Thu, 28 March 2024
Weekly Newsletter

DVN-I
Automotive Interior

NEWSLETTER #205

Editorial

Smart Textiles Combine Design, Technology

EPFL IMAGE

Smart surfaces allow automotive interior designers to create sleek, intuitive, modern interaction with the vehicle. Just like using mobile devices, these smart surfaces extend traditional switches, buttons, and displays.
Seat surfaces sound less obvious as a space for this kind of thing, as that's where occupants sit. But at the same time, seat surfaces represent a significant real estate within the cabin (total seating developed surface is approximatively 10m²!). And integrating controls there can place them closer to the occupant, and the material closer to the technology.
There are unique challenges in locating an HMI in places where it is not normally used (like seats), under the condition designers prevent unintended distraction. In this week's in-depth piece, we look at how seat surfaces—mainly textiles—are becoming smarter. It's a great appetizer for the smart surface session of the upcoming DVN Interior Workshop which is now just four weeks away—time to register!
This week's DVN-I Newsletter also reflects the sustainability focus of the industry, with news about hemp fiber composites, sustainable seats, bio-tanned leather, and the cornucopia of new potential materials on display at the Material District in Utrecht, NL.

The workshop docket is close to final, and you can download the current version. The event will include the results of our newsletter survey; speaking of that, it's time to vote for **question 6**.

Sincerely yours,

Philippe Aumont
DVN-Interior General Editor

In Depth Interior Technology

Textiles Become Smart for Comfort, Convenience

ROBOTIC BIZ IMAGE

Smart textiles integrate technology into fabric materials, to enhance user comfort and experience. Potential applications of smart textiles include sensing, lighting, cooling, and heating.

Examples abound, including:

- Integrated lighting features
- Ambient lighting embedded in the dashboard for a soothing night-drive atmosphere
- Headliners can incorporate LED lights for elegance
- Illuminated door panels can enhance aesthetics and functionality
- Localized heating in seats, doors, steering wheels, and armrests (efficient, targeted climate control)
- Ventilated seats with air channels can keep you cool in summer and reduce A/C demand
- Touch-sensitive textiles could control infotainment and climate settings.

Smart textiles have so far found application mostly in architecture, fashion, and packaging, and its use in automotive interiors remains limited. But that's beginning to change. Let’s dive into examples where innovations have been weaving into textile mesh, which are sometimes labelled as e-textiles.

BMW

BMW IMAGE

At CES 2020, BMW unveiled a concept car that features a cabin with a smart, interactive fabric interior. Dutch custom textile manufacturer ByBorre developed the fabrics for BMW's expression of the “mobility experience of the future.”

ByBorre collaborated with BMW to create the seamless interactive tactile surface by developing custom textiles from raw, sustainable yarn, up to custom colors and artwork. The cabin’s interior upholstery was turned into a tactile three-dimensional knitted surface interface. The embedded smart materials offer the passenger an integrated, naturally intuitive and interactive experience of control and demand over the car’s interior.

ByBorre founder Borre Akkersdijk said, “If we no longer need to actively drive our car, we will naturally be able to use this time doing other things … opening possibilities of work, rest, entertainment, and socialization. Depending on the wishes of the individual, the car’s interior surfaces will have to adapt”.

Loomia

LOOMIA ELECTRONIC LAYER 4-WIRE BUS LAMINATED ONTO KNIT FABRIC (LOOMIA IMAGE)

Loomia Technologies, based in California and South Germany, recently partnered with Khalil Design to create a custom multifunction textile on a new concept demonstrator. This project was done for an automotive

showcase that Khalil Design developed and participated in, creating three main textile concepts with functionalities for interiors, such as sensing, lighting, cooling, and heating.

The demonstrator heats up to 60 °C (140 °F), lights up with three programmed sequences, and senses touch with Loomia's flat mechanical switches.

Loomia's patented e-textile technology is a soft, flexible circuit that can be embedded into a wide variety of fabrics and surfaces. It can provide lighting, heating, and sensing functionalities, and boasts customizable components and lightweight integration.

Inteva

POTENTIAL LOCATIONS FOR SMART TEXTILES (INTEVA IMAGE)

There is also a growing opportunity for the use of textiles within flexible hybrid electronics. Market applications include smart surfaces with soft trim, smart surfaces with hard plastic, display and mechanical components.

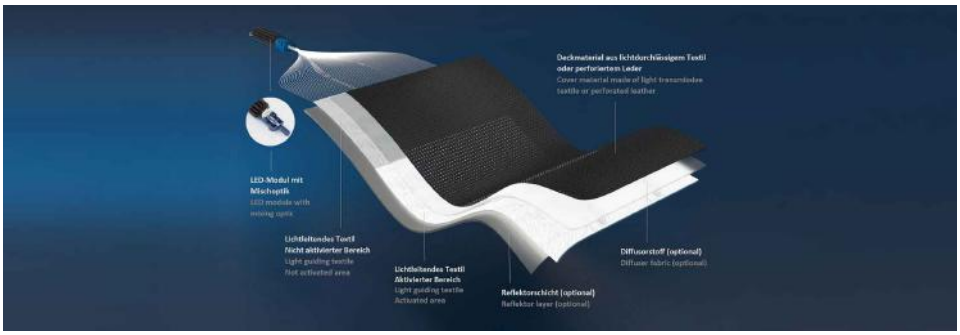
At a presentation at ATA's Emerging Technologies Conference, Inteva Products Senior Engineer Jeremy Husic presented a lecture, "The Challenges of Smart Surfaces in Automotive Trim." Inteva supplies interior components and systems, and Husic is part of the team developing a portfolio of smart, soft-surface products for trim.

The focus is on integrating electronics into trim and supporting electronics. The company is currently using leather and thermoplastic polyurethane primarily, but they are also looking at textile alternatives.

Textiles currently in use include illuminated stitching, embossing, debossing and perforations and in the leather to allow LED back-lighting and human machine interface.

All these processes can be facilitated by textiles with additional haptic qualities of softness and sensitivity, and thin, flexible design, balancing light output with thickness.

Munda



Munda Textile (see previous DVN coverage) develops textile lighting systems, with textile materials used as the light guide. It is easy to assemble and can be folded into (almost) any shape, it also gives good results in non-textile products.

In their basic design, textile lighting systems consist of one or more LED light sources and a textile material – individual fibers or a fabric acting as the light guide. With such a fabric, clear plastic optical fibers or POFs made from PMMA are used, which, as weft threads, are woven with warp threads made from white polyester to form

light-guiding fiber mats. The light-guiding individual fibers of the fabric are combined in a ferrule with which they are connected to the LED modules.

The light is usually emitted at the side of the fiber or fabric, for lateral emission. The emission is activated at the desired light output areas, i.e. the fabric is specifically provided with individual light-scattering surface structures. A top fabric is placed over the light-guiding fiber mat. Optionally, a diffusor fabric and a reflector layer can also be used. If you do not activate the fiber mat, the light is emitted at the end of the fibre mat. You use such an axial emission to implement linear lighting.

The LED modules designed for use in textile lighting systems consist of the integrated LED – monochrome, white or RGB – the LED driver, and thermal elements. A special mixer optic is placed in front of the LED that ensures that the LED's light is distributed optimally to all polished fiber ends.

Embro

Germany-based Embro develops, and manufactures technical textiles, smart textiles, and e-textiles. Conductible threads, (stranded) wires, or heat conductors are placed on different carrier materials by state-of-the-art fiber and wire placement machines.

Textile heating elements can be easily processed, are flexible and remain movable (kink-resistant). The tension is individually adapted to requirements in the development process and suitably distributed and designed for the desired surface.

Applications include seat heaters, headliner heaters, interior heaters of various kinds, and steering wheel heaters.

Smart textiles heat, transmit, receive, measure and can even glow while maintaining their textile properties. Stretchable, conductive tapes and textile structures are created using technical embroidery. Embro positions their products as innovative technical embroidery made in Germany.

FLT

FLT (Future Lighting Technologies) was founded in 2013 with a focus on flexible and 2.5-dimensional lighting applications like multifunctional textiles.

Multifunctional textiles have proven highly amenable to new automotive applications. They are flexible and can therefore be adapted without tools to existing component designs. There is also great flexibility regarding light design with an optimized illuminated linear or square-dot design and textiles with overcross connections. The possibilities are broad and deep for day- and night-design. The basis of multifunctional textiles for lighting, heating and switching are heating and carbon fabrics; carbon fleeces; and non-wovens with steel and carbon.

(FLT gave a lecture at a DVN Interior Workshop)

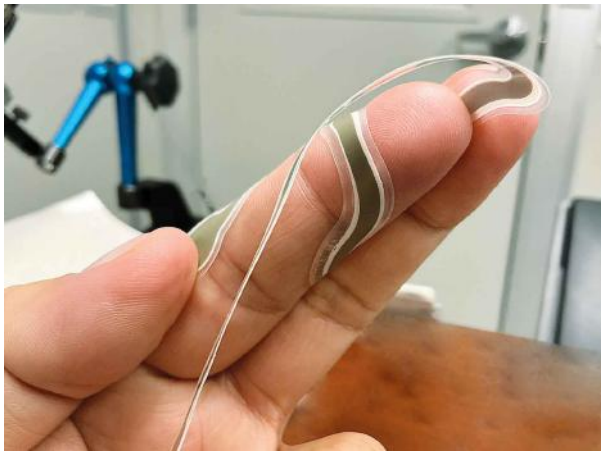
TITV Greiz

TITV Greiz is a research institute in Greiz, Germany, specialized in high-tech textiles. At their booth at Automotive Interiors Expo Europe, TITV demonstrated the practical applications of their textile innovations. TITV works on high-tech solutions in which classic textile technology is the basis for new materials, smart products, and processes.

Particularly through the combination of electronics and textiles, innovative products for completely new areas of application are developed. To undertake research and development services, the institute has an electronics laboratory, a smart textile laboratory and an accredited test laboratory in addition to technical facilities for the whole textile processing chain.

The institute's emphasis on the fusion of electronics and textiles has led to the creation of pioneering products designed for entirely new applications. To support research and development endeavors, TITV Greiz has specialized facilities, including an electronics laboratory, a smart textile laboratory, and an accredited test laboratory. These resources cover the entire textile processing chain, facilitating the practical execution of services.

DuraTech Industries

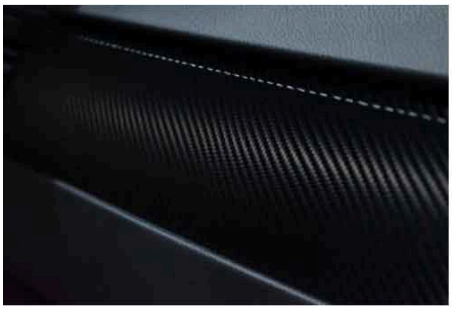


DURATECH IMAGE

DuraTech Industries of La Crosse, Wisconsin, is working on tiny, stretchable heaters and biometric sensors that can be incorporated into fabrics by heat-pressing. The company behind the technology is ACI Materials Inc. in Goleta, Calif. ACI makes conductive inks that can be screen printed onto a stretchable material thermoplastic polyurethane. Once the inks are cured, the printed heater or sensor on the TPU can be heat-pressed onto fabric.

"Normally heaters have been made of wire and they're uncomfortable," says Michael LeFebvre, who heads the printed electronics division at DuraTech Industries. "You can heat press the printed heater or sensor on TPU onto fabric or other materials such as leather," says Marshall Tibbetts, chief operating officer of ACI Materials. Tibbetts notes that the stretchable inks printed on TPU can elongate to greater than 200 per cent without cracking.

Stellantis/Fiat CRF



Researchers of ENEA and Fiat Research Centre brought forth an industrial research project called Tex-Style, which aims to develop intelligent and multifunctional fabrics and coverings made with sustainable materials processed to improve their performance, and combined with innovative aesthetic effects and integrated electronics.

Intelligent materials are combined with sustainable ones through new nanotech technologies to provide fabrics with electrical conductivity to obtain hyper-functions such as sensors, actuators, lighting and connectivity.

Researcher Flavio Caretto says, “We have developed an innovative process that allows us to produce an electrically conductive yarn based on carbon fibre waste, capable of being integrated into fabrics and electronic circuits to exploit their electrical conduction capabilities,”

With the hi-tech yarn, it will be possible to create, for example, a heating system integrated into the internal coverings of seats and armrests, or integrated wiring with external electronics to perform functions such as turning on the lights inside the car.

New Perspective, Benchmarking other industries

TEXCOM IMAGE

With new technology and applications across industries, smart textiles have risen to prominence lately and their application areas like medical care, protective clothing, shape memory textiles, sports textiles etc. have been brought under the spotlight. Automotive could copy/paste!

Shape memory fiber, referring to fiber that possesses a shape memory effect. It means that when a deformed fiber is given some external stimulus by means of pressure and temperature, the deformed fiber would return to its original shape.

Photochromic fiber: These are photosensitive color changing substances that have organic compounds containing isomers. Such photochromic fibers undergo reversible configuration under the action of light.

Optical fiber, a kind of composite fiber that can enclose light energy and transmit it in a wavelength mode. It is also called smart fiber and provides excellent transmission performance.

Temperature sensitive fiber, fibers whose properties will change reversibly with temperature.

Conductive fibers possess excellent specific resistance and electrical conductivity, absorb electromagnetic waves, detect and transmit electrical signals. Conductive fibers can be roughly divided into electron conductive fibers, ion conductive fibers, and inductive fibers.

Health smart fiber; these are developed for the enhancement of people’s awareness against anti-bacterial, safety, and impact-resistant fiber. Among them selective anti-bacterial fiber will inhibit or kill the surface bacteria by the addition of an antibacterial agent.

So, a lot of opportunities to continue enhancing Interior Textile capabilities!

Interior News

Hemp Fiber Composite for Sustainable Interiors

INTERIOR NEWS

ADOBESTOCK IMAGE

A new composite reinforced material has been developed by the University of Indonesia's Department of Mechanical Engineering, in cooperations with the Composite Laboratory of the University Paris Nanterre, in France.

The environmentally friendly pre-impregnated material is called RFR-PLA: ramie fiber reinforced polylactic acid. It is a semi-finished composite material consisting of a natural polymer matrix (PLA) and natural reinforcing fibers from hemp trees.

The research activities have come a long way since 2000, looking for alternatives to the conventional prepreg market, which typically uses synthetic fibers such as carbon, glass, and Kevlar. University of Indonesia Professor Tresna Priyana Soemardi says, "Compared to prepreg using synthetic fibers, RFR-PLA prepreg is more affordable, environmentally friendly, lightweight, and has lower emissions".

The innovation uses Indian local ramie fibers as its main raw material, with cooperation from cultivators in West Java, under the guidance of the Textile Research Institute. This collaboration aims to produce ramie fibers into yarn and fabric, empowering local farmers, and increasing the value of domestic products.

The local ramie fibers are then taken to France for further research at the Composite Laboratory of University Paris Nanterre.

In the effort to ensure the implementation of this material in the automotive industry, the prototypes are undergoing verification under main testing standards, showing already good results during static and fatigue multiaxial load testing, with a strength of 60-80 megapascals at 0° C and 20-40 MPa at 90°.

The composite is currently applied to aircraft structures, and when the manufacturing process will be ready for large scale production, it is planned to be applied to automotive bodies and interiors, with the advantage of a potential vehicle weight reduction of 20 to 30 per cent.

Yanfeng's Sustainable Reco Seat

INTERIOR NEWS

YANFENG IMAGE

Reco, which stands for Recycle + Eco, represents progress towards the company’s climate goal to use recycled raw materials and lightweight components to significantly reduce corporate carbon emissions and the product carbon footprint.

Yanfeng's VP and General Manager of Seating for Europe and South Africa Uwe Borchers says, "We are committed to providing innovative and sustainable cabin solutions and the development of the new Reco Seat is an important milestone in our sustainability strategy and our contribution to the limitation of global warming to 1.5°C in line with the targets of the Paris Agreement".

A focus area of Yanfeng's sustainability strategy is the use of innovative, sustainable materials. The Reco seat features materials including polyethylene terephthalate (PET), polyurethane (PU) trim, recycled foam, thermoplastic foam, a green steel frame, a PET lightweight back panel, and hybrid cushion.

The PET PU seat cover is made from 100 per cent recycled soft drink bottles, reducing product carbon emissions by more than 20 per cent. The foam used in the Reco seat is also environmentally friendly.

Recycled and thermoplastic foam are combined to provide improved seating comfort and support compared to conventional polyurethane foam. Furthermore, the use of industrial wastewater steam in the foam production and molding process significantly reduces energy consumption and emissions.

Significant reduction of product carbon emissions thanks to recycled steel and green energy. Through Yanfeng’s cooperation with a steel company, the Reco seat offers a significant reduction of the product carbon emissions. The use of up to 100 per cent scrap steel as the raw material, together with green electricity to produce the recycled steel frame, reduces the product carbon footprint by over 60 per cent. The seat pan is made from high-strength recycled plastic instead of a traditional metal seat pan.

The seat back panel uses recycled PET to achieve a lightweight and dynamic styling that is also sustainable. In addition, the hybrid cushion uses high-strength recycled composites instead of metal which reduces the product carbon footprint by 20 per cent and allows for a wider choice of surface treatment techniques.

New Tanning Tech for Next-Gen Bio-Based Leather

INTERIOR NEWS

BRIDGE OF WEIR LEATHER IMAGE

Leather manufacturer Bridge of Weir has introduced BioTAN and FreeTAN, two technologies for the development of bio-based and biodegradable leather.

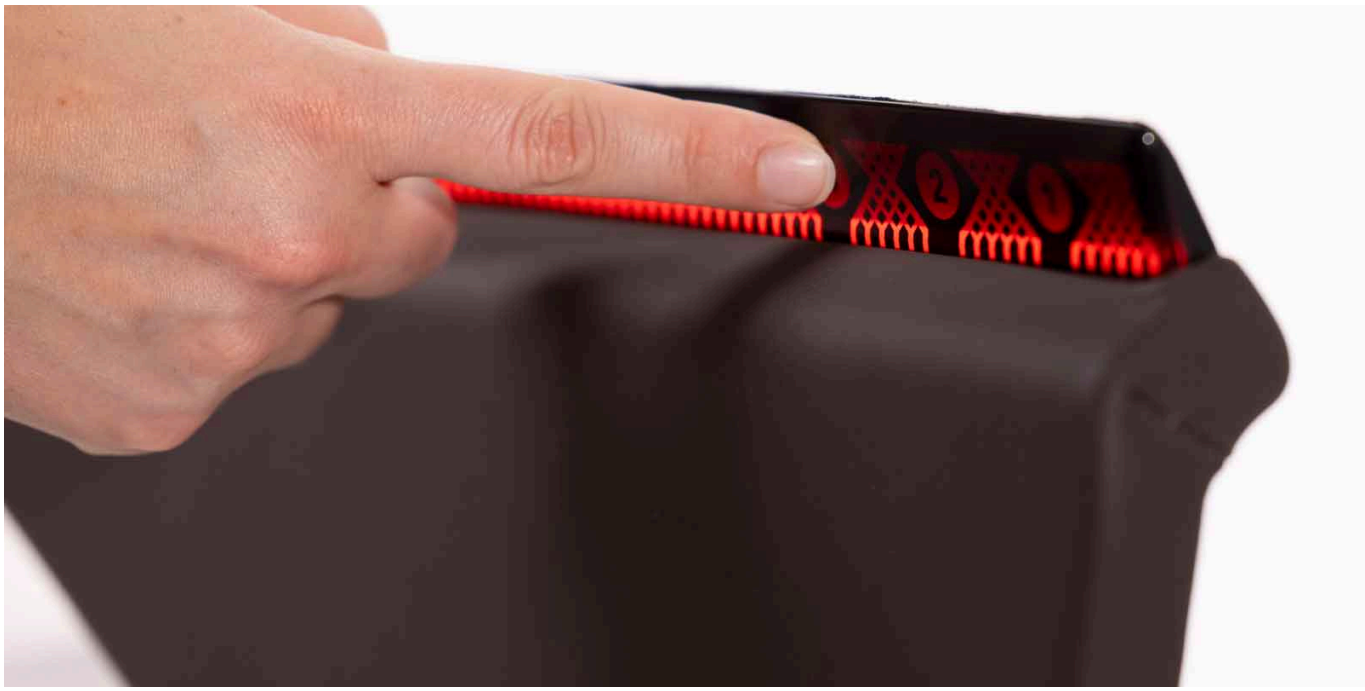
Tanning is the production process whereby collagen is stabilized and animal skin becomes leather. Bridge of Weir's two technologies, which have been developed over the last four years, aim to increase the bio-content and end-of-life biodegradability properties of the company's leather and remove fossil fuel, oil-derived components and heavy metals from their processes.

BioTAN is designed to increase the bio-based content within the chrome-free leather tanning process, to more than 50 per cent. FreeTAN offers a complete replacement of traditional tanning chemistry with compostable technology. The company says the process is free from chrome, heavy metal, and aldehydes.

Bridge of Weir group technical director Simon Cook says, "The leather of the future for us is 100 per cent bio-based content, completely chrome-free, heavy-metal-free, aldehyde-free and entirely biodegradable. We are committed to net zero for our operations by 2025 – ahead of Scotland's net zero ambitions – and delivering zero waste to landfill by the same year, further fortifying our sustainability pledges".

Dräxlmaier's Seamless Touch Concept

INTERIOR NEWS



DRÄXLMAIER IMAGE

Dräxlmaier has developed a technology for capacitive touch surfaces with haptic and optical feedback. With the Seamless Touch concept, Dräxlmaier integrates the LED technology directly into interior components, with a touch operation also implemented in the same place. This way, the light is directly linked to an operating function.

A semi-transparent sensor film is attached under the surface. Behind the film are LEDs and light guides that provide the desired lighting effects. A functional PET film with printed conductors is applied to the back. All operating elements are displayed exclusively via the LEDs; physical buttons or similar are no longer necessary.

They integrate the switch surfaces under animal or artificial leather, fabric, and plastic surfaces. The light is used to backlight the switches with corresponding symbols or as contour lighting. The surfaces play a key role here: transparent, translucent, or perforated surface materials ensure that the light reaches the surface. Light, touch, force detection and haptic feedback are controlled via a single controller, which enables minimal latency times.

A distinction is made between integration into hard and soft surfaces. The sensitivity of the touch surface is adjusted by a correspondingly designed sensor geometry and parameterization of the software. The pulse strength of the haptic feedback is adapted to the different layer structures.

In addition to the capacitive sensor system, the force sensor system provides redundant detection of the user input. This means that the signals can be evaluated more robustly and unambiguously and thus the user input is correctly recognized and operating errors are avoided, which can occur, for example, through unconscious, fleeting touches.

In combination with proximity sensors or situational algorithms, the seamless touch surfaces are only visible when required. This puts the design concept of the interior at the center of attention. It is to be expected that the seamless touch concepts will be found in production vehicles in the foreseeable future.

BMW Neue Klasse: New Driving and Interior Experience

INTERIOR NEWS

ALL BMW IMAGES

Last week at their annual conference, the BMW Group showed off their Neue Klasse Vision X, offering a glimpse into the Neue Klasse with its new HMI interaction and user experience. The new iDrive brings new levels of user interaction. The Vision X seamlessly blends innovative control concepts with an immersive user experience.
Passengers can now actively participate in digital infotainment, with the progressive user interaction concept of the new BMW iDrive. Developmental research, guided by 'human-centric' and 'tech magic' principles, involved surveying over 2,000 people and perusing data analytics of more than 10 million connected BMWs.
The iDrive system's design and development principles introduce four key elements: Panoramic Vision, 3D Head-Up Display, Central Display powered by matrix backlight technology, and the multifunction steering wheel. The next generation of the Intelligent Personal Assistant gives the vehicle a personality through a BMW-branded voice, making the voice assistant more human-like.

The Vision Neue Klasse X facilitates an active lifestyle, efficient dynamics and a confident stance. Its design combines a clear exterior design language with a bright and spacious interior. Special lighting and sound effects enabled by the new iDrive enhance the intuitive digital user experience. The three main characteristics of the Neue Klasse – electric, digital, and circular – are expanded here to include a fourth dimension, driving pleasure.

Large window areas and the panoramic glass roof flood the interior with natural light, creating an airy spaciousness that is complemented by textiles in warm colors.

The slightly elevated seating position ensures a confident driving experience. The redesigned steering wheel with multifunction buttons, Central Display with intuitive touch control functionality and Panoramic Vision, together with the advanced voice control of the Intelligent Personal Assistant, serve as the effortless and intuitive interfaces for human-car interaction. Panoramic Vision projects key information across the full width of the windscreen. It will be complemented in production models of the Neue Klasse by the enhanced 3D HUD.

The Central Display is integrated into the instrument panel, providing both front passengers with optimal access to all infotainment functions. The colors shown are not only transferred to the ambient light, but also to the backlit textile surfaces of the instrument panel.

The sound, generated in real time and adjusted with the tap of a finger on the 'HyPersonX Wheel', is an innovative contribution to the immersive and holistic user experience that transforms the interior of this vehicle into a personal experience space.

The Neue Klasse is to be produced in Debrecen, Hungary.

Mercedes-Benz Updates EQV, V-Class

INTERIOR NEWS

EQV (MERCEDES-BENZ IMAGES)

As part of their luxury strategy, Mercedes-Benz has revised their vans with a new design and additional comfort features.

The dashboard combines two 12.3" screens under a widescreen display, new air outlets, and a redesigned steering wheel. Smartphones can now be charged inductively in the center console. The third-generation MBUX infotainment system offers increased computing power and additional electric-specific functions for the EQV.

The ambient lighting has been extended, and the left-hinged sliding door has become standard equipment. An augmented reality function has been added to the navigation system, while passengers benefit from new energizing functions. Big, multi-adjustable individual rear seats bring an S-Class feeling to the vans.

Opening and closing the windows can be done via the Mercedes Me app, as well as navigation with Live Traffic Information, Car-to-X communication and the extended MBUX functions with the voice assistant. Mercedes Me Charge is also available for the EQV, which provides access to the largest public charging network in Europe: over 620,000 charging points.

The vans come with Attention Assist, Parking Package, Driving Light Assist including rain sensor, and all the driving ADAS existing. With the Parking package, the parking assistant with reversing camera provides support when reversing and steering and detects obstacles at the side. The system can park forwards and backwards in perpendicular parking spaces.

The Design Lounge

Material District

THE DESIGN LOUNGE

"Sustainability is here to stay or we may not be" -- Niall Fitzgerald

On this moto started the Material District on 6-8 March in Werkspoorkathedraal, Uthrecht, Netherlands.

It's an annual event that brings together material manufacturers and specifiers of materials in all design sectors, with a particular attention and space for young talent and innovative designers, studios, and startups as well as a live lecture program with sixty speakers. Some of the most captivating presentations treated subjects such as sustainable trends and certifications of sustainable materials, metadesign, generative and parametric modeling, data driven design methodologies and optimization of the use of natural resources, biomaterials development and ethics, sustainable 3D printing, natural and recyclable sound absorbers, regenerative infrastructures.

Belonging originally to Werkspoor, a company that manufactured bridges and rolling stock for railways, the site of Werkspoorkathedraal is a fascinating industrial space located in Utrecht. It has been for decades a hub for craftsmanship, specializing in robust massive steel structures that many are still operational today.

The pandemic changed the way trade shows are conceived, and Material District is a good example of contextual forward-thinking with a particular accent on proximity and local resources. The old, gigantic, durable, dusty, and rusty structure was used as a background to a thousand colorful material samples, products, stands, installations, displays and theaters. Setting the tone of the show, the inspiring industrial establishment, acted as a tell tail of the transition to a new sustainable world.

A particularly valuable exhibit, the materials archive, with over 3,000 innovative samples, constitutes a unique global library in the realm of pioneering and ground-breaking materials. That includes materials that combine sustainability with durability and functionality, coatings that offer both durability and texture, bio-based materials for fire protection and many more, each one with a unique story. You can touch, bend, fold and stretch every single sample because, after all, that's what is all about: the experiential aspect of each one.

Many references were showcased, addressing not only their individual characteristics, but also a wider vision, for instance, the impending shortage of raw materials, new business models and cooperations, ephemeral and transitional trends and recycling, and circular design assets.

The overwhelming display of future-proof materials and applications, included among others, Eucawood, plant-based paint, bio adhesives, salmon leather, re-veneer, RIM polymers, planter tiles, stone waste fillers, sonic cotton, plant based antimicrobial fabric, marble composites, cattail-plant textile, expanded cork for external use, vegetal garments, organic glues, seawood, polyhydroxyalkanoate, ground-coffee tiles, woven biotextiles, mushroom sweat, fungal textile dye, acospray, woven vinyl, algae pigments, clay bioleather, but also, burned wood, plastic, glass and metal seen or reincarnated through a circular process.

As for individual pavilions:

- Samira Boon's BIOrigami approach to design was entirely based on the waste-stream textile potential. To prove the point, the aesthetic language chosen was origami, producing a rich portfolio of clearly stunning objects and environments.
- In the case of flexible wood surfaces by dukta, a cut pattern was essentially what created the mechanically unpairable wooden surface. The pattern itself became its visible character, but along the process of making, there was a surprise: its unexpected acoustic qualities. After implemented in several projects and particularly in interiors, flexible wood become a reference when design quality must meet soundproof spaces.

- Salmon leather by Seariousfish, turned salmon skins from food industry waste into some of the most exclusive and exotic leathers. Waterproof, heat resistant, printed, or laminated are some of its capabilities, developed through the partnership with Italian tannery Caraval.
- Blueblocks had one of the most captivating stands showcasing algae fabric and byproducts. Algae fabrics incorporate live algae that contribute to their unique coloration and texture.

- Vinyl revisited, from Swedish leader Bolon, displayed a vast portfolio of collaborations with worldwide known designers. Vivid colors, sophisticated textures and expressive patterns resulted in premium and timeless products.

- Firehose furniture was displayed, in a color hue similar to Frank Lloyd Wright's favorite red, by circular design studio Eversom. Transforming rejected fire hoses into 'raw design material', an entire collection of signature objects and environments lead to uniquely sustainable and everlasting designs with a strong visual identity.
- Fungi color tints were presented by fabulousfungi as an attainable solution to one of the major challenges in the textile industry. The fungal pigments are biodegradable, causing no water pollution, while requiring less water and energy.


- Treated Burned wood by Burnedwood, was presented as a long-lasting outdoor material. Shou Sugi Ban, also called Yakisugi, is a manually burned wood technique revived to produce a highly durable, circular and high-quality modular system for outdoors use. The ancestral technique is aiming at creating a strong CMF label based on deeply black, subtitle shine and crackled patterns.


- Vegetal leather by BeLeaf is a biomaterial that combines cutting edge technology with a responsible and conscious mindset. It is based on the elephant-ear plant, in Brazil, using organic polymers and vegetable resins. The choice of this plant was made on purpose to the location, right next to the forest, eliminating logistics, reducing the CO_2 footprint, in combination to the local climate that enables a rapid growth cycle. Beauty and leaf size can vary from one to four square feet. Moreover, the entire process is focusing in respecting and maintaining the individual characteristics of each leaf.


In the Young Talent category, Anett Papp explored 'naturing matter in motion'. The search and the resulting body of work is an experimental ensemble of materials around the structuring future of plant material and organic systems, broadening the conceptual approach to textiles. Rather than designing towards a specific result, the process aims to use the forces of a living dynamic system to its resulting materiality.

Design objects are meant to create a situation through spatial awareness and in addressing the new-material-world, Toothezoo brought the idea of house furniture a step further. It is a bit like if every piece of furniture was becoming a small or larger environment. Instead of just approaching the topic as an object, many similarities to car interior design were presented with a high commitment to functionality, immediate proximity and quality of living spaces.

Material District lectures and group talks were revelatory of new narratives inspired by original material identities. The reflection was brought further when the example of Wilson was showcased.

The Wilson Gen1 Basketball is an airless ball. Besides the technological marvel, Wilson makes a step towards a more sustainable future for sports equipment. But much like any new material, once implemented at the place of an older one, it might reveal unattended or previously undetected properties. Unlike any basketball known since the beginning of this sport and unlike any engineering prouesse of the leading brand to replicate to perfection all tactile feelings and sensations, and they succeeded, the new ball is yet, silent.

Since the ball feels and reacts like a normal ball, that is not a problem for any basketball player and furthermore, nor to their neighbors. But let's consider some possible scenarios that concern not just the individual player but rather the hypothetical new conditions for the entire basketball league.

While street basketball would become more neighborhood friendly at silent hours, how would Basketball stadiums sound? How would basketball players perform? Would they be faster and sneakier with a silent ball? Is the game going to accelerate and become essentially offensive? Yet, if I know that, then they do too, so what would be their countermeasure to this new technology effect? Is basketball then becoming a rather slower game due to strictly defensive team strategies…?

For those that cared for basketball the discussion continued, but the example used by the specific speaker was not innocent, because sports are cognitive amplifiers, and Material District is the place where the experiential aspect of materials is studied in-depth and showcased. Thus, the debate expanded over coffee break to the rest of the afternoon, for each business sector represented. For instance, how laser-cut decorative patterns that, unbeknownst to their design engineers, averred to be the best treatment for soundproof surfaces, would impact the business sector as well as our lives? What are the immediate business adjustments to welcome this unexpected opportunity? Do we need to invent new sounds for specific environments that now might become uncomfortably silent? How would car interiors combine all these properties and benefit of the collective outcome, both in business terms but also in experiencing new mobile quests and emotions?
The concluding hours of the enriching event, endorsed design-specific talks related to how new materials, form properties and circumstances are creating an upcoming, distinct and identifiable style for a new sustainable era.

News Mobility

C-V2X Tech to Open Green Light for Passenger Vehicles

NEWS MOBILITY

For the first time on public roads, cellular vehicle-to-everything (C-V2X) technology has been used to request a green light for passenger vehicles, demonstrating how the tech can replace costly intersection detection devices, eliminating wait times at cross streets without disrupting normal traffic flow.

The application was developed by Applied Information for the Texas Department of Transportation (TxDOT) and demonstrated using the TravelSafely smartphone app, an Audi etron Sportback equipped with C-V2X Direct and a cellular network-connected Ram pickup truck using HAAS Alert's Safety Cloud technology.

The 'detector call' application is designed to improve safety by eliminating unnecessary stops at cross streets at night and to reduce the cost of installing and maintaining advanced vehicle detection equipment such as radar, cameras and loops embedded in the pavement.

The application mimics a normal request for a green light from vehicles approaching the traffic signal and changes the light as the vehicle arrives. Eliminating unnecessary stops also reduces idle time which provides an environmental benefit. The application is non-disruptive and maintains the signal's normal timing routine.

"This is a revolutionary change for the detection system from passive to proactive," said TxDOT Houston project coordinator Steve Chiu. "Also, from a maintenance and efficiency perspective, which is important to the maintaining agency, C-V2X provides a high-level of reliability."

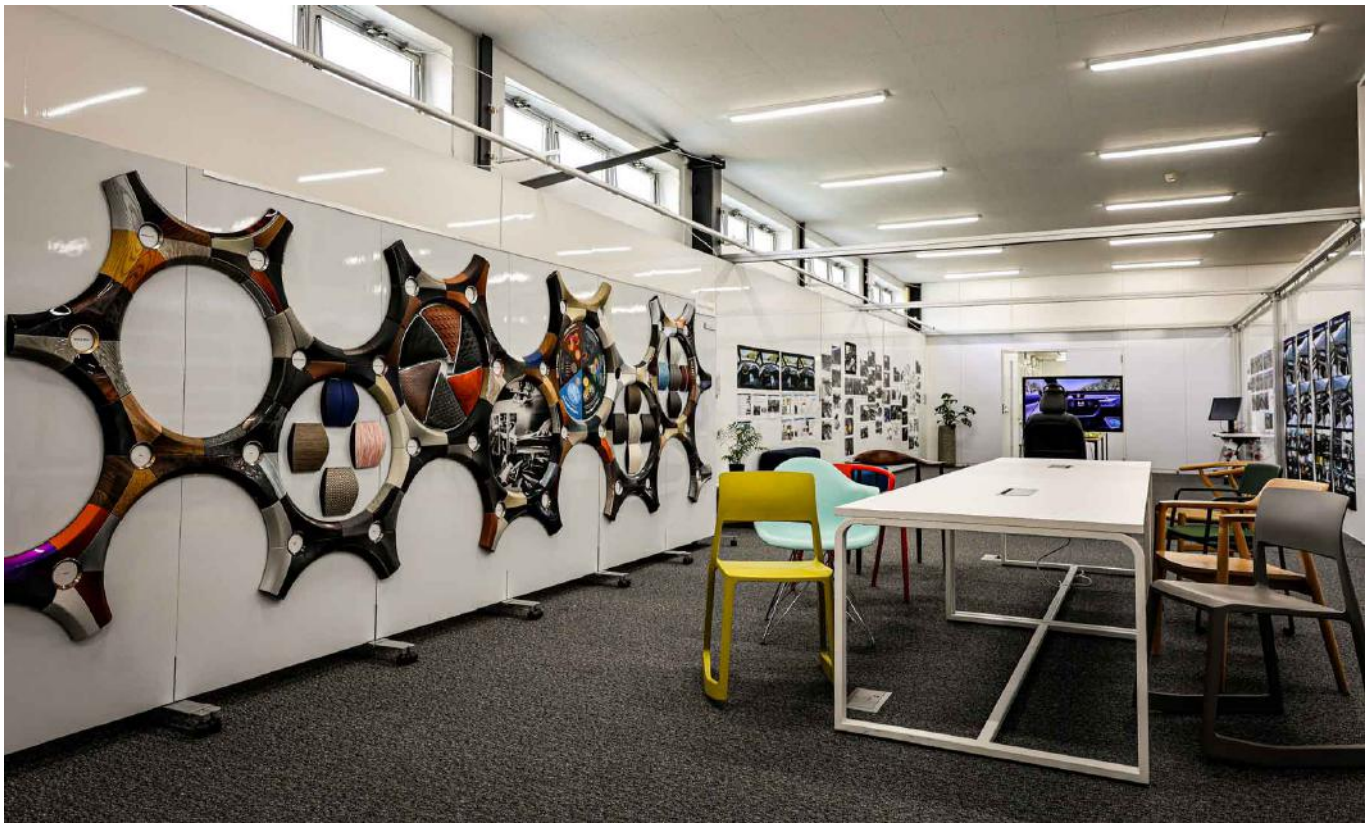
Bryan Mulligan, President of Applied Information, said, "Enabling passenger vehicles to communicate with traffic signals is a significant leap forward in safety and efficiency. This innovation is available today and can be deployed at scale using existing technology on smartphones, in vehicles, and at traffic signals. Texas DOT is leading the nation in developing and deploying innovative technology to improve safety, save tax dollars and improve the environment."

The technology enabling passenger vehicles and TravelSafely smartphone app to communicate with the signals and call for the green light using C-V2X was developed by Applied Information. The Audi e-tron was equipped with a C-V2X Direct on-board unit which was programmed to ask for the green light. The pickup truck used its integrated cellular network modem to communicate with HAAS Alert's Safety Cloud platform, which then delivered the location data to Applied Information's cloud platform to ask for the green light. The TravelSafely app is available for iPhone and Android smartphones.

General News

Marelli's New Interior Innovation Centre in Japan

GENERAL NEWS



MARELLI IMAGES

Marelli has openedtheir new Interior Innovation Centre (IIC) in Yoshimi, Saitama Prefecture, Japan, picking up the experience of the previous Miyahara location. This integrated facility will be strategic in fostering design-led innovation at speed for the creation of new vehicle interiors solutions aimed at present and next-generation vehicles. The 1,420-m^2 plant hosts a team of engineers and designers, is implementing three key initiatives inspired by the theme *“What’s next? Innovation for the new era”*.

The IIC has established a hybrid team structure, integrating interior engineering, electrical engineering, material engineering, and interior design: experts from different fields collaborate, and inspire each other to generate new ideas and solutions.

The Centre is an environment focusing specifically on innovation: it is independent from the development and production units, while cooperating effectively with them to enhance creativity.

It applies manufacturing based on '3 Reals' theory, a method to determine everything based on three realities: place, product and situation. It is equipped with clay modeling facilities, prototype workspaces, and virtual reality technology to create realistic innovation, taking into account the realization at the actual production lines.

The aim of the IIC is to create next-generation cockpit solutions through the combination of innovative ideas and technologies. To realize this vision, it promotes a series of strategic initiatives.

In addition, it promotes open innovation and active collaboration with automakers and other industries, aiming to create new value through the fusion of inter-industry technologies and ideas. It integrates the latest electronic technologies with sustainable material engineering to promote eco-friendly innovation.

The IIC has established a hybrid team structure, integrating interior engineering, electrical engineering, material engineering, and interior design: experts from different fields collaborate, and inspire each other to generate new ideas and solutions.

The progress achieved through the new center has already led to the creation of the cockpit concept ‘Digital Detox,’ which was exhibited at CES 2024. Following this concept, the cabin is realized to offer a comfortable 'living room' environment, with high-quality and sustainable materials. To ensure a relaxing personalized space, digital screens and buttons, when switched off, can become invisible, concealed under stylish panels or stored under the console. Necessary information is displayed when needed, ensuring a functional and enjoyable experience.

Finally, the IIC fosters a culture that encourages creative thinking and experimental challenges, providing an environment where members can freely propose ideas and fearlessly explore new solutions.

Renault to Invest in Korean Unit for Hybrids

GENERAL NEWS

RENAULT (SAMSUNG) XM3 (RENAULT IMAGE)

Renault Korea Motors plans to invest ₩700m (USD $523m) by 2027 to introduce new eco-friendly models at its Busan plant as it continues to struggle with dropping sales. The company, majority owned by Renault, signed a memorandum of understanding with the city government agreeing to transform the Busan plant into a global production hub for hybrids.

The company reported a 37-per-cent drop in global sales to 106,924 vehicles in 2023 with domestic sales plunging 53 per cent to to 24,696 units, and exports down 30 per cent at 82,228 units.

The XM3 was by far the best-selling model with 78,000 global deliveries, followed by the QM6 and SM6. The plant has capacity for 300,000 vehicles.

Renault Korea CEO Stephane Deblaise said the company plans to build hybrid vehicle research and development (R&D) and production facilities at Busan as part of their previously announced Aurora project.

The company also said they are considering doubling their announced investment to ₩1.5trn to build facilities for BEVs at Busan, pending approval from France.

Just Auto reported previously that Renault Korea agreed to produce a Geely-based hybrid SUV at Busan later this year under the Aurora program to help revive sales, to be followed by a Polestar 4-based BEV in the second half of 2025.