DVN-I
Automotive Interior

Thu, 2 December 2021 Weekly Newsletter **NEWSLETTER #89**

Editorial

Interior As EV USP? Yes!

FISKER BOOTH, LA AUTO SHOW 2021 (DAILYXI IMAGE)

The Los Angeles Auto Show, which closed last Sunday, reflected an automotive industry going full speed into electric vehicles. That's not really a news flash, but here's one made clear by the specifics of what was on display: EV makers aren't putting so much competitive weight on motor performance anymore. They're competing on design, battery range, and especially on interior content and presentation—the most intuitive HMI; the best AR HUD; how effective and useful the voice-recognition software is; how versatile the seating arrangements are; which social media platforms can be integrated directly with onboard systems; the most attuned yet unobtrusive driver monitoring system, and so on and on. The interior has become the USP (Unique Selling Proposition) of electric vehicles.

That’s what DVN Interior is for. That's why we're here, to make it easy for you to keep tabs on who's doing what in this space to create value and differentiation in today's and tomorrow's automotive interiors. Not a member yet? Join us **here**!

Sincerely yours,

Philippe Aumont
General Editor, DVN-Interior

In Depth Interior Technology

LA Auto Show Is Back—Look Inside the Cars!

The Los Angeles auto show has long focused fascination on innovation, lifestyle, and sustainability. This year's show, at the million-square-foot convention center, mostly focused on EVs, especially ZEVs (Zero Emission Vehicle), with debuts from Hyundai, Kia, Toyota, Subaru, Fisker, and Nissan.

Growing prevalence of EVs makes auto shows newly crucial for educating would-be buyers and helping them update and reorient their working knowledge. Of course, as always, an auto show also permits side-by-side and back-to-back comparison among numerous competitors in all categories of vehicles. It's not all that different to a century ago, when auto shows were used to introduce and educate the public about the automobile itself as a new type of transport.

This year's LA show started off with AutoMobility LA, a sort of merged and primped version of what used to be press days and industry days. The new ZEVAS electric vehicle awards were launched this year to laud ZEVs available for actual purchase—or at least for pre-order—in a variety of categories. The inaugural-year ZEVAS winners are:

Compact: Hyundai Kona EV
Coupe: Alpha Ace
SUV: Mullen Five
Sedan above $60,000: Lucid Air
Sedan $60,000 or less: Tesla Model 3
Hatchback, Van, or Wagon: Canoo Lifestyle Vehicle
Crossover above $50,000: Tesla Model Y
Crossover $50,000 or less: Fisker Ocean

And now let's have a look at individual automakers' offerings:

Hyundai Kia

Hyundai showcased their EV9 and Kia their Seven; scuttlebutt is that they are closely approximate to production versions due to launch in 2023. Both are formidable motorcars, but neither won a ZEVAS award, showing how tough the competition is.

These two concepts are large SUVs based on Hyundai Motor Group's E-GMP (Electric Global Modular Platform) specifically conceived for EVs. This platform allows car architecture around 5 m long, with a 3m+ wheelbase, perfectly fitted for large interior volume.

The most production-ready aspect of the concepts is the drivetrain, which already is used in the smaller Hyundai Ioniq 5 and the Kia EV6.

HYUNDAI 7 IN GREEN; KIA EV9 IN BLUE (HYUNDAI IMAGE)

Hyundai Seven Concept

HYUNDAI IMAGE

Hyundai's Seven concept is a preview of electric SUVs for the Ioniq sub-brand. It's got a spacious interior in glorious green—what a welcome break from endless grey, beige, tan, black, and white interiors!—with ingress and egress facilitated by suicide doors (gaining popularity on a number of concept cars, though perhaps makers might prefer a less loaded name—clamshell doors, perhaps?) and a futuristic but still reasonably plausible exterior design. It boasts a lounge-style interior featuring eco-friendly materials, and a number of hygienic features and surfaces meant to minimize virus transmission.

Hyundai Motor North America president and CEO José Muñoz says "The Seven concept demonstrates Hyundai’s creative vision and advanced technological development for our electrified mobility future. Its innovative interior space, eco-friendly powertrain, and cutting-edge safety and convenience technologies reveal an exciting future for Hyundai SUV customers".

The Seven is a 7-seater (go figure!), featuring a new vehicle-to-load (V2L) system which allows customers to charge external electric devices such as coffee machines and electric bicycles. The Seven features design elements taken from Hyundai’s Ioniq brand, such as "Parametric Pixels" high-resolution digital light beam imaging.

The dashboard has a foldable driver's control stick, which can be folded away entirely. At the back, there is a curved bench for a truly lounge-like atmosphere. There's also side-door ambient lighting, a vision roof with a panoramic OLED content screen, and a universal island console.

Kia EV9 Concept

KIA IMAGE

The Kia EV9 concept has a footprint comparable to the Hyundai Seven, but with a sportier, boxier body. The interior is a little more conventional than the Hyundai's

Kia Global Design Center SVP Karim Habib says “Having made our intentions clear—to become a global leader in sustainable mobility solutions—today we are proud to show the world our all-electric SUV concept, which fuses together an advanced zero-emissions powertrain, a cutting-edge exterior design and a contemporary and innovative tech-based interior space".

Kia says the EV9 was developed under their new “Opposites United” design philosophy, which embodies its shifting focus toward electrification. It will be the second Kia model, after the EV6 sedan, to use the E-GMP

platform.

Here again, we have to say the L-word (lounge). There's just no other way to clearly express the evolution of the interior configuration of vehicles like these. The interior has three modes, one of which has the front seats rotating to face the third row while the second row folds away and becomes a table.

It has retractable roof rails for improved aerodynamics, and sideview cameras are likewise more aerodynamic and versatile than the mirrors they replace. A 27” ultra-wide color display for media and other functions spans almost the whole dashboard. There are no more switches or physical buttons in the cockpit. The steering wheel is shaped like a horizontal oval. There's also a panoramic sky roof, while an Enjoy Mode for the cabin turns all three rows rearwards to the open tailgate, creating a sheltered viewing deck.

Fisker Ocean SUV

FISKER IMAGES

Fisker's having another go at things, hoping their Ocean will gain more traction than their cursed Karma EV sports car. The interior USP is most likely the rotating screen; Fisker founder and CEO Henrik Fisker says “When you use your phone and type on it, you hold it like this, and when you take a picture or if you want to watch a movie, you turn the phone around”—the inspiration for the new SUV's swivelling screen. Ocean prototypes are being built in the Magna-Steyr plant at Graz, Austrlia; the production version is slated to go into production a year from now.

Subaru Solterra

SUBARU IMAGE

Subaru, who have up to now produced only combustion-engine cars, showed their first EV—the Solterra, a coöperative effort with Toyota. According to Subaru, the most important interior features are its connectivity and touchscreen-driven infotainment. Apple CarPlay and Android Auto are included, as is wireless smartphone charging. The Solterra has a freestanding digital gauge display, a large infotainment system, and a high center console with what looks like a rotary shift knob. The conventional steering wheel is striking because until now they have only shown images with a yoke. See more detail about the Solterra interior in an online **Video**.

VinFast

VF E35 (VINFAST IMAGE)

Vingroup, a Vietnamese private conglomerate, has invested $5bn to develop and manufacture vehicles. The money comes from the richest man in Vietnam, Pham Nhat Vuong, who made a fortune with a noodle business in Ukraine.

VinFast views the show as a perfect stage to demonstrate their commitment to promoting the global trend “of green transportation and encouraging electrification,” according to ex-Opel and current-Vinfast CEO Michael Lohscheller. There were two VinFast electric SUVs on display, the e35 and e36. Both designs have been supported by Pininfarina.

The e35 in Los Angeles had a finished interior with a 15.4” touchscreen and no gauge cluster. VinFast chief designer David Lyon says "Our vehicles all have a full-color, windshield-projection head-up display. It's a very open, spacious interior. You interface with the steering-wheel controls to operate the vehicle, your hands are on the wheel, and your eyes are on the road".

Vinfast will release their first full-size electric SUV in Vietnam before the end of this year (i.e., very soon), where they already sell electric scooters. The plan is to expand to the US market sometime next year.

Edison Future

EDISON FUTURE EF1-V (EDISON FUTURE IMAGE)

Edison Future is an American startup planning to produce electric pickup trucks and vans. They're based in California, and were established last year as a tentacle of Chinese company SPI Energy. They showed two concept vehicles at LA, and say they're aiming to bring both models to market in 2025. The EF1-T is an electric

pickup truck—which has been headlined as "Chinese Company Copies Tesla Cybertruck—Sort Of", and the EF1-V is an electric delivery van.

These new vehicles notably feature solar panels on the roof. The company says these could provide 25-35 additional miles of range each day under sunny conditions. The panels come from Phoenix Motor in Ontario, Canada—another SPI Energy tentacle, this one focusing on renewable energy, including solar panels.

Edison Future chief marketing officer Jose Paul Plackal says his company is "here to provide innovative, bold, and sustainable options for consumers; there are other manufacturers in the truck segment, and we applaud those efforts. In addition, the EV space is growing at such a rapid pace, so there is an opportunity for numerous OEMs to address the demand". More information is available in a **video**.

Mullen

MULLEN FIVE (IMAGE: YOUTUBE)

California-based Mullen Automotive showed their Five electric SUV. The same company put out a scarcely-known model in the early '00s called the Mullen GT, one of the first electric sports cars.The five is designed by Thurner Design, founded in 2020 by Andreas and Annette Thurner in California, with a team of experienced designers from premium automakers. The Five won a ZEVAS Award, and more can be learned in an online **video**.

BMW

BMW XM FRONT (BMW IMAGE)

BMW teased a top-line performance SUV concept at an off-site event before the real show. They call it XM—the same designation as the luxury Citroën of the 1980s. BMW's XM will be their first standalone M model since the M1 supercar. The full reveal is scheduled for Art Basel in Miami Beach this month.

Others

Also presented, but already introduced in previous DVN Interior editions: the BMW Vision Urbanaut; the new Range Rover, and the Porsche Mission R.

CHEVY CORVETTE Z06 (IMAGE: CHEVY-2023.COM)

Acura revealed an Integra prototype a week before the show started. Chevrolet showed their new Corvette Z06, already presented to the press earlier this month. Mazda launched their new CX-50 crossover.

Audi, Cadillac, Lotus, Mercedes-Benz, and Volvo skipped the LA Convention Center this year. Bentley, Ferrari, Lamborghini, and Rolls-Royce gave it up long ago. If this year's EV-centered exhibition is an indication, these absentee makers might well find themselves wanting to reconsider for next year…!

Interior News

OLCD for Flexible Big Control-Displays

INTERIOR NEWS

NISSAN XMOTION CONCEPT, 2018 (NISSAN IMAGE)

What will the cockpit of the future look like? This question was explored by the experts of the German Flat Panel Display Forum (DFF) and adhesive tape maker Tesa in Norderstedt, near Hamburg. The hybrid event gathered more than 80 experts from the display industry.

Presenters compared the interaction modalities of the cockpits of car models from Tesla, Lexus, Mercedes and BMW: What happens when the driver interacts with a large touchscreen while driving and enters the address to his destination, for example? Where should the control button on the screen ideally be placed?

The unsurprising result: fewer than one in five persons were able to completely enter the address into the particularly large display of one of the car models while driving. This shows a large touchscreen in the cockpit is not always the best solution, and not for all interactions. To avoid creating new safety threats, the driver must easily reach and operate the controls, and they must not distract the driver's attention.

As displays grow in size, it becomes challenging to integrate them into the vehicle interior full of curved surfaces. The preferred vision of product designers is to wrap and shape displays to the curved surfaces and spaces. This idea can be realized with organic LCD (OLCD) technology developed by FlexEnable. It combines an organic TFT (OTFT) backplane with a flexible LCD front plane. With a bending radius of down to 10 millimeters, OLCD is thin, light, and scalable to large sizes. Also, plastic OLED displays are very thin, flexible and have excellent black levels, but OLCD displays have advantages of lower cost, longer lifespan, and high brightness in the difficult car interior environment.

Henkel Bonding For Display Solutions

INTERIOR NEWS

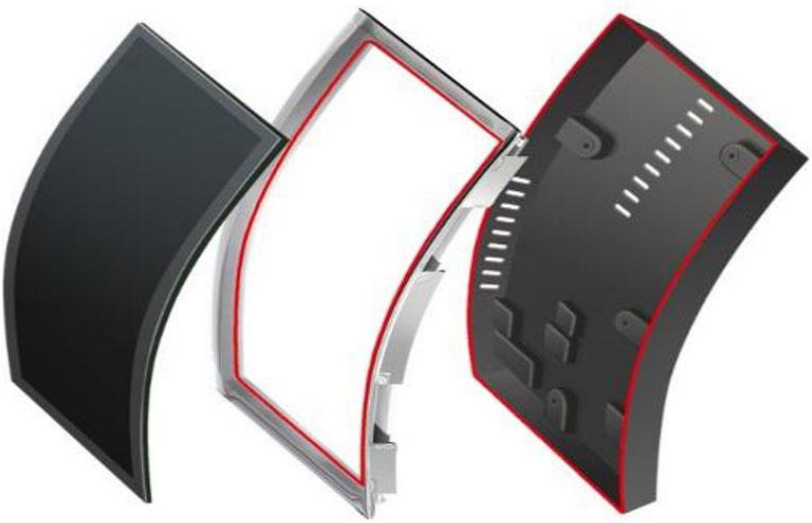
HENKEL IMAGE

German chemical and consumer goods company Henkel is a leader in adhesives, sealants, and thermal management materials. They have extensive experience with automotive display optical, structural bonding, and thermal management needs and solutions. Their expertise enables an efficient manufacturing process, which was developed in partnerships with lamination equipment manufacturers. The design approach towards mass production equipment offers benefits in terms of process flexibility, quality, and affordable manufacturing.

As switches and buttons and real gauges are gradually replaced by virtual items, manufacturing the larger and ever-larger, more complex displays requires special materials and techniques. Wider displays are built out of multi-panel displays, combining single displays into a bigger one, allowing for a tidier look and fell in the interior of a car. (and reduced machine production footprint).

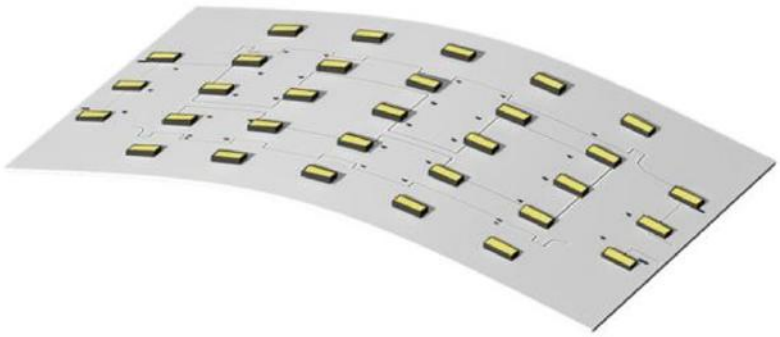
These displays require a variety of materials that range from ensuring the strength of the display housing structure, to controlling heat dissipation from led circuit boards, to the bonding of the cover lens to the TFT/LCD.

The optical bonding of the automotive display is necessary for the protection of screens and to ensure their protection from environmental aggression. Optical bonding is performed with a combination of coating and lamination processes where the critical optical performance is needed for the display. Henkel has developed liquid optically-clear adhesives for various display designs and applications.



STRUCTURAL BONDING (HENKEL IMAGE)

Structural bonding is required to attach the display module on to the frame or housing structure to the automotive dashboard or elsewhere in the vehicle. Challenges include bonding of narrow borders and thin bond lines, quick handling strength, and the need to bond materials with multiple substrates. Structural bonding adhesives must be flexible for the different thermal expansion of the substrates with enough bonding strength for the required small bonding area. Henkel's structural bonding solutions are tailored for these automotive display requirements.



HENKEL IMAGE

Infotainment systems are trending towards multifunctional displays with increased power consumption for a higher number of circuit and LED chips, so thermal interface materials are being designed to transfer heat away from electrical components and carry out key functions such as heat dissipation, stress relief, insulation for electrical circuits, and to ensure continued stability for electrical components. Henkel’s Bergquist brand has developed formulations of thermal management materials to solve thermal control issues involving automotive electronics and displays.

Antolin Headliners From Plastic Waste, Used Tires

INTERIOR NEWS

GRUPO ANTOLIN IMAGE

Grupo Antolin developed a molded headliner made by thermoforming a PU foam with materials made from plastic waste and old tires. This more sustainable molded headliner meets the same requirements as one made of traditional materials.

The new concept was developed together with chemical company BASF, who devised the necessary manufacturing process, which has now been validated by Grupo Antolin. About half of the molded canopy, by weight, is produced from recycled material. In an initial series application, all of the textile; 70 per cent of the core foam, and 70 per cent of the plastic sunroof reinforcement frame were made out of recycled material.

This technology has proven to be quite competitive in cost and quality, and Antolin has announced the next project with a recycled-PU core foam for 2022.

Grupo Antolin focuses on different methods and technologies to recycle interior trim parts as part of their objective to make a positive contribution to society and reduce their carbon footprint. In this sense, mechanical recycling is another well-known procedure that helps to reintegrate plastic products into the production cycle. This is a mature technology, named Novaform, that has founded many applications and it's well integrated in the industrial processes. This type of recycling is currently being used with thermoplastic structures. With thermoset materials, mechanical recycling is not possible in many cases, though. Now comes Coretech, a solution to transform a composite thermoset product into construction board with outstanding insulation and endurance properties.

Antolin overhead systems advanced engineering director Enrique Fernandez says "This project is a step towards a more sustainable car interior trim and a huge leap for wet PU technology [which] has demonstrated to be the most competitive in terms of cost and quality, fulfilling at the same time the most demanding specifications from our clients".

BASF Innovative Plastics For Design And Comfort

INTERIOR NEWS

BASF IMAGE

BASF has a portfolio of innovative plastic solution to support design and comfort for automotive interiors, including—

Instrument and door panels
Instrument panels are safety-relevant parts with extreme requirements. The foam has to fulfill high durability even in humid and hot environments. Elastoflex is suited for closed- and open-mold technologies with low density solutions down to 100 g/l and fast demolding times down to 70 seconds. Foaming in gaps smaller than 5 mm can be realized. Emissions meet VDA278 and chamber test requirements. Special soft grades are available to meet automakers' harsh heat and humid aging tests.

Steering wheel
Steering wheels made of Elastofoam-I integral foam have a soft, comfortable touch combined with a tough outer skin. They are wear-resistant and durable; unaffected by sweat, sun cream or cleaning agents. State-of-the-art low emission systems offer a significant weight reduction down to 340 g/l without loss of properties at demolding times down to 60 seconds. Elastofoam-I is also suited for armrests and handles with in-mold coating (IMC).

Headliner
Car headliners are the biggest surface to absorb sound and reduce vibrations, though available space is limited. BASF thermoformable Elastoflex E 3943 is a low-density foam system down to 22 g/L that offers outstanding acoustic properties while providing high stiffness and very low emissions.

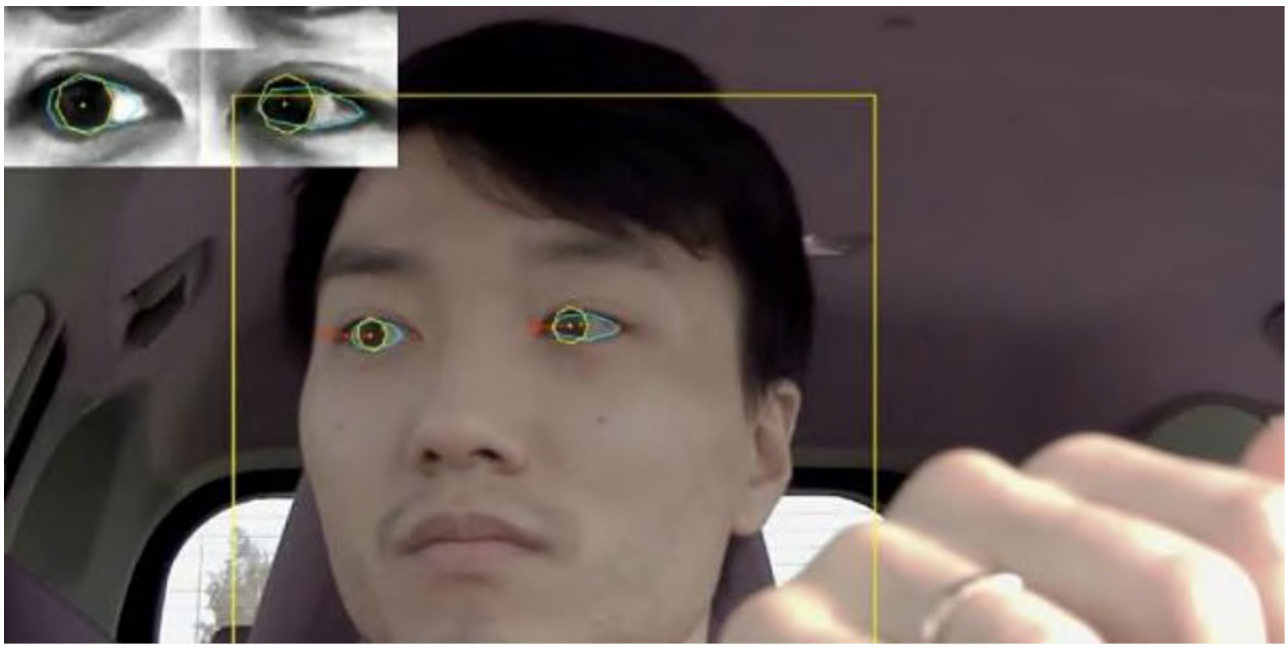
Trunk floor
Elastoflex E 3532 is a resin to realize extremely lightweight honeycomb-sandwich structures with easy and fast processing. The usage of the thermo-activated systems ensures thorough wetting of the fibers, a firm bond with the sandwich core and rapid curing.

Seating
BASF provides fully formulated Elastoflex-W systems or special isocyanate solutions for comfortable seats with high productivity even at low densities down to 40g/l. Foam hardness is directly adjustable on the application machines in a wide range. Different hardness zones in a seat allow a combination of strong seating support with a soft feel for increased comfort. Elastoflex-W foam systems are extremely durable under dynamic loads for long service life.

Acoustic foam
Elastoflex-W flexible foams allow car designers to tailor the acoustic perception of the car interior. Tailored acoustic properties, low densities, good processing behavior and low emissions are key requisites for state-of-the-art carpet back-foaming and related applications.

Finns Claim 1st Crossplatform Driver Eye Tracker

INTERIOR NEWS



BASEMARK IMAGE

Basemark is a Finnish company of over 70 people, headquartered in Helsinki. They say they've made a breakthrough in DMS—driver monitoring systems—with the world's first cross-platform eye-tracker.

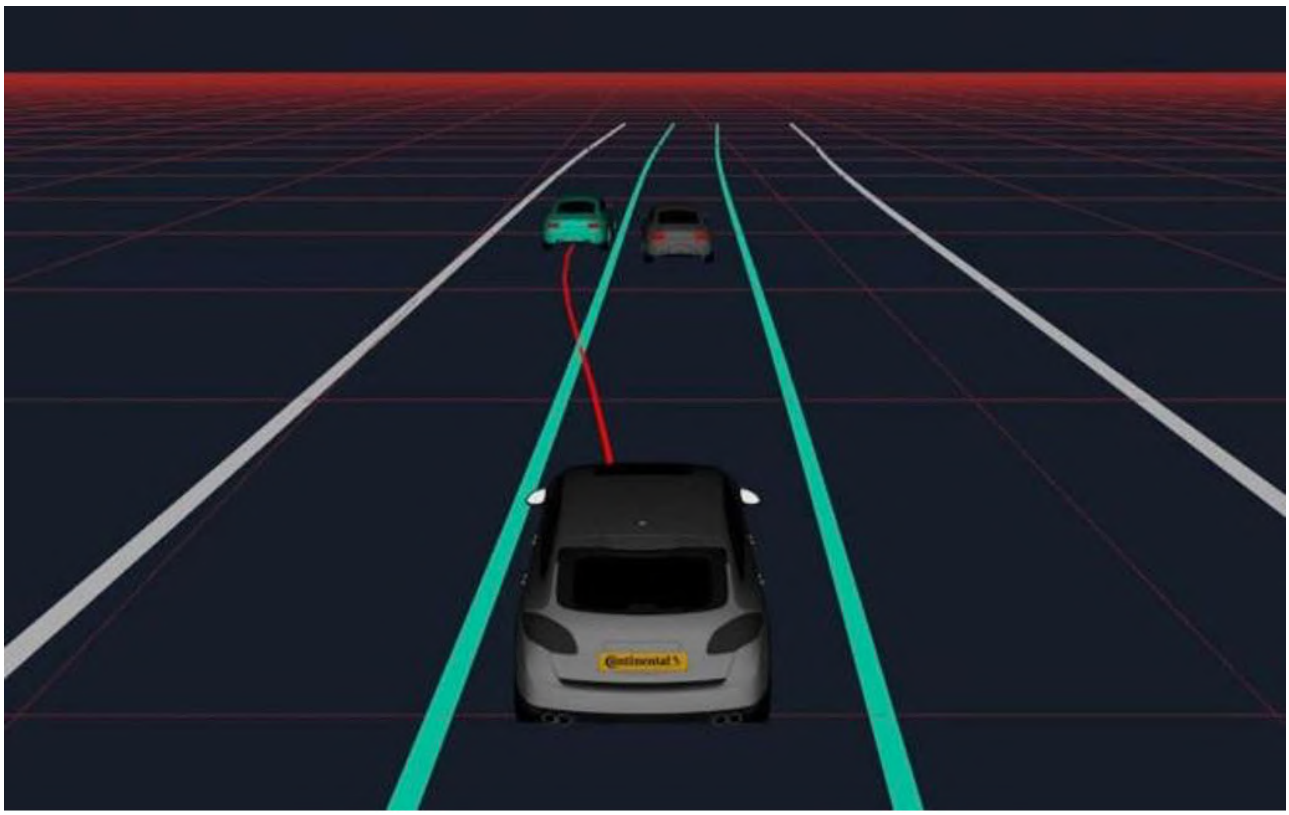
Basemark's Rocksolid Core end-to-end automotive operating system allows high-quality eye-tracking, a key technology on which modern DMS are built. The company says their system notices driver drowsiness, distraction, or impairment by following the driver's gaze, and reacts accordingly. Combined with other advances within Rocksolid Core—such as object detection, safe instrument cluster, and lane-keeping assistance—using eye-tracking instead of handgrip on the wheel as an indicator could provide an even safer way for engineers to rethink the driver's actions that may lead to crashes.

The company provides a licensable reference design application readily portable to practically any hardware and software environment. This enables automakers to re-use the same application across their premium, medium, and volume models, each of which may have different processors and software stacks.

Basemark CEO Tero Sarkkinen says "With our unique cross-platform implementation, we enable [automakers] to more rapidly and more cost-efficiently develop this system in their cars. The most special aspect of our eye-tracking capability is that it runs on our inference engine that's accelerated by a GPU through Vulkan, making it easily portable to various GPUs. This makes it easy for any automotive OEMs to build world-class eye-tracking capabilities across their product portfolio".

Continental's Driving Planner for Autonomous Driving

INTERIOR NEWS



CONTINENTAL IMAGE

Continental's Next Generation Driving Planner could go into series production in 2024. The intelligent software enables highly automated L^{3+} driving. The software is intended to enable vehicles to perform certain driving tasks independently and without driver intervention. To do this, the Driving Planner calculates precise decision-making variants from a multitude of sensor data. The software can thus calculate traffic situations in advance and derive the optimal reaction of the vehicle. While today's individual systems such as adaptive cruise control and the lane change assistant calculate their longitudinal and lateral movements independently of each other, the Driving Planner makes complex maneuvers possible because it calculates the longitudinal and lateral movements together over a time horizon of several seconds.

Continental cites the approach to a motorway via the acceleration lane as an exemplary driving maneuver. The Driving Planner calculates this complex maneuver from radar sensor and camera data. Further software modules take over the implementation of the calculated driving maneuver. The vehicle accelerates, merges into the traffic stream, and picks up speed in line with the traffic flow. The driving maneuvers can be calculated by the system up to a speed of 130 km/h. The system is also able to calculate the speed of the vehicle.

News Mobility

_ Car interiors Unplugged.
(Summary Series, 4th out of 7)

NEWS MOBILITY

LUMINEQ'S TRANSPARENT ELECTROLUMINESCENT DISPLAY – LUMINEQ IMAGE

4. The Future is Clear

A crystal ball, also known as a common fortune-telling object, is generally associated with the performance of "seeing": the practice of looking into a medium in the hope of detecting significant messages or visions. In more recent times, it has been used for creative photography with the term 'lensball' commonly described as a photography prop. Thus, the principles of optics may be applied to analyze its imaging characteristics. As a lens, a transparent surface of any material with refractive index greater than one, it bends rays of light to a focal point. An image is formed with significant coma, field curvature, and other optical aberrations inherent to such surface. In terms of car interiors, the subject is complex. It has to do with perception of space and surroundings, motion and sense of belonging and with who we are within this partial and temporary residence of territories we are crossing. It is another definition of mobility.

Unlike architecture, where the use of glass is mostly flat and vertical, transparency in automotive has taken any possible angle, moving away from even planes very long ago. Concave or convex forms, tangent surfaces and their overall development, expand beyond visible into multifaceted tridimensional envelops. For instance, a sliding driver's window cylindrical surface, is just a tiny fragment of a wider envelope that virtually occupies an area of several football fields with intricate twisted mathematical shapes. Way greater than the vehicle itself, the huge rolling envelopes define its position into the larger engineering protocol. These are virtual factors that urbanists and architects do not have to take in consideration. The automotive transparent surfaces, so called windows or greenhouses, are carriers of the manufacturing history and identity of mobility. In fact, every time we sit in a car interior, we talk about what we see.

Upset by a sort of financial embargo, imposed by pandemic, the somewhat unprepared industrial production had to adapt unpleasant last-minute fixes. Our troubled entry to industry 4.0 will be probably marked as the 'transparency' era. Clear barriers were installed everywhere. Transparent materials made their way into shops

and services as well as into our houses. If reactionary investments had a fast return, then an expansion in the sector is expected. Rapid growth in one specific segment (for instance, a particular emphasis on tooling since anything transparent requires high-end surface quality) have always brought about original new processes and matching aesthetic expressions in everyday life. And it is not only designers who see transparency having a great potential today but apparently so do politicians.

While design trends emerge, through a multitude of domestic short-term developed products (ie Plexiglas cased espresso coffeemakers, transparent shielded dryers, see-through secured dispensers), automotive, due to its complexity and long investment circles, represents a longer yet more permanent expression of the matter. When automotive history is seen through green-house versus car-body, exploring transparency versus opacity, then proportions become a key part and a serious way to forecast upcoming car interior trends.

Vehicle beltline is where the two opposite universes meet and proportions are decided, expressing posture and character. In addition, the essential lateral volume is sculpted to pronounce the best body section. This is the zone of the highest contrast and intensity, spotlighting reflections and shadows, juxtaposed on most significant details to piece together the looks of new mobility. Greenhouse development can introduce new automotive morphologies changing entirely our relationship to surroundings. In interiors, this is precisely what defines the dose between prospect and protection. From Fangio's Alfetta159 to Verstappen's Red Bull RB14, it is quite revealing the 50-year panorama of F1 beltline evolutions, leading into both improved shelter and vision. Perhaps the most striking thing about them is the intricacy of lines that clearly separate the two bodies: the car-body by the pilot's body. Similarly, these notions are reflected to a tremendous degree into production cars. All feelings and emotions related to mobility have to do with this magic alchemy between visible and hidden. Very 'transparent' cars often relate to lounge-type interiors and to a certain lifestyle. More opaque/solid cars refer rather to sports and racing or even in another case, utility and tactical vehicles. Furthermore, entirely opaque autonomous pods, airbrush out any notion of beltline along with the interior itself and anything transparent.

At the actual moment, automotive history is about to drift over a fundamental notion: that cars are no longer cars. Thanks to tech, our mobile habitat is perfectly embedded into a holistic digital ecosystem, thus the mobile experience is not anymore lived through the framed glass windows but over a screen. Car designers do not design anymore cars but 'the journey'. Equipped with immersive technology apps, car interiors reshape mobility so much that the outside reality can be dissociated by the interior events, soon empowering new automotive morphologies.

The more the vehicles and the moving objects on the road, the more the screens and the interactive maps. 21st-century mobility was pronounced for a moment with less transparency on car bodies (utility delivery vehicles during lockdown) yet more visibility through screens. That opens new envelopes of car body expression, contrasting evermore what is transparent with what's not (ie. ¾ rear- and rear-view angles are not anymore as relevant). It might be that the archetype of mobility is ever-changing through this notion: mobility through a screen versus more interior experiences, utility volume and habitat. Similarly, this odd relation between static and mobile changed forever our perception of moving landscapes. We can now change the awareness of space-and-time and we can switch mobility particles of various composition modes: a somewhat 'blind' vehicle that amplifies the perception(s) of surroundings within its interior and its trajectory defined through screens, somewhat like an "urban submarine".

The dialectical relationship between form and content is about to change, setting off a new historic mobility segregation, possibly, between the vehicle and its surroundings, redefining transparency and opacity as relative as perceived. Considering all the above, transparency is now seen as part of the fabric of mobility. In the 1700s we entered a new architectural concept concerning the permeable-reading of buildings; the Sun King, created the Halls of Mirrors so that you could look through the castle from the outside. In a similar way, the multitude and the flux of partially transparent urban vehicles and mobile objects, rolling or maybe hovering in between buildings will draw the identity of our cities, influencing urban planning as a permanent component of our perception of space. Maybe a polarizing sect of mobility will increasingly dictate the future of car interiors separating the somewhat opaque from the more transparent ones, promoting protection and privacy versus vision and inclusion or inversely.

Meanwhile, transparency in a smaller scale, reassured progress by imitating an aspect. Indeed, it is more of an aspect than a material, accomplishing both hardness and permeability (of light); the two opposing notions and perceptions in a single mass. Headlamps, windshields and displays from then on, are inseparable components of our vehicles and by extension, our mobile lives. We perceive transparency as smooth, flat and shiny but once complex forms, patterns, prisms and textures applied, as in headlamps or taillamps, the immaterial universe of light renders back to the surrounding space a reading of its complex character. When a multi layered modern-day windshield coupled to Head-up-display, a mobility-coded message is graphically composed through windshield reflections. Physical and digital information merge into the perspective that lays on the road ahead. In virtual-cockpits, an integrated graphic appears as several 3D objects, through a glossy protective layer, just like jewels behind glass. Preciousness and desirability extend beyond physical and tactile to an almost immaterial desire. It is about invisible materials that seal a very visible, yet immaterial, graphic. Whether amplified effect or visual distortion, it suggests a certain superior outcome on the combination of the two, like a new version of luxury, clean, neat and glossy, a kind of a fetish 'non object'.

Transparency here does not replace opaque surfaces but rather multiplies readings in a similar way that, in the past, stained-glass windows reflected complex and colorful patterns on anything indoors. At the height of our technological achievements, we foresee multiple readings within the 'depth' of any transparent surface and by integrating touch controls, readings turn into actions. This is beyond the information and its usage. Like never

before, a universe of light reflections with form, color and sequence as random as the information displayed, can activate virtual modules of coded mobility. This is a very special place were opaque and see-through, local and remote, material and virtual, factual and relative, transpose our values and worries to our closest reach. We have created a confined space where visual stimuli arise to gather a very special recording of mobile activity that can be triggered in many different ways. It is as if we had managed to capture and eternalize beautifully designed reflections behind shiny glass surfaces, store them, harvest them and bring them out whenever we wanted to use them.

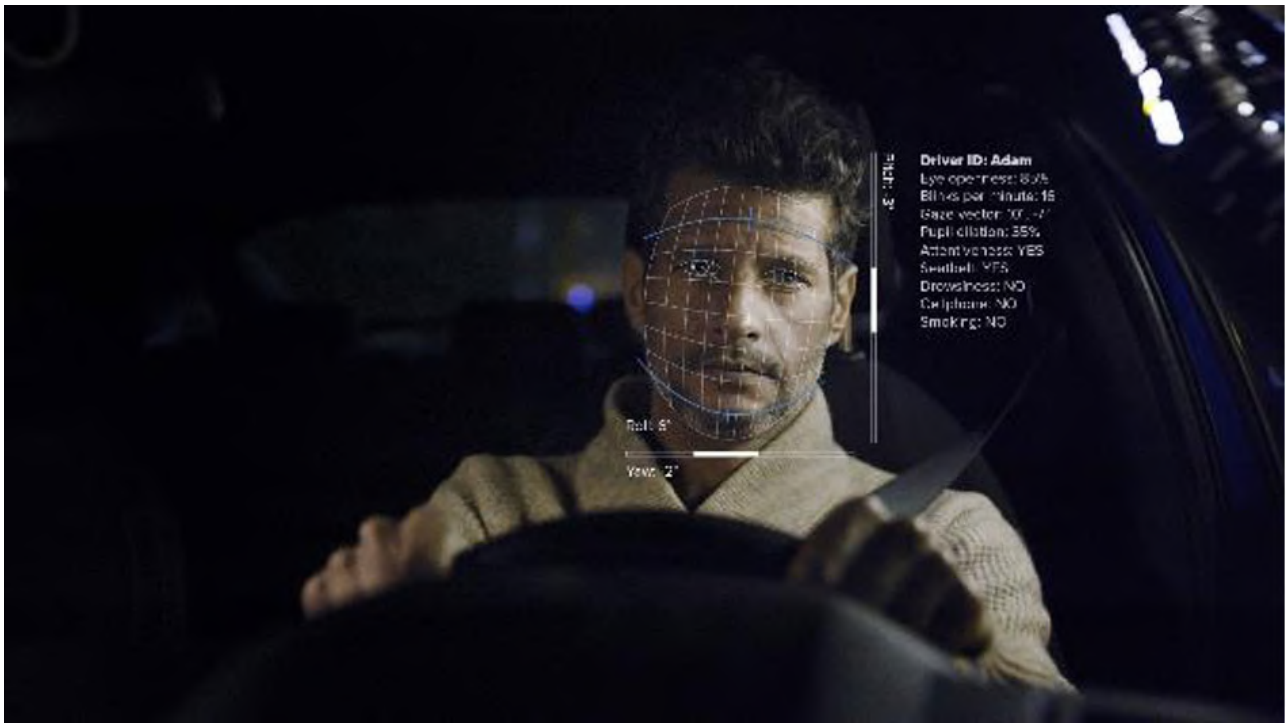
Materializing the immaterial by filtering and coloring light was a dominant architectural expression in the Middle Ages. Everything reached by rays and reflections became god and *Fiat Lux*, the embodiment of the abstract divine presence; a ‘virtual active god’ in terms better suited to our digital era. Deconstructing mobility at its perceived elements on the intention to reactivate them individually, places future in our hands. Light, combined with its supernatural appeal on anything transparent, can illustrate many possible views of the future; important is to be at the right side of the lens.

_____*INDUSTRIOUS*__

General News

Cipia Announces IPO to Further Develop DMS

GENERAL NEWS



CIPIA IMAGE

Cipia, previously profiled in DVN Interior 20 May 2021, announced last week they ahve raised $22m as part of the company's initial public offering on the Tel Aviv Stock Exchange.

Following Euro NCAP's lead, the European Parliament passed legislation that mandates the gradual integration of DMS for new vehicles, phased in from 2024 until 2026. There's a similar regulatory move in the US, as the world is understanding the importance of DMS to help maintain safety in case of drowsiness and for L^{2+} autonomous systems.

Cipia's products are intelligent sensing solutions that use edge-based computer vision and AI for safer and better mobility experiences. The company focuses on the automotive in-cabin environment, offering their Driver Sense driver monitoring system; Cabin Sense occupancy monitoring systems, and FS10, a driver monitoring and video telematics device for fleets. Over a decade of research and development stands behind the company's proprietary market-leading computer vision technology. They'll be using the funds to develop new capabilities.

Driver Sense uses AI and computer vision algorithms to monitor important visual cues of the driver in real-time for signs of driver drowsiness, distraction, and other dangerous actions—such as fiddling with a phone while driving.

Cipia holds over 70 patents in computer vision AI. The company's H1 2021 revenue totaled $2.6m, a threefold jump over the same period last year. Cipia partnered with Mobileye to integrate the Driver Sense software on Mobileye's chip. The company estimates that the integrated ADAS and Driver Sense DMS solution is a cost-effective offering compared with alternatives in the market. Cipia also teamed up with Grupo Antolin for interior integration.

The FS10 video telematics and driver monitoring device for fleets provides real-time life-saving alerts to the driver, as well as tailored alerts and insights to fleet management.

What Might The First Apple Car Look Like?

GENERAL NEWS

VANARAMA IMAGE VIA BESTIMAGE

Buzz about Apple possibly thinking about maybe creating a car has been going around for years—as with future iPhone models. A different approach is taken by British leasing provider Vanarama, who have now designed *their* first Apple car based not on rumors and gossip, but on patents filed for by Apple in recent years.

A huge screen extends across the entire width of the vehicle and is reminiscent of the display in the Mercedes EQS. The design features an iPad-like touch screen. The car would also be heavily integrated with existing Apple services and devices. The rendering of the Apple SUV coupé shows a vehicle structure entirely in the sense of US patent № 10309132B1. Apple apparently wants to do without A-, B- and C-pillars completely. The occupants sit under a huge glass roof.

In addition, the 3D drawing already hints at autonomous driving. The seats are supposed to rotate so occupants can face one another. Even the doors that open in opposite directions are not a fantasy; US patent № 10384519B1 describes the clamshell "suicide" doors, which are supposed to offer more flexibility when opening. The door handles were drawn in the style of the iPhone's on/off button.

The first generation of Apple car will likely not have a steering wheel or pedals, because the interior of the Apple car would be designed around hands-off driving.

According to media reports from 2020, Apple wants to present their own e-car from 2024. According to the report, Apple has already conducted negotiations with potential manufacturers, and brought managers from Tesla and other companies into the development team.

VANARAMA IMAGE VIA BESTIMAGE

Nick Xeromeritis Obituary

GENERAL NEWS

NICK XIROMERITIS – JUNE 2015

Nick Xiromeritis passed away two weeks ago. Our thoughts are with his daughter Amelia, his loved ones, and his friends. We are sad to have lost our friend and colleague.

Nick wrote most of our Design Lounge articles, they were very much appreciated by our readers and members. His design perspective on the interior, always illustrated by historical automotive interior perspective or ad/cultural references contributed a lot to a deeper understanding of car interior trends.

He graduated in 1989 from CCS (College for Creative Studies – Detroit, Mi), and immediately jumped into the automotive world by getting his first job with Mazda. He commuted between Japan and California. In 1997 he joined Johnson Controls in Michigan, and later in their European design studio in Burscheid, Germany. We got to know each other and started to work together in 1998 within a seat innovation team, where he brought so many brilliant ideas.

In 2017 he created ANX Prototypes, with the idea to re-invent the electric bike. In 2019 he started to contribute to DVN Interior to bring an automotive design perspective into a team of technologists.