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Weekly Newsletter

DVN Interior

NEWSLETTER #221

Editorial

Haptics For More Immersive And Intuitive HMI

This week, your DVN Interior Newsletter brings you details of the Interactive Haptics Conference organized by longtime DVN-I member Grewus.

Haptics contributes to a more immersive and intuitive interaction between humans and machines, making the overall experience safer and more enjoyable. That's why haptics are a central part of a multimodal HMI, together with auditory and visual feedback.

The conference covered all dimensions of haptics technology—vibrotactile actuators and their electronic drivers, methods to objectively quantify human perception to evaluate enhanced usability, user satisfaction, and improved safety, false-triggering exclusion, and much more. Read all about it in the in-depth section.

The next DVN Interior event will be on 22-23 October in Torino, Italy; find early information (and earlybird registration rates) on the **DVN Interior website**. If you are interested to interact about interior design and sustainability in future mobility, this event is the place to do it!

Philippe Aumont
DVN-Interior General Editor

In Depth Interior Technology

Grewus Interactive Haptics Conference in Hamburg

GREWUS IMAGES

The second Interactive Haptics Conference took place on the 20th floor of the Penthouse Elb-Panorama on 11-13 June, with a spectacular view over Hamburg. Grewus hosted and organized of the conference, and DVN Interior's Carsten Befelein was there to report.

Participants met the evening before the 2-day conference for a dinner at the Alsterlagune, to meet one other and network in a pleasant and informal atmosphere.

Day 1

Elisa Santella and Ralf Sandomeer, founding members of Grewus, started the conference with an introduction and welcome speach. This was followed by six presentations:

Elisa Santella, Managing Director and responsible for Haptic Key Accounts, gave the first lecture: Seat Haptics as a Part of the Multimodal HMI.

Seat haptics offers several advantages as part of a multimodal HMI. They provide a tactile feedback mechanism that enhances the user experience by engaging multiple senses. And they can communicate important alerts or warnings, as in driver assistance systems, where a gentle vibration can alert the driver without distraction. Overall, seat haptics contribute to a more immersive and intuitive interaction between humans and machines, making the overall experience safer and more enjoyable.

Jean-François Ménard is an engineer who serves as the Principal Strategist, Innovation at D-Box, specializing in haptics for entertainment. The title of his lecture was The Art & Science Behind Creating Immersive Whole-Body Experience.

This presentation delved into the intricate balance between art and science required to develop immersive whole body haptic experiences. Starting with the evolution of haptic technology at D-Box, Ménard's presentation highlighted the hard work required to satisfy customers with high expectations, navigate through the scientific research that supports the technology, and the artistic processes involved in haptic content creation. An honest examination of both the successes and challenges faced will provide insights into how D-Box is enhancing experiences in movies and gaming, along with future opportunities to scale haptic content creation.

Prof. Dr.-Ing. Thorsten A. Kern specializes in actuator and sensor development for medical HMIs. His presentation was entitled, The Power of Vibrotactile Actuators: a Design Methodology and Concept for Active Tactile Interface Design.

Designing applications with vibrotactile actuators (like touchscreens and household switches) presents challenges, especially in achieving consistent haptic feedback. Engineers often must either test numerous combinations of actuators or be constrained to predefined options. This becomes more complex when maintaining tactile consistency across product lines and generations. This talk introduced a systematic approach for designing vibrotactile haptic systems using linear resonant actuators (LRAs) and eccentric rotating masses (ERMs). It covers mathematical modeling, practical verification, and solutions for common pitfalls using linear time-invariant (LTI) models and finite element methods (FEM). Recent findings on signal generation methods for LRAs were shared, along with a new toolbox for treating vibrotactile actuators as dynamic mechanical power sources.

Dr. René Wegner is the inventor, CEO, and owner of Headis—a sport mixing aspects of table tennis and soccer. The title of his talk was Active Seat—a Gamified In-Seat Activation Via Patented Sensor System.

To address health issues associated with prolonged sitting, a two-year EU-funded R&D project developed a prototype sensor system that can be integrated into various seats. The Active Seat provides health-promoting exercises and guidance, using haptic, auditory, or visual feedback. The system includes a gamified web application that visualizes performance and uses vibrotactile feedback for guidance. Additionally, it offers a screen-based fitness game controlled by physical activity and integrates live sensor data and back exercises. A new EU-funded project aims to advance the prototype towards mass production, focusing on AI implementation, sensor optimization, commercial vehicle testing, and relaxation exercises research.

Dr. Frauke Junghans has been the head of the surfaces department at the Filk Freiburg Institute since 2020. Her presentation was called Haptic Studies on Flexible Interior Materials.

The subjective perceived quality of a product by the customer is becoming increasingly important and contributes significantly to the purchase decision. Objectifying human perception (converting it into scalable variables) is one of the tasks of the research. Subjective human perceptions from test subject studies conducted at the institute are simulated using objective measurement and evaluation tools. Here, important parameters are friction properties, surface structures, their deformability and haptically relevant parameters of thermal behavior and moisture management.

Daniel Shor is a designer, researcher, and mechanical engineer exploring the link between emotionality and touch experiences as European Research Director at Innovobot. His talk was called, The Need for Universal Design language in Haptic Seating.

Integrating haptic seating in cars can significantly enhance safety, comfort, and UX by using tactile feedback to alert drivers to critical situations like lane departures and obstacles. However, the rapid development of this technology necessitates standardization to prevent user confusion and ensure effectiveness.

Drawing parallels to the evolution of radio interfaces and infotainment systems, the lack of standardization in haptic feedback could lead to user overwhelm and distraction, hindering adoption. Historical lessons from consumer electronics show that unclear haptic applications are often seen as gimmicks. To avoid this, automotive manufacturers must develop intuitive, safety-enhancing signals through rigorous testing and user feedback. Clear guidelines can make haptic seating a key feature in future automotive design.

Day 1 of the conference ended with a 4-hour boat trip on the river Elbe through the harbour facilities and past many of Hamburg's sights. In addition, Grewus organized a gala dinner on the boat.


GREWUS IMAGES

Day 2

Prof. Dr. Wolfgang Weinhold earned his master's degrees from the University of Florida and Duke University in engineering and mechanical engineering & material science. He also served as president of a company specializing in Biotribology, Tribology, and Haptics. His lecture was entitled Haptic Study on Surfaces: Human Senses and Precision Measurements.

Tribology is the science of understanding friction, lubrication, and wear phenomena for interacting surfaces in relative motion. Haptics studies how touch affects our interaction with materials and products. It examines haptic perception as an interactive organ during different phases of use (contact, grasping, palpation). This course section covers tactile perception and brain interpretation, how consumers evaluate products through haptics, and using haptic data to guide the design of new products.

By combining subjective assessments and objective measurements, we correlate touch experiences with data. Case studies, such as tactile needs in car interiors, illustrate how haptics informs product development and enhances usability and satisfaction. This multidisciplinary field blends material science, psychology, and engineering to deepen our understanding of touch.

Dr. Iyad Nasrallah is Product Line Manager of TouchNetix's force sensing technology, and oversees the company's strategic haptic collaborations. His talk was entitled Axiom Innovative HMI Solutions.

One of Axiom's latest system level innovations is PilotID. This uses the touchscreen itself to identify the user, with no extra sensing. This has advantages to multiplayer gaming applications, as well as functional safety implementations in automotive 'smart' surfaces.

This presentation also highlighted a new bespoke firmware enabling force button applications. All TouchNetix solutions can be coupled with the in-built Axiom haptic triggering functionality bringing massive benefits to signal latency, and offering the best haptic experience to users.

Anouschka Esselun has been a Project Manager at Grewus since 2018. She has a background in acoustics, haptics and digital signal processing. Her lecture was entitled, Optimized Electronic Driving of Actuators: Active Braking & Overdrive.

The optimal electronic driving of haptic actuators is essential to integrating haptics into an application, whether for tactile feedback on smart surfaces, touchscreens, or even seats. A wide range of haptic experiences can often be achieved in the first step with simple electronic driving signals. However, for the best result, the signal can be further tuned in regards of the actuator and the application. Because in practice, actuators not only have a specific frequency response but also their own response time and decay behavior. Therefore, targeted electronic driving opens possibilities for compensating the mechanical effects of actuators and applications. In the presentation, two approaches were described—'overdrive' and 'active braking'—including their apposite use cases and implementation possibilities.

Dr. Wolfgang Clemens is the Director of Product Management & Business Development and a Management Board Member at PolyIC. The topic of his talk was Smart Interactive HMI Surfaces with Haptic Feedback in Automotive Applications.

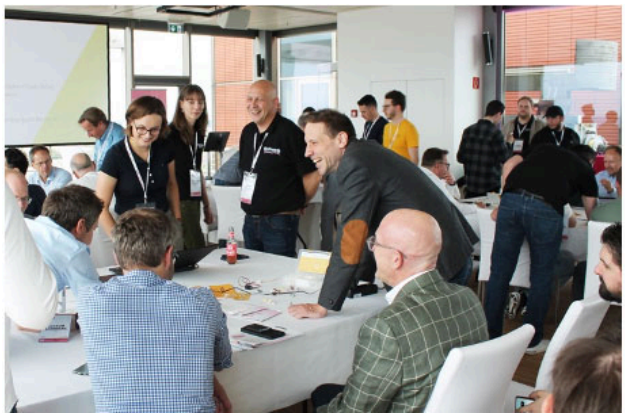
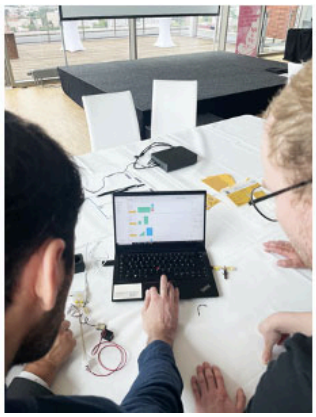
HMI Applications with capacitive touch input in automotive interiors are becoming more and more prevalent. Often, haptic feedback is missing due to cost reasons. But in use cases, where a safe function and detection of false use are needed, as well as for touch switches where one does not directly see the buttons, force measurement and haptic feedback is critical. Here, passive mechanic feedback and active haptic feedback with actuators are used, depending on the customer. Dr. Clemens presented examples of real solutions in automotive HMI applications and new solution for active haptic feedback in innovative prototypes. One example is a crystal steering wheel with glass crystals as touch buttons on a transparent conductive PCB based on a PolyTC metal mesh touch sensor technology. In this demonstrator, an active haptic feedback with a Grewus actuator is implemented, which brings the device to life. Clemens also presented other solutions to show the combinations of capacitive touch function with haptic feedback.

Morten Rothmann is the Managing Director of Hamso Engineering, a company specialized in haptics for HMI. He lectured with Thomas Müller on Haptic Design Guidelines & Ecosystem: an Introduction to the Workshop.

For a great haptic design, all aspects of integration must be addressed. This presentation provided an overview of haptic design considerations and the haptic ecosystem and how to capture the haptic experience. Haptic design challenges were highlighted and how a system design approach can be used to address requirements that affect project decisions for mechanical and electronic integration.

Thomas Müller is co-founder of HapticLabs. As Rothmann's co-speaker, he prepared the participants for the following practical workshop session.

Haptic effects and patterns often fall behind due to the complex design process and lack of guidelines. Müller gave a closer look at the advantages of active haptics, including the capability for dynamic feedback that adapts to the context and content of the interaction. He wanted to cover the design process of tactile experiences, and walked through various use cases that leverage active haptics, and explore approaches to achieve intuitive experiences.


GREWUS IMAGES

The lectures were followed by a workshop session, wherein participants could experience the various actuators with self-generated excitation signals in practical exercises.

GREWUS IMAGE

Grewus presented a seat with defined positioned and dimensioned actuators, to find and realize the best haptic feedback in different driving situations. Visitors could experience for themselves how seat haptics can contribute to a more immersive and intuitive interaction between humans and machines.


GREWUS IMAGES

The conference was rounded out by exhibitors including Kurz / PolyIC, TouchNetix, Hamso Engineering, and more.

GREWUS IMAGE

Elisa Santella and Ralf Sandomeer finalized the conference with a summary and closing words.

Interior News

BMW's New X3 Has New Look, New Tech

INTERIOR NEWS

BMW IMAGES

The cabin of the new BMW X3 is designed for ample spaciousness and a premium ambience. The digital curved display, Interaction Bar, new steering wheels and sport seats, and the redesigned control panel complete with a new-look gear selector are defining elements of this driver-focused design.

Optimized window guides and joint seals, acoustic glazing for the windshield and front side windows, and new exterior mirrors improve the acoustic comfort. A steering wheel damper and hydromounts for the wheel suspension's torque arms suppress vibrations more effectively. According to Continental, hydromounts enable amplitude- and frequency-selective damping to absorb drive and braking torque, and isolate and attenuate engine vibrations.

Consistent digitalization of control and operation via the iDrive system with QuickSelect, based on BMW Operating System 9, are offered as a justification for the significant reduction in physical buttons and controls. The focus is firmly on touch and voice control. The digital screen group comprises a 12.3-inch information display and a 14.9-inch control display.

Other new design features include the standard-fitment Interaction Bar integrated below the control display, with control panels for HVAC and for the hazard warning lights, as well as the light elements in a contrasting colour in the centre console and in the front section of the door trim, front and rear.

Light elements are used to accompany the dialogue with the Intelligent Personal Assistant, for instance, and the charging process in the X3 30e xDrive model. They indicate an incoming phone call, when the wireless charging tray is in use, alert on an open door when the engine or motor is switched on, and they are also part of the welcome and goodbye sequences.

The new X3 comes with a fully leather-free interior as standard, encompassing the surfaces of the seats, instrument panel and door panels. The seats are covered as standard in the new Econeer upholstery made from recyclable secondary material.

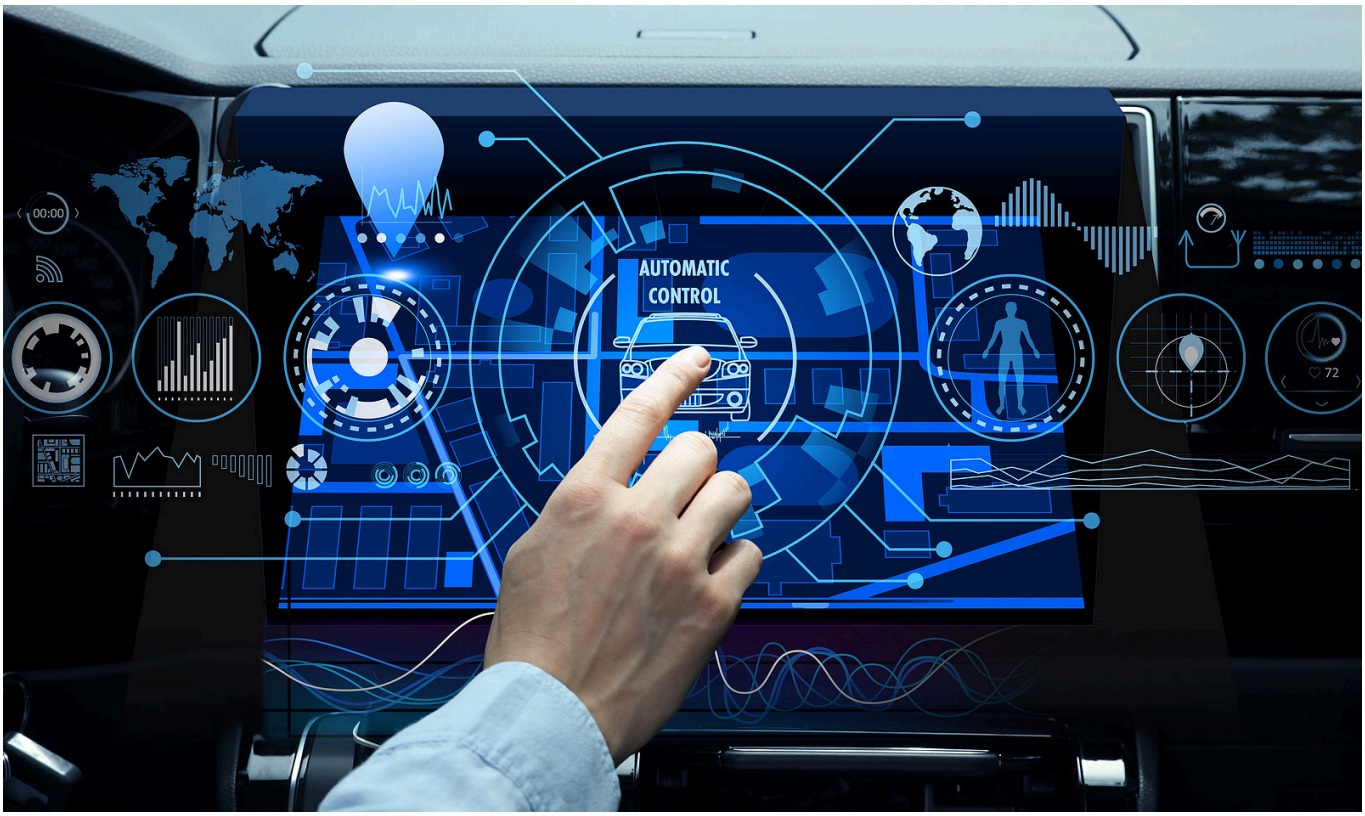
Standard specification now includes additional comfort features, assistance systems, and digital services. For example, the Live Cockpit Plus, which includes a cloud-based BMW Maps navigation system and a six-speaker audio system with a 100-watt amplifier. Available as an option is a Harman Kardon surround sound system with 15 speakers and 765 watts of audio power.

The X3 30e xDrive comes with IconicSounds Electric: acoustic feedback, said to be "authentic" ones, accompanying every movement of the accelerator pedal. The plug-in hybrid model has an acoustic pedestrian protection system. Options include sun blinds for the rear side windows and the Travel & Comfort System with active seat ventilation for the driver and front passenger and seat heating in the rear.

An interaction airbag is in front between the driver and front passenger, to protect them in a side-on collision.

Qt Group, LG Electronics Partner for In-Cabin Entertainment

INTERIOR NEWS



QT GROUP IMAGE

LG Electronics and software company Qt Group have announced a collaboration to integrate the Qt software framework for application development into LG's webOS-based ACPLG in-vehicle entertainment platform. The partnership aims to enable automaker developers and designers to create innovative content-streaming services for vehicles.

This collaboration builds on Qt's support for LG's customizable, open-source webOS, commonly used in consumer electronics, and brings it to the automotive sector. Previously, LG used the Qt framework to enhance UI and UX in products such as smart TVs, signage, smart monitors, and home appliances.

The new advanced control platform (ACP is specifically designed for in-car content streaming, with LG already deploying this entertainment system in a major maker's latest models and collaborating with global streaming services.

Qt's framework will play a crucial role in the future development of this automotive content platform as it is adopted by more automakers' infotainment systems. The framework is designed to accelerate development processes with faster boot times, efficient performance, and optimized memory use.

Qt Group CEO Juha Varelius says, "There's a big ecosystem of developers making these web-based applications for cars, but with Qt serving as an integral part of LG's ACP powered by webOS, they can more easily build and run these applications natively in the OS. Most automotive players already have Qt-based assets in their software, and this is yet another significant milestone for us in that industry".

Nio Partners with Cinemo for In-Car Entertainment

INTERIOR NEWS

NIO IMAGE

Cinemo, based in Karlsruhe, Germany, specialize in automotive multimedia playback and streaming. They have partnered with Nio to deliver an in-car entertainment experience in Europe akin to home entertainment. Cinemo's strategy is to provide a cinema-grade viewing experience in any vehicle, with effortless playback of premium video content. They claim to have equipped over 140 million cars, within the 16 years of existence of their automotive products.

Nio will put Cinemo's Cars Online Video technology into models such as the ET7, EL7, ET5, ET5 Touring, EL6 and EL8 in Europe, aiming to transform journeys into shared digital media experiences for family and friends. Users will be able to access their favorite movies and TV series from the vehicle's center display, which can be further enhanced by Nio's software-over-the-air and firmware-over-the-air updates to add new features and functionality to the entertainment system.

Built to enrich the Android Automotive Operating System, Cinemo Cars features multiscreen capabilities, premium video-on-demand and immersive audio, and the ability to support Android car user experience restrictions to ensure safety while driving.

Nio Product Experience Director Benjamin Steinmetz says, "We're delighted to be partnering with Cinemo to provide our users with best-in-class video-on-demand experiences. We can always provide our users with the latest in-vehicle digital media experiences".

Ecarx, DXC Luxoft to Co-Improve Car UX

INTERIOR NEWS

ECARX IMAGE

Ecarx was founded in the Geely ecosystem in 2017, and went public in 2022. They describe themselves as 'Innovators of Vehicle Mind', and develop and provide technology solutions for the automotive industry, such as digital cockpits, AD/ADAS, centralized domain controller and software. Now they and tech company DXC Luxoft will work together to accelerate the development of in-vehicle capabilities, including infotainment, digital cockpits, and ADAS, to enable 'a better user experience for drivers'.

Ecarx's full-stack hardware and software solution will now support a wider range of services through the addition of DXC Luxoft's expertise in software integration and engineering.

Both companies say the partnership will make it easier for automakers to leverage the capabilities of software-defined vehicles (SDVs) to develop solutions that deliver innovative user experiences. DXC Luxoft XVP Luz Mauch says, "Automotive OEMs need to be able to leverage the very latest advancements in the industry in order to offer a unique UX".

DXC Luxoft will provide automakers with deep domain expertise, leveraging the latest in software development innovation, powered by AI. Ecarx will provide their turnkey solutions for smart vehicles, including computing platforms, in-vehicle software and central computing technology.

Ecarx CEO Peter Cirino says the collaboration will "help automotive OEMs to integrate our hardware and software to meet their individual needs, deliver bespoke UX and differentiate their products".

Automotive Interiors 2024: Quick Review

INTERIOR NEWS

AUTOMOTIVE CIRCLE IMAGE

The Automotive Interiors Conference 2024 took place recently in Bad Nauheim, Germany, on 25-26 June.

The conference had five focus topics, reflecting major domains of innovation within car interiors, and we note their alignment with the consistent rubrics of DVN Interior Newsletters and Workshops.

- **Interior concepts:** current design trends, safety concepts, adaptive and flexible interior components, new vehicle load concepts, visions and concepts for future interiors and impact of autonomous driving.
- **Interior lighting**: as the new chrome and crucial as key element in shaping the overall ambience and UX in the cabin, customizable lighting solutions, new illumination concepts and trends in ambient and functional lighting and smart lighting technologies.
- **Thermal management and EV cabin heating**: Thermal management solutions for EVs related to efficient cabin heating and temperature control and technologies, innovations in HVAC systems, optimizing thermal comfort while maximizing EV range.
- **Advancements in sustainable interior design and materials**: strategies for reducing the environmental footprint of automotive interiors, use of eco-friendly materials, renewable or recycled materials, energy-saving technologies, life cycle assessment and circular economy.
- **Latest in-cabin trends and technologies**: related to seats, infotainment, digital and physical controls, HMI and AI use cases, smart surfaces, and haptic systems.

The conference included many interesting presentations by the likes of Daimler, Nissan, Renault, Nio, Ford, Stellantis, Yanfeng, Adient, Quantron, Teknia and many other companies.

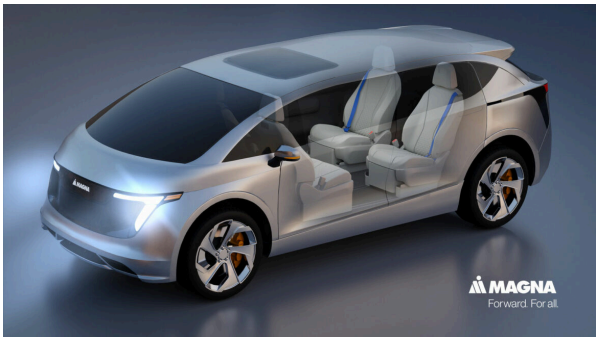
Magna To Supply Configurable Seats for Chinese OEM

INTERIOR NEWS

MAGNA IMAGES

Magna has won their first contract to deliver a configurable seating system to a Chinese automaker. This new seating system, which includes features like highly-rotable front seats and long rails, is designed to provide a flexible and spacious in-cabin experience.

The configurable system integrates power swivel seats with nearly two meters of powered long rails, shared by the front and rear rows and the center console. This enables a 270° rotation of the driver and front passenger seats. The system increases the seat track articulation distance for front and rear seats.



For safety and flexibility, the seats come with integral seatbelts designed to meet strength and adjustment requirements in all possible seating configurations. A universal magnetic interface on the back of the seat can connect to different external devices, expanding the functionality and entertainment options for passengers.

Magna's engineering team in China collaborated closely with the automaker to tailor the seating system to the local automotive market. Customer-defined scenarios prompted the development and inclusion of features for parenting, long-distance travel, camping, and storage.

Magna Seating President John Wyskiel says, "The global mobility landscape is continuing to evolve, with vehicles increasingly becoming a flexible mobile living space for today's road users".

The seating system will be manufactured at a Magna facility in China, with SOP slated for Q4 of this year.

Autoliv Airbags Made of Recycled Polyester

INTERIOR NEWS

AUTOLIV IMAGE

Autoliv is introducing airbag cushions made of 100-per-cent recycled polyester, which significantly reduces their greenhouse gas footprint.

In collaboration with key supply chain partners, Autoliv says they have developed yarns, fabrics, and cushions made out of recycled polyester for use in airbag production. The completed testing of the new material demonstrates that the airbag cushion provides safety performance equivalent to that of a standard polyester airbag, while reducing GHG emissions by about 50 per cent at the polymer level.

The company says the new recycled material is a crucial step toward fulfilling their commitment to reduce emissions across their product range, and will further Autoliv's ambition to achieve net-zero GHG emissions across the supply chain by 2040.

Chief Technology Officer Jordi Lombarte said, "We are walking the talk on our climate ambitions at Autoliv, by bringing the first technology to create airbags using 100-per-cent recycled polyester fabric. We have successfully proven the technology and are ready to offer it to our customers worldwide. We are leading the way in developing airbags made from recycled polyester on current airbags. This milestone reflects our commitment to climate action and circularity, and our journey toward a more sustainable future".

The Design Lounge

Alpine A290: Comfort and Tech at High Speed

THE DESIGN LOUNGE

COFFEE CORNER
DVN
Interior

ALPINE IMAGES

Alpine unveils their first battery-electric B-segment vehicle, a high-performance hatchback that focuses more on practicality than trying to compete with combustion-engine cars. Its UK debut was timed to headline the iconic brand's presence at the Goodwood Festival of Speed.

It's built on Alpine parent company Renault's BEV-specific AmpR Small platform, as a five-door, five-seater car measuring just 4 m long, yet with a luggage capacity of 326 L and a turning circle of 10.2 m. The short wheelbase, compact front end, and wide stance (which allows for fatter tires) is set to offer 'greater liveliness', the company says.

Drivers can adjust the level of steering assistance, throttle response, lighting ambience, and Alpine Drive Sound, and can switch off the electronic stability control (ESC).

The interior is awash in deep blue tones, with driver and passenger side lights in the cockpit, a backlit Alpine callout, and complementary ambient lighting throughout the cabin. There's a three-spoke steering wheel with a flat bottom and a semi-flat top, aluminum buttons, and a red OV (Overtake) button. The high center console, inspired by the A110, bears pushbuttons for Reverse, Neutral, and Drive "gears".

The car's 'feel at one' cockpit includes a Formula One-inspired steering wheel. The driver gets a 10.25" screen and passengers get a 10.1" central display. Instead of circular digital dials, the center cluster includes a triangular theme, with geometric symbols, red lines for speed limits, and a blue background with Alpine's hallmark mountain silhouettes.

Alpine's upholstery is made with 15 per cent recycled plastic and hemp fibre and 100 per cent recycled fabric for the silica stitching. The Nappa leather option is sourced in Europe and processed sustainably, and tanned with coffee bean pods.

Alpine has also introduced a new My Safety Switch button on the left-hand side of the steering wheel to allow each driver to quickly select their preferences and switch functions on and off.

Another Formula One-style function is graphic illustration of what's happening on the instrument screen displaying and the time remaining, while a dynamic animation appears on the central Alpine Telemetrics screen, and you can then store data on your smartphone.

All models feature a 52-kWh battery, an 11-kW onboard charger a 100-kW DC charger, and a heat pump. Regeneration power can be adjusted from the steering wheel in four levels.

At an AC charging point, its onboard 11-kW charger enables the vehicle to be recharged from 50 to 80 per cent in 80 minutes, or 43 miles (69 km) WLTP in one hour, or 3.3 hours to go from 10 to 80 per cent charge. This charger incorporates a bidirectional function that lets you use vehicle-to-load functions to connect a device via the charging socket. It is also vehicle-to-grid compatible, so customers can save money on charging at home using the Mobilize Power service.

News Mobility

AV Trials Start in Germany

NEWS MOBILITY

Deutsche Bahn (DB, the German national railway) and the Rhine/Main Regional Transport Association (RMV) have begun testing demand-responsive L^4 transport vehicles in the Rhine-Main region of Germany.

The public transport project, known as KIRA, involves L^4 AVs navigating normal road traffic. The Federal Motor Transport Authority has granted the necessary permit, and the testing is being carried out with a safety driver present in the car.

The companies say six autonomous shuttles will gradually begin operations in parts of Darmstadt and the Offenbach district. These shuttles will serve the regional transportation companies Heag Mobilo and Kreisverkehrsgesellschaft Offenbach. Initially, passengers will not be permitted to ride in the KIRA shuttles, but interested residents will be able soon to apply to be test riders, booking the shuttles via a dedicated app.

KIRA, which stands (in German) for *AI-based regular operation of autonomous on-demand transport services*, is the first project in Germany to test L^4 AVs for public transport. All driving maneuvers will be monitored by technical supervision staff and the initial test drives will focus on evaluating Mobileye's self-driving system, verifying map data accuracy and operational reliability.

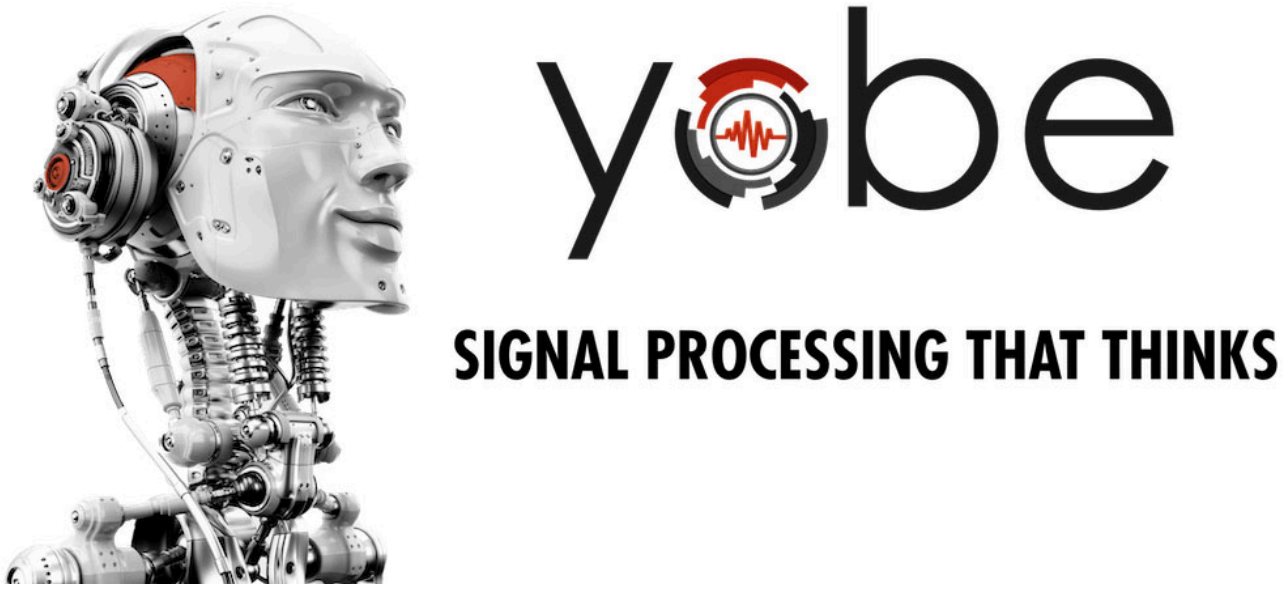
The AVs will be operated by DB Regio Bus Mitte, with software for booking and route planning provided by DB subsidiary ioki, which integrates technology from various partners.

The test and implementation phase is scheduled to continue until the end of 2024, with an extension planned. The project has received financial support from the Federal Ministry of Digital and Transport and the state of Hesse, with a total funding of approximately €2.2m.

General News

Toyota Boshoku–Yobe Voice Extraction Technology

GENERAL NEWS



YOBE IMAGE

Toyota Boshoku plans to invest in Yobe for the latter company's voice extraction technology. Yobe, based in Boston, was founded in 2016 by Army veteran Ken Sutton and Dr. Hamid Nawab, a noted PhD in signal processing and machine perception.

This investment in an overseas startup is a first for Toyota Boshoku, who sees promise in Yobe's technology, which can authenticate the voice of a specific individual even in noisy environments with multiple voices and sounds. It can be used in various applications in the cabin of cars, such as information retrieval in navigation systems through voice operation, music appreciation, and video viewing.

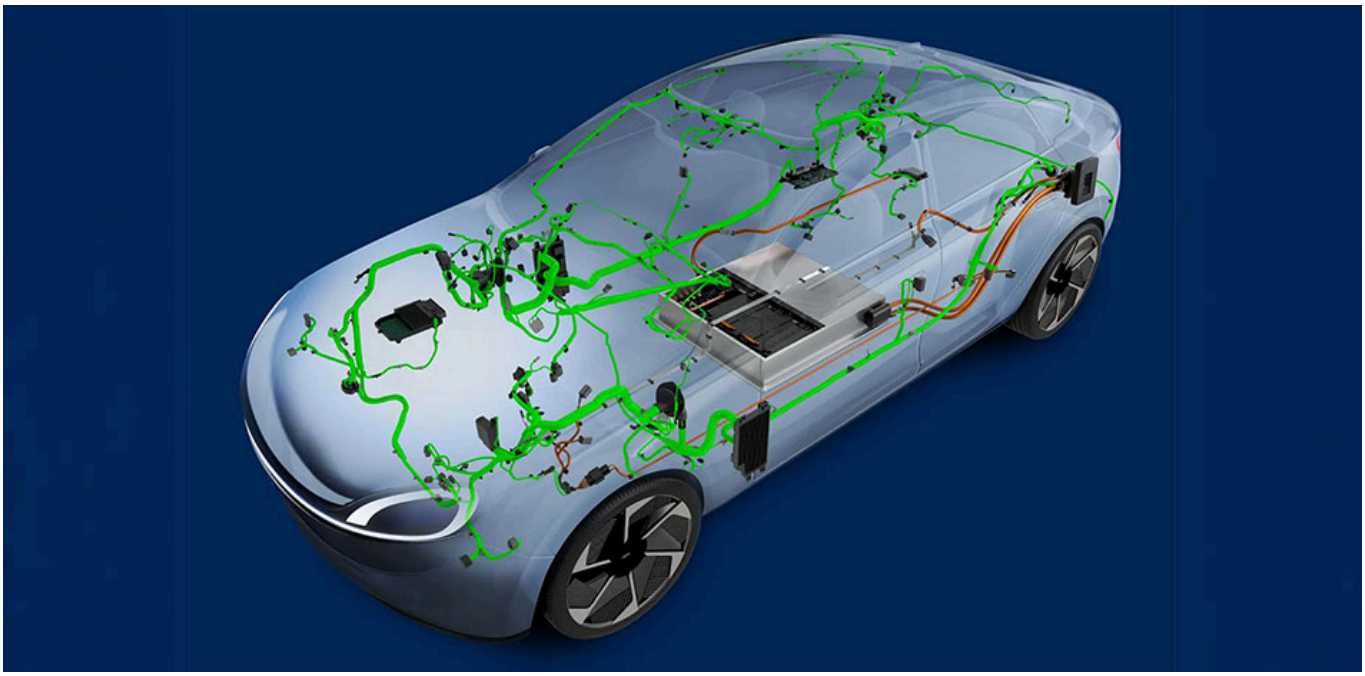
Their main products, Yobe Cafe and Latee, are purpose-built for dynamic signal-to-noise ratio environments. No matter the scenario or surroundings, Yobe extracts clean, high-quality, and machine-recognizable voice data, including sophisticated linguistic patterns and biological markers.

Cafe and Latee require no internet connection or cloud-based computing and can operate on a variety of hardware platforms and operating environments. Yobe technology is said to listen more accurately than anything else, and to preserve important voice metadata that drives new voice capabilities—from improving the accuracy of wake words and commands to creating accurate voice-based profiles.

Toyota Boshoku wants this kind of technology to create a more comfortable automobile interior space, to unlock the huge potential of voice for innovative interiors worldwide.

Leoni's Recyclable Automotive Cables

GENERAL NEWS



LEONI IMAGE

Leoni, based in Nuremberg, Germany, is an important cable and harnessing maker. Their new Limeverse products are 100-per-cent recyclable automotive cables. Plastics in cables represent a significant amount of plastic weight which needs to be taken care of, from a sustainability standpoint.

The highlight of Limeverse is the special insulation material developed by Leoni, using bio-based materials based on sustainable and/or renewable raw materials instead of crude oil—verifiable using bio-carbon per ASTM D6866. In addition, mass-balanced plastics are being synthesized in chemical industry reactors, where the need for petroleum-based raw materials has been further reduced by using bio-based raw materials.

The result is a significantly lower CO_2 footprint compared to conventional vehicle and charging cables; up to 50 per cent lower, depending on the type of cable. Limeverse covers all applications from single-core automotive cables to multi-core sensor cables, coaxial and data transmission cables through to charging cables and extruded flat cables. In addition to PVC compounds, the product line also includes polypropylene and TPE-U, so temperatures up to 125 °C are catered for.

The stable Limeverse cables fulfil the high electrical, mechanical, and thermal quality requirements and specifications of the automotive industry. They can be used by customers as the 'green nervous system of the car', Leoni says, without complex interventions in existing production processes. The cables thus make a direct contribution to reducing the CO_2 footprint of the entire vehicle.

Leoni is already working on increasing the proportion of sustainable materials even further, for example by using bio-based materials made from recycled waste in addition to renewable raw materials. Together with partners, this results in sustainable solutions that meet industry specifications and make for a lighter ecological footprint.