make ever better decisions about complex processes.

With the Autonomous Driving Act of 2021 and the Autonomous Vehicles Approval and Operation Ordinance of 2022, Germany has created the legal framework for the legal and technical implementation of fully automated driving according to SAE Level 4. According to this, the system will take over the driving of the vehicle permanently. The vehicle can cover longer distances, such as on highways, within a defined operating range without driver intervention or monitoring.

The European Union has established the legal framework for the approval of automated and fully driverless vehicles in the EU with the General Vehicle Safety Regulation (EU) 2019/2144 and the Implementing Regulation (EU) 2022/1426.

Since 2023, a UN regulation allows L^3 use to travel at speeds of up to 130 km/h. Manufacturers must obtain type approval for this before enabling this function after careful technical and product liability testing.

General News

VW, Audi Get Local Help in China

GENERAL NEWS

XPENG IMAGE

Volkswagen on July 26 announced a collaboration to build intelligent electric cars with Chinese NEV startup Xpeng, in which the VW Group is investing €635m in exchange for 4.99 per cent of the shares and an 'observer role' on the supervisory board.

On the same day, the VW Group announced that their Audi subsidiary intends to deepen cooperation with partner SAIC, China's top automaker, to build new e-platforms together with SAIC in the future.

In October, Audi signed a MOU with FAW for the joint production of EVs based on the Premium Platform Electric, developed jointly by Porsche and Audi.

VW has recognized they need help in electrification and driving intelligence, and so they now are looking for a shortcut in technology partnerships with Chinese companies to avoid falling further behind in the market.

Chinese drivers have so far shown only moderate interest in the e-cars developed by VW; just 143,100 units of their ID series were sold in China in 2022. That is less in a whole year than Chinese car manufacturer BYD now sells in a month. Audi has not really been able to score with their EVs in China, either; from January to May of this year, just 8,952 Audi EVs were sold in China—only four per cent of all sales.

Founded around ten years ago, Xpeng has built up a relatively good reputation for building EVs and driver assistance systems. Now they will help VW develop midrange (B-segment) EVs. VW's development partner for Xpeng for the new cars will be the recently established Volkswagen Group China Technology Company.

However, Chinese and international market observers are wondering whether VW has chosen the right partner in Xpeng, and this skepticism also applies to Audi's decision to seek help with electrification from SAIC, China's largest state-owned automaker. Chinese social media, which is heavily government-controlled to amplify pro-China themes, is carrying comments calling the cooperative efforts 'D-Day for the Chinese automotive industry', wherein Chinese automakers who previously had to trade their country's market for technology from abroad, will now become 'exporters of technology' and 'from apprentice to master'.