Thu, 16 November 2023
Weekly Newsletter

DVN-I
Automotive Interior

NEWSLETTER #187

Editorial

Natural Materials, Design Go Hand In Hand

MERCEDES EQXX (MERCEDES IMAGE)

Pioneering automakers are already using a variety of natural fibers in current car production. These sustainable materials are used to reinforce plastic and trim and foam, and to design new surfaces; examples include soy foam, wheat straw, kenaf fiber, coconut fiber, and rice hulls.

Will natural materials replace traditional oil-based plastics? That's an interesting question, even if it probably won't happen anytime soon. This week's in-depth presents an update on the topic, with recent developments by automakers and technology and material suppliers.

The interior is the domain of plastic-based materials, and these plastic surfaces are shaped to create an environment to be as attractive and as intuitive as possible. That's why new and natural materials go hand-in-hand with interior design, that's why sustainability and design are more and more going from the inside out.

The **Köln Workshop** scheduled for 23-24 April 2024 will include a session on materials and sustainability, as well as a panel discussion about design to help the industry leverage sustainability constraints into design opportunities.

Looking forward to meeting you there next year!

Sincerely yours,

Philippe Aumont
DVN-Interior General Editor

In Depth Interior Technology

Natural Materials Drive Car Sustainability From the Inside Out

VOLVO EX30 (VOLVO IMAGE)

Natural materials are getting more and more popular in car interiors, as they offer a more sustainable and æsthetic alternative to conventional plastics and fabrics. DVN Interior has focused twice on this topic this year, in **June** and in **February**. There's so much innovation happening so fast that another in-depth look is warranted—a few days before the COP28 conference in Dubai at the end of the month, and previewing what we will discuss at the April 2024 DVN Interior Workshop in Köln.

The natural materials covered in this article are being used today in mass production of car interior parts.

VOLVO XC60 (VOLVO IMAGE)

Wood is an enduring design signature. It is elegant, and it reduces weight and carbon footprint of the interior. Wood veneer can be used for dashboards, door panels, consoles, and steering wheels.

RANGE ROVER WITH NATURAL-FIBER UPHOLSTERY (JLR IMAGE)

Natural fibers' main applications include door panels, seat backs, and trunk trims, as well as headliners, package trays, and dashboards. The main materials in this category are bast fibers—such as flax and hemp, grown in Western Europe—and subtropical fibers such as jute and kenaf. Other fibers, such as banana, sisal, and short wood fibers, are also being considered for specific uses.

Cork and **stone** can add a unique and organic look to the car interior. Cork is a lightweight and renewable material that can be used for flooring, door panels, and seat covers. Stone is a durable and elegant material that can be used for dashboards, consoles, and door handles.

And now, here are some recent-model natural material application highlights:

Kia

KIA EV3 (KIA IMAGE)

Kia has recently unveiled interior details of the EV3 and EV4 concept vehicles with eco-friendly materials.

For the EV3, the Kia CMF (Color, Material, Finish) team chose natural-fiber structures to deliver a lightweight, slimmer seat design. The seat covers are done with 3D knit technology. This process not only results in a visually 3D effect with a soft surface but also delivers high efficiency with reduced stitching and joints, plus zero waste material.

The material chosen for the inside of the Concept EV3's console table was not manufactured, but grown. Kia's Head of CMF Design Marília Biill says, "Using mycelium enables us to mimic the processes we see in nature and leverage it to design more sustainable solutions. The material can be grown in any shape you want using a mold. The use of mycelium is still at a very early stage, and, as part of Kia's sustainability strategy, we are working with partners to accelerate development of the material. One day, by growing our own materials, we'll be able to simplify processes, adapt forms and most importantly, be closer to nature in its essence".

KIA EV4 (KIA IMAGE)

For the EV4's cabin, the Kia CMF team applied natural dyes to 100-per-cent recycled cotton. Using madder roots and walnut shells, Kia got a high range of tonalities and shades.

Kia wove fabric stripes by hand and applied them to the car's storage area and dashboard. This handcrafted approach creates a 3D effect as effective as the 3D Knit finish used in the EV3 seat covers.

The console table has hemp fibers. Biill says, "Hemp is a rapidly-growing plant that requires minimal resources to cultivate. Not only is it highly sustainable, but it's also highly moldable too, which means it is a very versatile material to work with, plus it enhances the EV concept's cabin with its beautiful rich color".

Kia is investigating how to implement at scale these materials in the future. The brand has a history of integrating sustainable materials into their products, starting with the use of bioplastic and sugarcane biofiber in the 2014 Soul EV. This year, with the launch of the EV9 electric SUV in March, Kia started the introduction of their 10 must-have sustainable items for all new Kia models. The list includes bioplastic, produced from biomass sources such as vegetable oils, corn extract, sawdust and sugarcane. Bioplastic is used in vehicle components such as dashboards, consoles, pillars, and trim. Kia identified bio-polyurethane (PU) as an optimal leather replacement, as the material incorporates plant-based components and provides exemplary support, cushioning, and durability. Vehicle carpets can be created from recycled PET, and Kia offers the option of a proportion of this material being sourced from recycled fishing nets.

Mercedes

With the CLA Class concept, there is—for the first time in a Mercedes—paper material made from recycled cellulose. The floor mats are woven from bamboo fiber, the door pockets are edged in a biotech-based and vegan-certified silklike fabric, the textile upholstery on the floating armrest is made from recycled PET, and the seats are upholstered in sustainably-produced and -processed leather.

MERCEDES-BENZ IMAGE

Also notable: the new Mercedes-Maybach EQS SUV is their first model fitted with vegetable-tanned leather. Coffee bean shells are used as tanning agents. The water used for tanning is conducted in a closed circuit and flows back into natural bodies of water after recycling. There's more about this in other articles in this week's DVN-I Newsletter.

Ford

FORD EDGE (FORD IMAGE)

Ford has experimented with sustainable materials for 20 years. Today they're using biomaterials including soy, ricinus oil, wheat straw, kenaf, cellulose, wood, coconut, and rice. The company has even embarked on a collaboration with the Mexican tequila producer Jose Cuervo to investigate the suitability of agave for various components. Ford is also interested in the use of bamboo.

Revoltech

BANANA FIBERS (REVOLTECH IMAGE)

Revoltech was officially founded in 2021. They are a spinoff company from TU Darmstadt, in Germany. Their LOVR material has been integrated into the Kia EV4.

Made from hemp residues, LOVR is sustainable, plastic-free, and fully plant-based. The unique composition technology allows the textile to be fully recycled and biodegradable. LOVR is moldable and non-abrasive, with a variety of textures and appeals.

Revoltech is currently investigating the prospects of banana fibers, as well.

Antolin

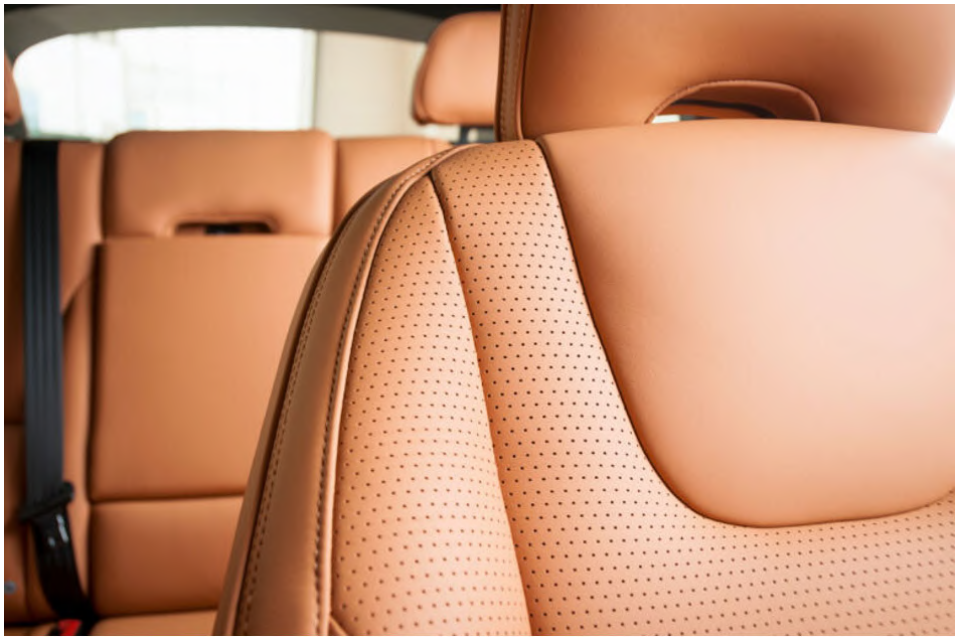
Antolin has been working on a project that employs mycelium-based natural materials to help reduce the environmental impact of vehicle interior components.

Mycelium is the vegetative part of fungi and it is found naturally in terrestrial ecosystems. It can bind with vegetable residues, which Antolin has used to develop a structural material to produce their automotive components.

The company states that this form of sustainable production is carbon-neutral, because the material development occurs organically in the mold, compared to the traditional plastic injection process—thus reducing the use of plastic.

By researching these types of solutions, the goal is to minimize carbon footprints, using products fully biodegradable at the end of their service life, compared to non-biodegradable products that can end up in oceans and rivers.

One 4 Leather



ONE 4 LEATHER IMAGE

One 4 Leather is a group of suppliers who have set themselves the task to rekindle appreciation for leather as a high-value, renewable material, and the preferred choice for car interiors, by sharing its full story. One 4 Leather includes companies such as Bader, Dani, Mastrotto, Bridge of Weir, and many others.

The leather industry is seeking acknowledgement of the cyclical, climate-efficient nature of natural fibers and their potential to positively contribute to reducing climate impacts. With the increased use of plastics replacing genuine leather in automotive interiors, One 4 Leather wants to challenge assumptions around the material by providing their perspective on the benefits of automotive leather.

As the only signatory from the automotive industry of the Leather Manifesto, One 4 Leather argues that leather is an ideal choice for a sustainable future, encouraging re-use and slow fashion. The manifesto states, “Leather offers an opportunity to make the best use of the resources available and to do so without diminishing them or causing harm to the environment. There are currently huge volumes of readily available hides and skins going unused which could be transformed into sustainable leather, replacing fossil fuel-derived synthetic alternatives, with the additional emissions and impacts those entail".

Interior News

Geely Galaxy E8 Has 45-inch 8K HD Screen

INTERIOR NEWS

GEELY IMAGE

This latest addition to the Galaxy lineup is positioned as a midsized sedan, with a body length of 5,010 mm; a wheelbase of 2,925 mm, and a 420-liter trunk space. It is also Galaxy's first model built on the SEA architecture. Previously, this platform gave life to models like the Lotus Eletre, Volvo EX30, Zeekr 001, 009, and X, and more.

Inside, the Galaxy E8 offers a 45-inch 8K HD smart screen that integrates the dashboard, center console, and front passenger entertainment screen with a remarkable 98 per cent screen-to-body ratio. That's a measure of how much of the front surface of a device is occupied by the display. It is calculated by dividing the screen area by the body area and multiplying by 100. A higher ratio means less bezel and more screen space.

The effective display area of this screen is 1,130 × 138 mm, and it is 9.8 mm thick. Geely says it is anti-glare, anti-fingerprint, waterproof, and dustproof. It is not yet clear whether it is an integrated triple-screen.

This display is powered by Qualcomm’s Snapdragon 8295 chip, delivering 7.5 times the computing power of the 8155 chip and enabling advanced navigation assistance systems and fluid human-vehicle interactions.

Additional luxuries include a panoramic sunroof, integrated fragrance system, zero-gravity seats, 256-color ambient lighting, 50W wireless phone charging, a 25.6-inch ARHUD, and facial recognition.

Cockpits Need Rotary Actuators: Preh

INTERIOR NEWS

PREH IMAGE

Tidy cockpits with large touchscreens dominate car interiors. But is that what vehicle users want? Is that the right way to do it? Maybe the industry is **going** too **far**. Multimodal operating options could be the in-between optimum, and Preh's new haptic rotary control could be just the thing.

Operating touchscreens involves a **fearsome** amount and duration of **distraction** from the traffic situation while navigating menus and submenus and sub-sub-submenus. This was confirmed by a study published in 2020 by the Transport Research Laboratory, on reaction times when using touch functions. While using the touchscreen at highway speed, the test subjects showed up to 57 per cent worsened reaction time to an event on the road.

PREH IMAGE

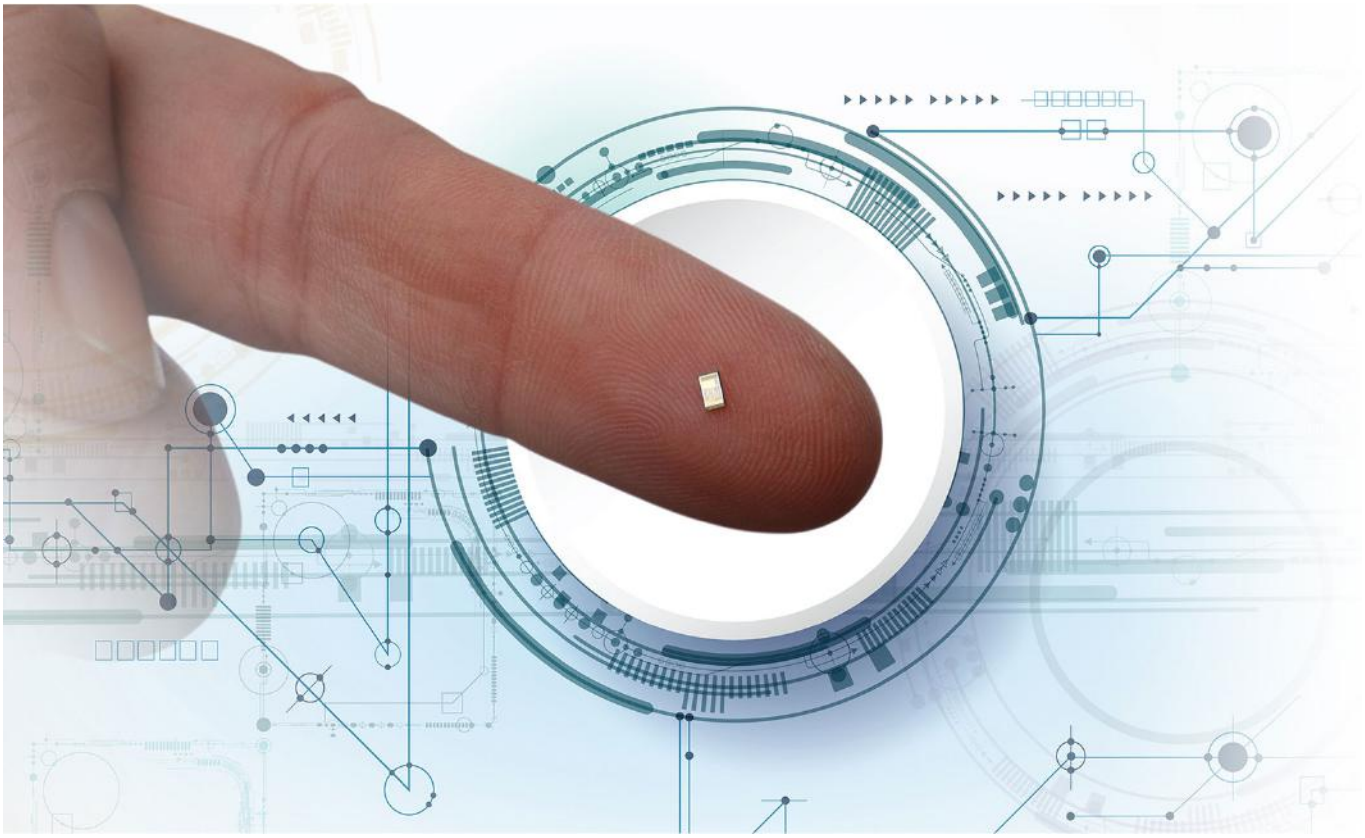
Already briefly mentioned in **Newsletter № 178**, the Preh Group offers solutions that combine the modern and flexible with the familiar and intuitive. The automotive supplier is going one step further in the direction of multimodal operating options with their new pre-development concept for a rotary actuator that can be moved…and even removed.

The rotary actuator is magnetically attached to the display and can be used on surfaces including leather, wood, and glass. It is a 360-degree rotary pushbutton with passive haptic feedback that can be moved across the entire display surface. Depending on the position of the control element, the user interface of the display changes. This allows several climate zones to be controlled, for example.

The movable rotary control can be customized and personalized for each driver. Other possible uses for removable rotary displays are on the center armrest, in the interior of the door, and in the rear.

UltraSense TouchPoint Q to Improve Touch Experience

INTERIOR NEWS



ULTRASENSE IMAGE

UltraSense is a chip startup in San Jose, California, founded in 2018 by a team of technologists. They are bringing a new user interface that differentiates products and enables new applications using patented 3D ultrasound technology. They recently introduced the TouchPoint Q, a piezoelectric strain sensor designed to bring a better touch experience to automotive interfaces. Automotive suppliers are integrating TouchPoint Q to augment their solid-state capacitive touch systems for center and overhead consoles, steering wheels, and door panels for an enhanced user experience; **see this CES 2023 video**.

Traditional capacitive touch systems have suffered from oversensitivity, causing frustrating false triggers, or from lack of sensitivity, creating a poor user experience. When earlier force-sensing technologies were added to capacitive touch systems (optical, parallel plate capacitance, or piezoresistive), results were subpar: a non-premium feel, required visual movement of the surface, and/or expensive calibration steps across the manufacturing process. As a result, some automakers' first-generation solid-surface capacitive touch systems met with unhappy reviews.

The TouchPoint Q is said to solve the challenges of previous capacitive touch systems, so automakers can offer improved designs. UltraSense's CBO Daniel Goehl says, "TouchPoint Q enables automotive tier-suppliers to deliver a new generation of more capable touch sensing functions; [it] can easily and cost-effectively augment already designed capacitive systems with a better force-sensing solution to improve the user experience and manufacturing scalability".

The UltraSense QuadForce architecture of TouchPoint Q uses a MEMS process to etch four microscopic strain sensors per chip into a piezoelectric film material applied to the surface of an ASIC processor wafer.

TouchPoint Q's integrated MEMS strain sensors and mixed-signal ASIC processes a surface touch into a force. Placing one TouchPoint Q under a touch surface of one or more buttons has many advantages over previous strain-sensing technologies, including:

- Truly solid-state interface with no visual movement of the surface
- No residual stress from manufacturing assembly or aging over time
- Immunity to temperature sensitivities that can cause signal saturation
- Wider adhesive selection due to limited material thermal coefficient mismatch
- One-time system calibration in the manufacturing process
- Accurate touch and gesture detection using pattern recognition with machine learning

Mercedes-Maybach EQS Has Super De Luxe Interior

INTERIOR NEWS

MERCEDES BENZ IMAGES

Mercedes is now adding the Maybach EQS 680 SUV to their growing range of EVs, as the most lavishly appointed and equipped version.

The driver's door of the luxury electric vehicle opens and closes automatically. Inside, the 5.12-meter-long electric SUV welcomes the driver with a stainless-steel pedal system and the Hyperscreen, which extends over a large area of the dashboard and features an infotainment system with Maybach-specific animation and graphics. The numerous exclusive features include the animated display of the instrument cluster in 'Maybach' mode. A 3D performance bar conveys the respective driving status (driving, accelerating, charging). The central display starts with the familiar home screen and the 'zero layer'. In this basic setting, the navigation map dominates. The driver can carry out 80 per cent of the most common interactions directly without changing the application. The system reacts situationally and is personalized with intelligent suggestions and prompts.

The sound is provided by a 4D surround system from Burmester. It includes 15 speakers—two front bass speakers in the front footwell, one midrange and one tweeter in each door, two 3D speakers in the headliner, two surround speakers in the luggage compartment cover, and a center speaker in the instrument panel. There are also two exciters in each seat. The direct reproduction of structure-borne noise in the seats makes the listening experience four-dimensional. Passengers in the front passenger seat and in the rear can also apply the 4D sound to the audio content of the headphones. The sound can be individually adjusted for each MBUX user profile.

With different sound worlds, the driving sound also becomes an acoustic experience. 'Aerial Grace' is the name of the driving sound that was specially created for this vehicle. It is interactive and reacts to a dozen different parameters including accelerator pedal position, speed, and recuperation. Using intelligent sound design algorithms, the sounds are calculated in real time on the amplifier and played by the speakers.

MERCEDES IMAGE

The 680's rear entertainment system also features large screens. The standard equipment includes an MBUX rear tablet that can also be used outside the vehicle. The rear leather seats include ventilation, massage, and neck and shoulder heating. the backrests can be folded far back while a legrest folds out. However, this extra comfort is only offered by the extra-cost 'First-Class' variant, which also features a center console separating the entire interior and thus the two individual seats in the rear.

A classic bench seat for up to three passengers is standard. Customers can choose from a wide range of open-pore and large-area wood applications or exclusive Manufaktur nappa leather for the seats.

Also new is a projector in the center console that discreetly projects the Maybach emblem onto the floor. As in the Mercedes-Maybach S-Class, the additional equipment includes two thermal cup holders and a shelf for the standard MBUX rear tablet. Four fast-charging USB-C ports and two HDMI interfaces also ensure that travelers can easily use their own digital devices. At extra cost, the center console can include two folding tables, a cooling compartment, and silver-plated champagne goblets.

Lexus Innovation to Drive Toyota

INTERIOR NEWS

LEXUS LF-ZL CONCEPT (LEXUS IMAGE)

Toyota is a latecomer to EV, and that will not change after the Japan Mobility Show in Tokyo. But their premium Lexus brand is now set to pave the way toward Toyota's EV future.

The LF-ZL Concept was launched with the Arene operating software, and is based on a next-generation vehicle architecture specifically designed for EVs. The sensors will work together with the digital data from the surroundings. If the driver points to an object or location while driving, for example, information could be displayed and read out immediately. The new Arene software platform is intended to enable software updates, faster development using vehicle data, vehicle-to-grid and a variety of new applications.

It becomes clear that Lexus has taken on the role of pioneer and innovation driver within Toyota. The all-electric concept car conveyed at the Japan Mobility Show how the Toyota Group imagines a connected car and the design of the new software platform. Lexus relies on a steer-by-wire system and a tidy interior with bamboo accents that bundles the digital controls within the driver's reach (**see previous coverage**). All important information is projected onto the windshield, and cameras take the place of side mirrors. The large display has been moved to the passenger side, so the driver can concentrate on the most important thing—driving—despite all the digital gadgetry. To this end, the driver is provided with a new voice assistant which, thanks to artificial intelligence, not only enables more natural conversations, but also continuously adapts to the driver

The steering wheel is an oblong yoke-shaped thing called 'NEO Steer', based on a motorcycle handlebar, and designed to integrate the accelerator and brake pedals in favor of a more spacious floor area. The Lexus LF-ZC gives a preview of an all-electric series model due to be released in 2026.

Volvo EM90 is Scandinavian Living Room on Wheels

INTERIOR NEWS

VOLVO IMAGES

Revealed to the public on 12 November, the new EM90 is Volvo's first fully electric premium MPV. They say it was designed to create more room and comfort inside the vehicle.

The interior incorporates a wide variety of premium materials, luxury lounge seats with 'zero-gravity cushions', a large panoramic sunroof, and special Scandinavian design details.

The premium six-seater provides everyone with their own zone and personal space. This includes personalized entertainment and comfort adjustment options, controlled through the armrest and a touchscreen on natural FSC-certified wood surface material.

In the second row, special lounge seats provide passengers with a series of amenities: a massage function, individual ventilation, and heating options, as well as built-in tables and cupholders.

The second-row lounge seats also feature zero gravity cushions with a seven-layer structure and a thickness exceeding 120 mm, including high-density damping layers for both comfort and support. Meanwhile, the third row is easily accessible thanks to the sliding rear doors and long-sliding second-row seats.

The panoramic sunroof covers the entire cabin and comes with a curtain and multiple ambient lighting settings that aim to provide a genuine Scandinavian mood. From a setting that recreates the famous Northern lights to themes that evoke Swedish forests and the dawn of midsummer, there are a range of experiences for passengers to choose.

Scandinavian design details are also spread throughout the cabin, from the Orrefors crystal—originating from southern Sweden—in the 'gear shift', to backlit birch wood deco panels on the dashboard, doors, and the backs of the front seats. The seat upholstery patterns are inspired by mountain ranges in the mist, while the backlit wood panels reflect the beauty of rays of light shining through a bamboo forest.

The Design Lounge

Multipla-ing a Car Interior

THE DESIGN LOUNGE

COFFEE CORNER
DVN
Interior

By Athanassios Tubidis

FIAT MULTIPLA CONSOLE (WIKIMEDIA IMAGE)

I remember entering the parking lot of via La Manta* and seeing a peculiar, masked up, prototype of a unique stance. Observing it several days in a row, it felt like a car that was big and small at the same time, tall and wide yet, not particularly long. It would take a bunch of well-dressed Fiat execs for a short ride several times during the day. Indeed, unusually many of them would enter at each time, and I counted, they were six at every single ride. Stunning was that in their immaculate Armani's they could all get in and out (and I guess fit inside) effortlessly, in a car body that other ways was parked right next to Fiat Puntos and wouldn't stick out, at least in length. In terms of height though you could spot the prototype above all the other parked Fiats by its tall trapezoid cabin, self-explanatory of its unique interior space and accessibility. Indeed, as it was later revealed, that design study was all about the interior.

Very few cars had their interior design displayed at MoMA, the Museum of Modern Art in New York, and that was one of them a few years later, what came out as above-and-beyond any predictions and wild design scenarios for the future looks of car interiors. I do not know all the details and corridor stories, but I know that anything with six passengers at just below 4 meters, is an achievement no matter what.

The study and development were based on the Fiat bravo but somehow the final car managed to be shorter than Fiat bravo itself(!), yet offering more seats and increased boot space. By extending width ways and shrinking lengthwise, Fiat managed to create a true six-seater. Its rebellious approach to cabin architecture was born out of clever, lateral thinking. That, consisted into higher sitting position for all passengers and

vertical side walls for extra shoulder space. Thus, the engineers of via La Manta managed to fit comfortably three seats across and therefore no seats were needed in the trunk (as being the direct competitor of Opel Zafira) giving enough space for the luggage of the numerous passengers. That's why the ongoing joke for Zafira's was that they always came with a rooftop cargo-box option. For Fiat though, since the initial study, the theme was clear: one seat multiplied six times on a flat floor. That is indeed the exact feeling we get today once in the cabin, even if in the production version, because the devil is always in the details, all seats are different but designed to look the same. Floor is flat and you can almost walk through it and if all seats are in upright position, you have the feeling to walk through a forest of headrests.

Nice and lofty with glass everywhere and there is always a seat in the middle, even in the front. To make space for the front center passenger everything that goes to the center console had to be moved elsewhere. That created a short of a scull-rock-formation instrument cluster, where package engineers stuck as much on it as possible. The gearshift though is positioned incredibly close to the wheel and that reminds while driving, a similar set up to Porsche Carrera GT; and this is possibly the only time these two cars are mentioned in the same sentence.

The spacious yet weird and charismatic vehicle is not like anything else and has indeed a smaller footprint than Fiat Punto! In terms of logical thinking, is a masterpiece.

However, the exterior, designed by a group of people that seemingly never met, is a test of aesthetic resilience that you must pass to get in. In fact, I do prefer the masked-prototype version I used to see back then. As a journalist mentioned during the early days, *"It's got to be beautiful to somebody, somewhere, it wouldn't have happened other ways"*. The real challenge has been the lack of words to describe the exterior appearance, provoking many paused moments in auto journalism back then. Definitely anything, but, boring and ordinary. We should never judge a book by its cover though, this car is all about the interior.

Eventually at a given moment, you get out of the interior and then you have to face again the exterior. Or, let me put it differently: You had a great Sunday evening, you got very little sleep and 8.00 AM on Monday morning you are already at your way to work in your cozy interior and someone will overtake you on the highway laughing at your car… Can you deal with that? mention no more, you guessed by now.

** Fiat design center 'Centro Style Fiat' in via La Manta n°22. The management of the Fiat Group decided to merge all the Centro Stiles of each of the group's brands into a single entity called 'Innovation & Development Design'. During the 1990s, many car models were developed in-house: Fiat Cinquecento, Fiat Bravo, Fiat Brava, Fiat Marea, Fiat Barchetta, Fiat Coupé, Fiat Seicento, Fiat Multipla, Fiat Punto II, Fiat Stilo, Fiat Doblo, Lancia Y, Lancia Lybra, Lancia Thesis, Alfa Romeo 145, Alfa Romeo 146, Alfa Romeo 156, Alfa Romeo 166 and Alfa Romeo 147 while maintaining close links for projects in collaboration with external service providers, in particular with Giorgetto Giugiaro's Italdesign and I.De.A Institute.*

Mini's Next Move: Charismatic Simplicity

THE DESIGN LOUNGE

BMW-MINI IMAGES

Mini has presented the design language of their forthcoming models with the world premiere of the Aceman concept. The study of a crossover has an electric powertrain, and a material concept without leather and chrome.

The 'Charismatic Simplicity' design concept puts focus on typical Mini features. As the Aceman is designed solely as an EV, it offers a relatively large amount of space in a small area.

The interior has a minimalist design with clear shapes. The dashboard extends across the entire width of the interior as a flat design element in the style of a soundbar. The central instrument is designed as a completely round OLED display. The classic toggle switch bar is arranged below it. The study thus combines digital technology with traditional Mini brand design features.

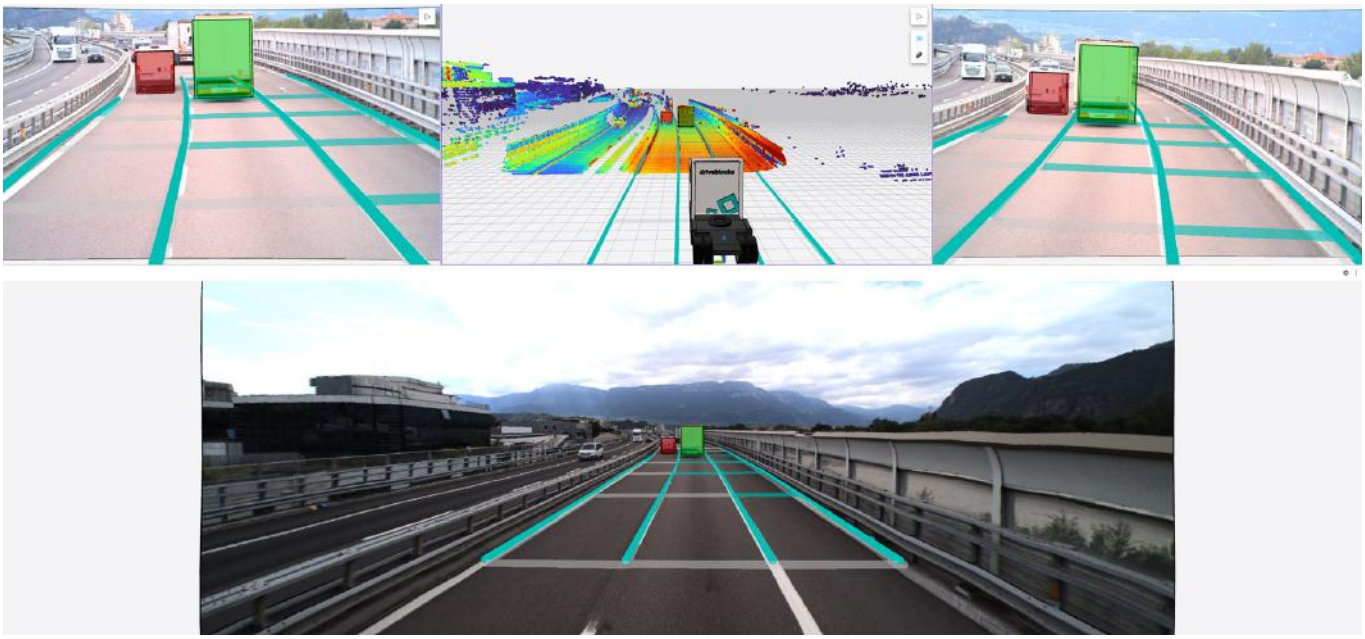
The user interface of the central instrument is characterized by a new graphic display. The display and operating system in the production vehicle will be based on the latest generation of the Mini Operating System. One highlight is the display area that extends beyond the central instrument. With the help of moving image projections, the content of the operating system can be transferred to the entire dashboard, creating a digital experience that extends right into the door panels.

Mini boss Stefanie Wurst says, "This concept car reflects how Mini is reinventing itself towards an all-electric future and what the brand stands for: an electrified go-kart feeling, an immersive digital experience and a strong focus on a minimal ecological footprint".

News Mobility

Driveblocks: Neural Network for Every Sensor

NEWS MOBILITY



DRIVERBLOCKS IMAGES

In mid-September, Driveblocks received about €2m from investors. The Munich-based startup develops software for environment recognition. One of the special features is its modular structure. The capital raised will be used to implement new functions and carry out more practical tests.

The structure of object recognition is similar for all applications. The same software platform can be used for different vehicle platforms and areas of application. This reduces the risk of unforeseen edge cases. All software modules will be developed for sensor-based environment detection.

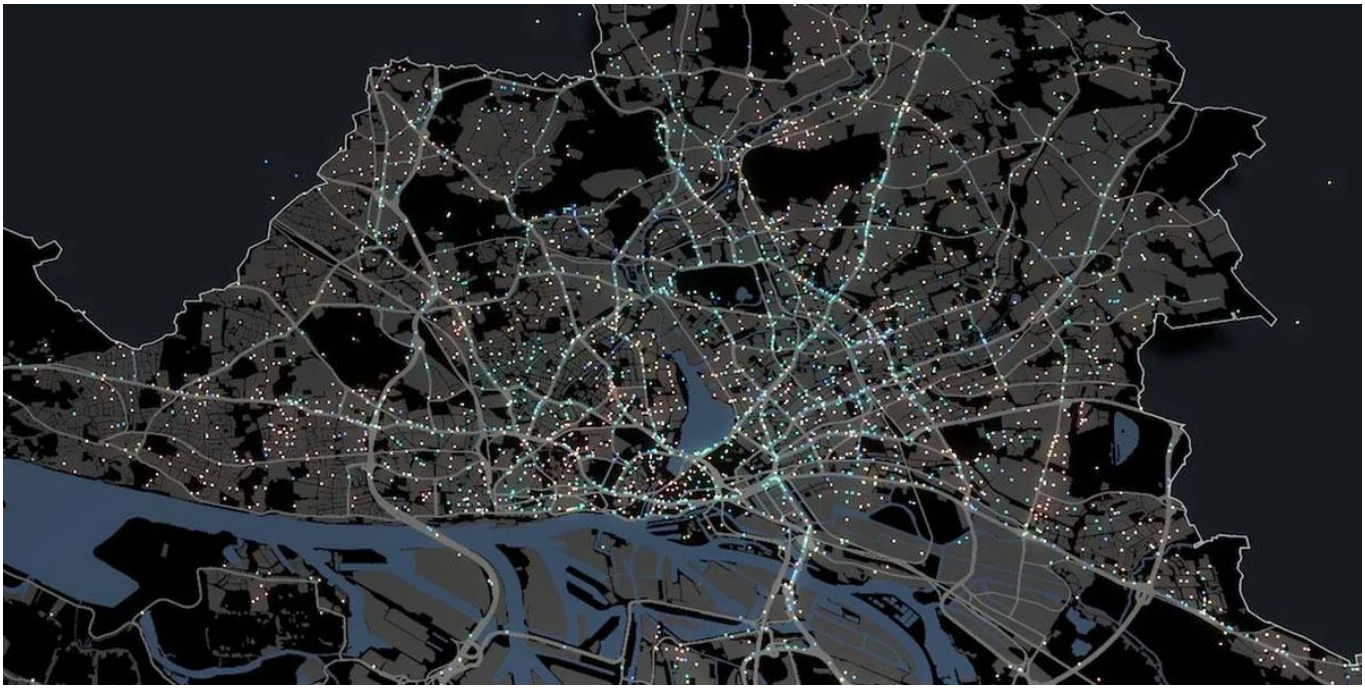
A 'Mapless Autonomy Platform' is an environment detection system for all drivable areas. The key thing is that this technology creates a map using the recognized elements, such as lanes and vehicles. The data does not have to be available in advance. This is a decisive advantage, for example at roadworks. Customers have a fallback level in addition to the HD card.

The basic idea is to train a neural network with data from many different sensor positions and types. This makes the system significantly more robust and less susceptible to changes in the environment, such as different lighting conditions. 'Transformer neural networks' are used for this. This technology, made famous by ChatGPT, extracts information from the entire context of the sensor data. Traditional systems such as convolutional neural networks cannot do this, but only use a local area of an image and attempt to recognize objects in isolation from their surroundings.

Separate neural network for each sensor is all trained in the same way. If one sensor fails, all the others continue to function. For the final decision, the data is merged using a probability-based fusion algorithm.

Hamburg Tests Autonomous Ride Pooling

NEWS MOBILITY



SIMULATION OF RIDE POOLING VEHICLES WITH MOBITOPP (MOJA IMAGE)

The Autonomous Ride pooling project is developing an on-demand service with autonomous shuttle buses in Hamburg's road traffic. The aim is to relieve inner-city traffic.

With an on-demand transport service, a mobility solution is to be created in Hamburg that adds a new product to the traditional public transport system of buses and trains. The ride pooling system will be easy for passengers to book and use. For the first time, the consortium partners will develop and set up an overall system for booking and using up to 20 autonomous public transport vehicles in Hamburg. The vehicles will be integrated into an on-demand service. Ride pooling is to be operated more economically with autonomous vehicles.

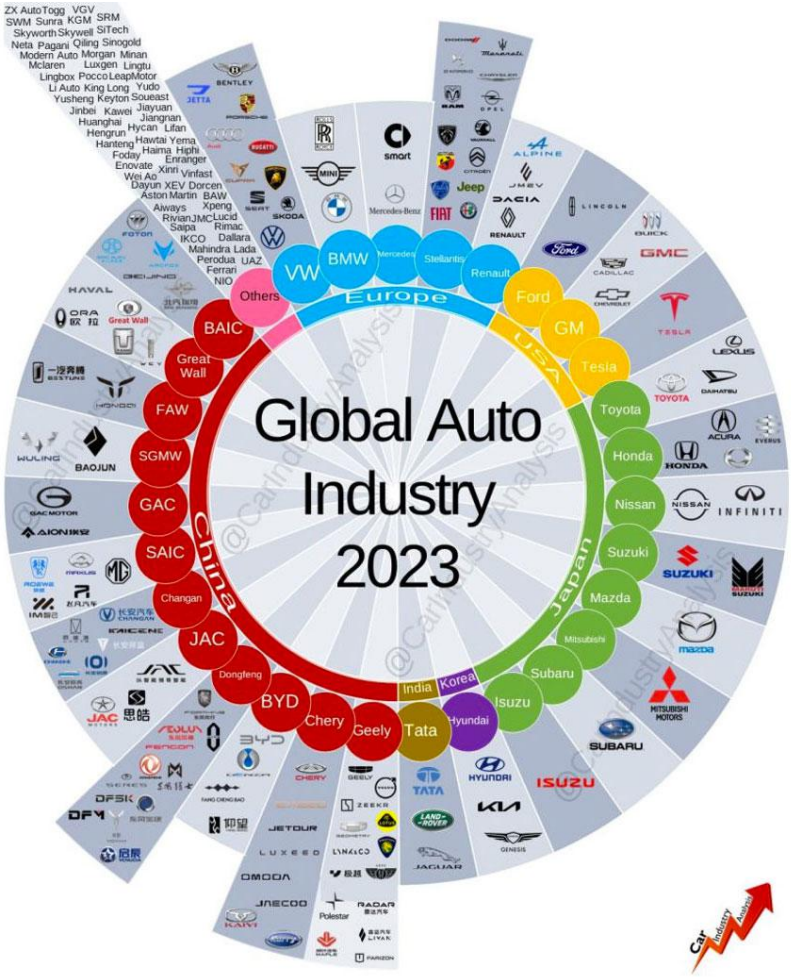
Researchers from the Institute of Transportation at the Karlsruhe Institute of Technology will investigate how the population accepts the new service using the specially developed simulation tool mobiTopp.

"The first autonomous vehicles are being integrated into public transport on a large scale here. We are investigating how people behave with autonomous ridepooling services," explains Dr. Martin Kagerbauer from IfV. In the Moia project, the researchers were able to show that car traffic in Hamburg could be reduced by up to eight percent with ride pooling services under certain conditions.

General News

Global Auto Industry: Automaker Constellations

GENERAL NEWS



Here's an interesting presentation of the companies that dominate the global car industry. This chart looks like a good summary of the auto industry; for the first time, China is pretty well covered, including Geely always in, because of their ownership of Volvo. It doesn't rank companies, neither in production volume, nor on revenues.

New German Continental Campus for AD

GENERAL NEWS

CONTINENTAL IMAGE

With the recently opened development campus at the Memmingen (Germany) site, Continental is further expanding their activities in driver assistance systems and automated driving. Previously separate locations for research and development as well as workshop areas for the construction of test vehicles are being brought together in the approximately 6,000-m^2 development campus. Continental employs around 150 people on site.

"The investments in our development sites are a clear commitment to promoting pioneering technologies and strengthening our position as one of the leading providers of advanced driver assistance systems and solutions for automated driving," says Ismail Dagli, Head of Autonomous Mobility at Continental.

Directly adjacent to the development campus is a 30-hectare test site belonging to the company FAKT-motion, which is used by Continental as part of a partnership to develop solutions for driver assistance systems and automated driving functions. Testing and validation is carried out both with real vehicles on the test track and in a virtual test environment in real time (hardware-in-the-loop simulator).

In conjunction with a very fast data connection, it should be possible to upload data directly to the cloud on site, which can then be used quickly at other development sites. This should shorten development cycles and reduce the number of real test drives.