DVN-I
Automotive Interior

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Editorial

Fighting Motion Sickness In AVs

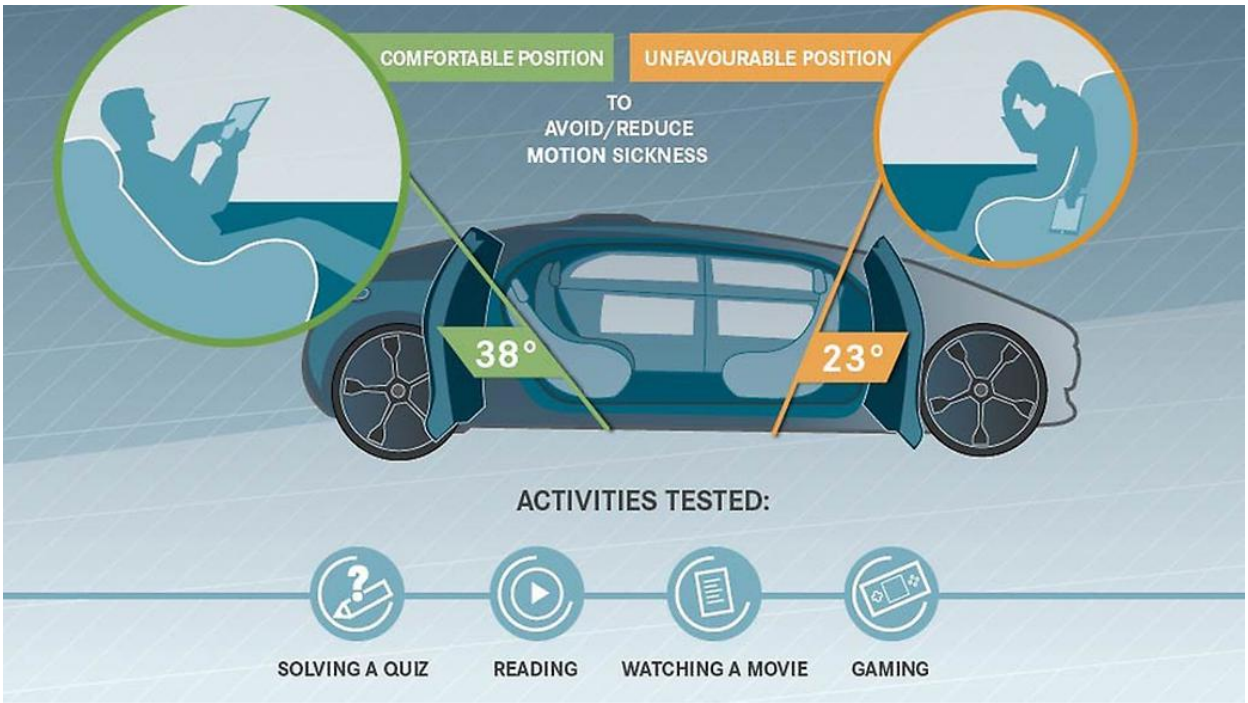


IMAGE: DAIMLER MAGAZINE

Motion sickness is a common and complex syndrome. Some individuals are much more susceptible and develop symptoms with minimal provocation, while others are seemingly immune and suffer not at all despite extreme provocation. New mobility scenarios are increasing the likelihood of motion sickness, as AV occupants are much more likely to be focusing attention on reading inside the car rather than looking outside, so there's a great deal of research under way into effective countermeasures. This week's in-depth looks at a variety of academic and industry-based development efforts.

In our Car Interior Unplugged story, we build the link between cruising and seating comfortably, which is addressing something difficult to conceive and describe: the luxury of *inhabiting motion*: the living experience of the voyage, reinforced through new autonomous use cases, confirms that car interiors acquired a key standing.

The Design Lounge this week scrutinizes two important new EV interiors, and it is clear to us Hyundai's Ioniq 5 blazes a good trail for the entire industry.

We're glad you're here. We appreciate your support, and we're committed to bring you, on a weekly basis, the best value for your money. Not a member yet? **Join here!**

Sincerely yours,

Philippe Aumont
General Editor, DVN-Interior

In Depth Interior Technology

Motion Sickness: Tough Challenge for Autonomous Driving

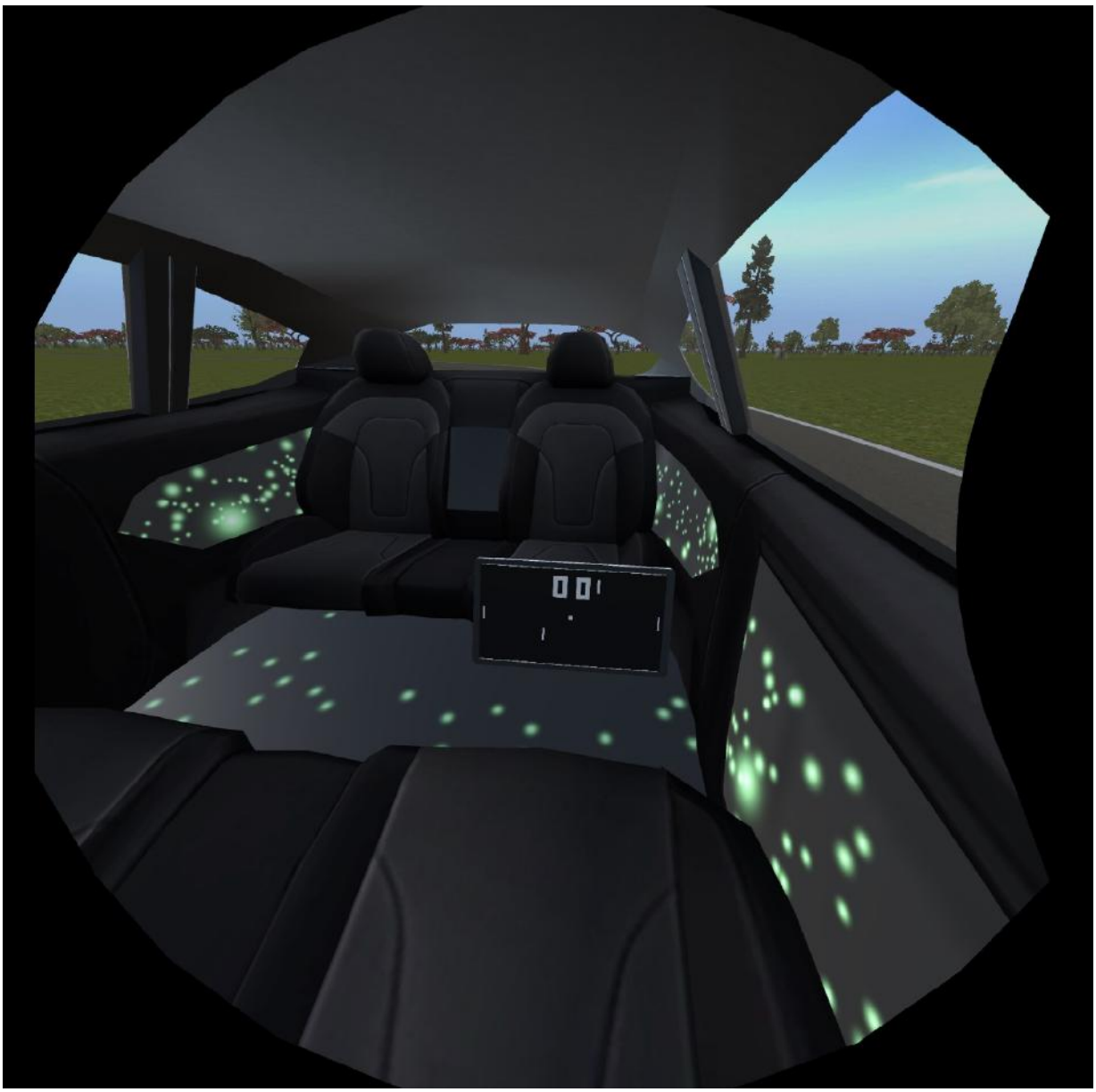


IMAGE: MAX PLANCK INSTITUTE FOR BIOLOGICAL CYBERNETICS

Motion sickness is a common perturbation experienced by humans in response to real **or perceived** (virtual) motion stimuli. The formal medical term for it is *kinetosis*, and it involves nausea, headache, dizziness, and general malaise caused by disagreement between the senses: the vestibular chambers in our ears, where our sense of balance is rooted, detect motion at the same time our eyes see stationary stability—or vice versa. Examples: sitting still in a cabin on a boat; our surroundings appear to be standing still because we are moving along with them, but the fluid in our ears is sloshed around by the boat's movement, generating the sensory disagreement and

creating motion sickness. The solution in that case is to go out on the deck so as to see the boat's movement relative to the horizon. Or sitting still while playing an immersive virtual-reality game; the eyes detect motion while the fluid in the vestibular chambers in our ears detects none (this is the twin sibling of motion sickness, known as "simulator sickness"). Or, more relevant to DVN-I readers: paying attention to a smartphone, book, or video while sitting in a moving car, with the same effect. Of course, one remedy is to put down the book or phone, or stop the movie. But one of the big, much-touted advantages of AVs is to free the occupants from having to watch the road, so there is strong incentive to find ways to allow AV occupants to have their cake and eat it too (i.e., focus on in-car things without getting sick).

Back in August 2019, DVN-Interior reported on motion sickness as a challenge for autonomous driving and its new variety of occupant activities. The mobility of the future is changing, and so are the needs of passengers. This is why already today new interior concepts are needed to mitigate problems amplified by new mobility scenarios. The prevention of kinetosis is a crucial keystone of this future, with research and development ongoing by academic institutes such as University of Michigan and the Max Planck Institute; as well as automakers and suppliers including Daimler, ZF, Faurecia, Yanfeng, Visteon, and more.

Autonomous vehicles are still in the radar for the future. Moreover, they still face a number of challenges, including the increased risk of occupants suffering from travel sickness while on the road. The reason, according to general experience, is that the passengers do not see the movements of the vehicle caused by driving because they are focusing their attention elsewhere. Many car travelers have already experienced it: While the driver steers the car unperturbed over a winding country road, the passengers are often overcome with an unpleasant nausea, especially if they sit in the back seat or against the direction of travel, or if they watch a video or read while driving.

IMAGE: DJEDZURA | DREAMSTIME.COM

"When we think of closed cabins, which in the future will serve as a sort of mobile office to make good use of travel time, we have to solve this problem", says a speaker from the Max Planck Institute for Biological Cybernetics' department of Perception, Cognition and Action, not long ago. The problem cannot be solved by optical information alone, which is fed to the passengers via displays, as explained in a publication from this Institute in Applied Ergonomics.

According to a common theory, the cause is sensory conflict: the vehicle's movement and what we see do not match. According to this theory, it should help to give the occupants in the vehicle as precise information as possible about the impending movement—acceleration, curves, braking and so on. For Professor Dr. Heinrich Bülthoff and his team, the question therefore arose as to whether better visual information could help.

Participants were immersed in motion simulations on a moving-base driving simulator, where they were backward-facing passengers of an autonomous vehicle.

Using a Head-Mounted Display, they were presented either with a regular view from inside the vehicle, or with augmented views that offered additional cues on the vehicle's present motion or motion 500 ms in the future, displayed on the vehicle's interior panels. In contrast to the hypotheses and other recent studies, no difference was found between conditions. The absence of differences between conditions suggests a ceiling effect: providing a regular view may limit motion sickness, but presentation of additional visual information beyond this does not further reduce sickness.

In a refined version of the experiment, clouds of moving light spots on the sides and floor of the vehicle were designed to provide additional optical information about acceleration, deceleration and curves. However, principal examiner in that study Ksander de Winkel says "In our simulations we observed no relief from motion sickness. In any case, there was no positive effect beyond what could be achieved by just looking out the window".

Bülthoff is now continuing his research activities on human perception and cognition at the **Cyberneum**. The research focuses on the integration of information from the visual, haptic, and balance senses and on the development of efficient algorithms for building assistant systems to help the aging society to cope with the challenges of the decline with age in perceptual and cognitive capabilities.

Bülthoff also sees the need for the development of autonomous vehicles to achieve the smoothest possible ride. "Politicians often work in a moving car," he says. "But as a rule, they also have exceptionally well-trained chauffeurs, with a highly anticipatory and therefore very relaxed driving style."

As a temporary conclusion, it could be most likely possible to mitigate motion sickness when driving in autonomous mode on motorways. But, on a winding route or a bumpy road, the occupants will probably not be able to avoid closing their computers and files and looking forward out of the vehicle onto the road.

More recently, a joint team of researchers of the Max Planck Institute for Biological Cybernetics and the University Hospital Zurich was able to show that the level of motion sickness depends on what your beliefs about the actual motion are. This offers new perspectives on possible therapies. "Sickness occurs less when you really believe that you are moving," explains Dr Suzanne Nooij, a researcher at the Max Planck Institute in Tübingen. This finding may offer a low-cost countermeasure to motion sickness: your imagination. The researchers are hoping to investigate in the future if mental imagery can help to effectively fight motion sickness. So, if you suffer from nausea and dizziness when playing games, you might just need to let your imagination take you somewhere else!

IMAGE: ZF FRIEDRICHSHAFEN AG

Florian Dauth, an automated-driving engineer for ZF Group, is in the business of devising engineering solutions. He has been working for more than two years on strategies to reduce motion sickness in autonomous vehicles.

"At ZF, we are developing algorithms that self-learn based on bodily reactions," he said, referring to the machine-generated code that determines the vehicle's path. To navigate the road safely, automated vehicles already receive and combine data from an arsenal of radar, laser, video and ultrasonic sensors. ZF says data about the passenger's well-being should be added to the algorithm. Dauth is collecting passengers' biological data via cabled inputs, like measurements of brain activity from electrodes placed on a rider's scalp and similar monitoring of the heart. When put into production, the self-driving biofeedback system would most likely be reduced to cameras powered by facial-detection software or perhaps wearable devices.

"Let's say the car takes a strong left curve and then brakes very roughly at a red traffic light. We are recording all the vehicle movements and the passenger's reactions in parallel," Dauth said. "If you react in a way that gives you symptoms, then in the future we will avoid these maneuvers." In other words, the self-driving car's A.I. learns how to drive in a way that doesn't make you sick.

IMAGE: UMTRI

Brian Lathrop, working with fellow technologists at Volkswagen's Innovation and Engineering Center California, is trying to eliminate motion sickness when using V.R. in a moving automobile. Mr. Lathrop said the unease happens when there's a disconnect between the signals sent to your brain from your inner ear and what you're seeing. "I

wanted to look at how could you address that disconnect between the visual signals and the stimulus signal," he said.

Working with the University of Michigan (UMTRI), he said: "The easy answer is they'll still use their smartphones, but you also have to anticipate the high probability that they will be using some sort of virtual reality or augmented-reality system." (We consider it entirely possible that traffic safety professionals might encounter an entirely different kind of 'motion sickness' on considering the notion of a world where people zoom down the road in a self-driving vehicle while wearing fully immersive virtual-reality headgear because they want to play video games).

Before long, Volkswagen and its luxury brand, Audi, were developing original V.R. content for the car. "You can coordinate the optic flow of visual information inside the V.R. headset such that it's correlated with the actual motion of the vehicle," he said.

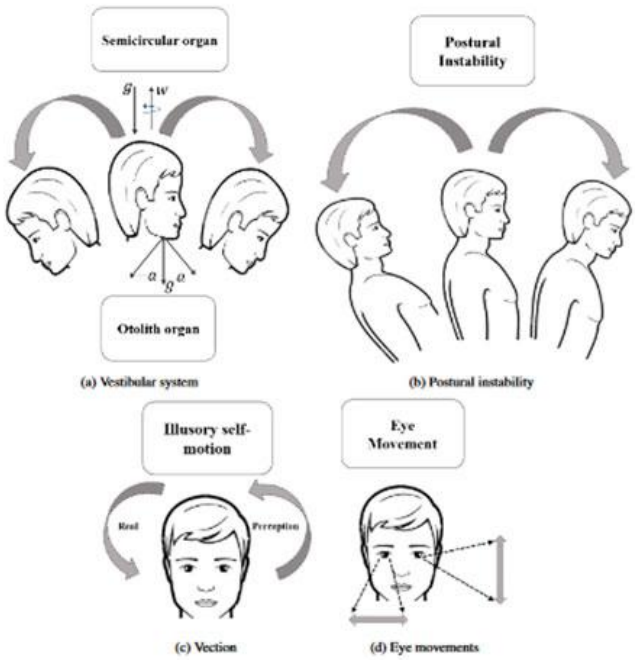


IMAGE: IISRI ARTICLE IN IEEE ACCESS · JUNE 2019 (DOI: 10.1109/ACCESS.2019.2922993) – FIG 1

According to a 2019 publication led by IISRI (the Institute for Intelligent Systems Research and Innovation), at Deakin University in Australia, a customizable solution is the only viable solution to mitigate motion sickness. It should consist of three main components: a passenger-centric component which registers the human physiological state; a vehicle-centric component to register vehicle state and adjust in-car environment, and an infotainment system with smart AV apps which are motion-resilient.

Volvo Cars hopes a solution may lie in playing unobtrusive audio cues to passengers about a second before the vehicle makes a maneuver, such as a sharp turn or acceleration. These cues prompt passengers to adjust their posture and prepare their brains for a change in motion, decreasing the likelihood that they will feel sick, said Justyna Maculewicz, a user experience designer at Volvo who has a Ph.D. in media technology. The car maker worked with Stockholm-based audio company Pole Position Production and RISE, a research institute in Sweden, to compose audio cues reminiscent of car engine sounds, rather than the voice commands or industrial beeps usually associated with in-car warnings. Their work is demonstrated in an **online video**.

Interior News

Mercedes Maybach GLS 600 Rolling Lounge

INTERIOR NEWS

IMAGE: AUTO-MEDIENPORTAL.NET/SHAWN CIECKO

The rebirth of Maybach as a sub-brand of Mercedes-Benz is a real success story, especially in China and America. The Maybach GLS 600, presented first at the Guangzhou Show in 2019 and reported in DVN Interior on 5 December, is a luxury variant of the GLS off-roader, which is worth a deeper and updated review on the interior.

It starts, when you approach the vehicle in the dark, you're greeted by a projection of the Maybach logo, and by an automatically extending running board. The huge interior is dominated by a nappa leather upholstery. It is clearly only a four-seater, as rear seats are real first-class seats, and occupants can control the huge panoramic roof and the side privacy screen as well as the various comfort functions from there. When the "clean-up button" is pressed, the individual seats in this second-row return to their original position. The same applies to the front passenger seat when it is in the chauffeur position, i.e., for more legroom and a clear view through the windshield, and the backrest has been folded down. Then there are the 206-centimeter-long (6 feet, 9 inches) illuminated running boards made of anodized aluminum, which are hidden in the sill area. When you open one of the rear doors, the running board automatically

extends within a second while the vehicle automatically lowers by 25 millimeters to ease ingress and egress.

The SUV also has its own special driving mode. This is designed to provide maximum comfort for passengers in the rear, so they should feel nearly no acceleration. First gear is omitted, and start-stop is deactivated so no vibrations or asphalt bumps bother the occupants. That creates a feeling of a flying carpet, far away from the environment.

An optional cool box offers space for two beverage bottles, and a Burmaster sound system ensures excellent acoustic qualities. The connectivity works perfectly and very fast; an iPhone is connected in 30 seconds. The MBUX infotainment system has its own Maybach display style in dark blue and rose. To prevent any engine, rolling, or wind noise from entering the interior and perturbing the pampered riders, the GLS is equipped with a partition wall and a fixed parcel shelf separating the interior from the trunk.

IMAGE: MERCEDES

Ambient Lighting for a Safer Driving Experience

INTERIOR NEWS

VOLKSWAGEN ID.4 1ST

Ambient lighting in the dashboard, center console, door panels,and seatbelt buckles has proliferated from luxury to mainstream models. Ambient lighting intensifies spatial perception, enhances perceived interior quality and makes drivers feel safer.

Carmakers like Daimler and the Volkswagen Group integrate safety assistance systems with interior lights. For example, if a car or cyclist is approaching the stationary car, the vehicle can rapidly flash red interior lights on a door panel strip to warn against opening the door until the danger has passed.

IMAGE: MERCEDES

Volkswagen's ID.Light, launching on the ID.3 and forthcoming ID.4 SUV, will flash a windscreen-wide LED light bar to warn drivers of an impending collision.

IMAGE: VOLKSWAGEN GROUP

This full-width LED light bar works to communicate with the driver using a variety of animations and colors. The light strip can sequentially blink a blue light to recommend the driver to change lanes before the next turn or warn if the vehicle is in the wrong lane when navigating using the built-in navigation system. The light will also sequentially illuminate when you've activated your indicators in the respective direction, just like a dynamic turn indicator on the exterior.

It can signal when the doors are locked or unlocked in a red and green animation respectively, pulse a white light when the vehicle is put
in Park, Reverse, Neutral, or Drive, and also displays a neat welcome and goodbye animation. It illuminates green in the center if there is an incoming call made to your connected smartphone, and glows a portion of the strip white when the voice control is activated—in the area where the person is speaking to indicate it is listening to commands from the driver (right) or passenger (left).

IMAGE: VOLKSWAGEN GROUP

Newer BMW vehicles have a steering wheel with a thin light strip on its spokes. When a semi-autonomous function is activated, it illuminates green. This includes adaptive cruise control and lane centering assist, when the vehicle is automatically parking, or using the reverse maneuver assistant.

When Super Cruise is engaged on a GM car, the light bar at the top of the steering wheel rim illuminates green to indicate it has activated its L^2 autonomous driving function. A flashing green light attempt to alert the driver to look at the road ahead (triggered by a driver-monitoring camera)—and can then flash red if there's still no response.

IMAGE: GM

Volvo's Tailored Wool Interior

INTERIOR NEWS

Volvo Cars says their XC90 T8's seating material is warmer in winter and always cooler than ubiquitous leather. It's a tweedlikeweave, which Volvo calls Tailored Wool Blend, of 30% wool and 70% recycled polyester, so it might be even earth-friendlier than vegan leatherlike materials— in close alignment with Volvo's mission to approach the design and production of its cars responsibly. This wool blend option looks and feels uncommonly special.

The seat covers are described as hard-wearing, water and dirt repellent, and wrinkle-free. They're also 3 kg lighter than the previously used nappa leather coverings.

It should be no surprise that cloth seats always feel warmer in the winter and cooler in the summer—even when contacting bare skin after direct sunlight exposure. The material also presents less resistance to heating, so you'll generally tend to feel the warmth from seat heaters faster. Because of their breathable nature, Volvo does not offer a ventilation/seat-cooling option with either its Tailored Wool Blend or City Weave Textile upholstered seating.

Wool is a material of choice for future premium vehicles, as it always was, like in the hyper-premium, available-only-by-invitation Toyota Century in the Japanese market.

Geely EV's Sustainable Experience Architecture

INTERIOR NEWS

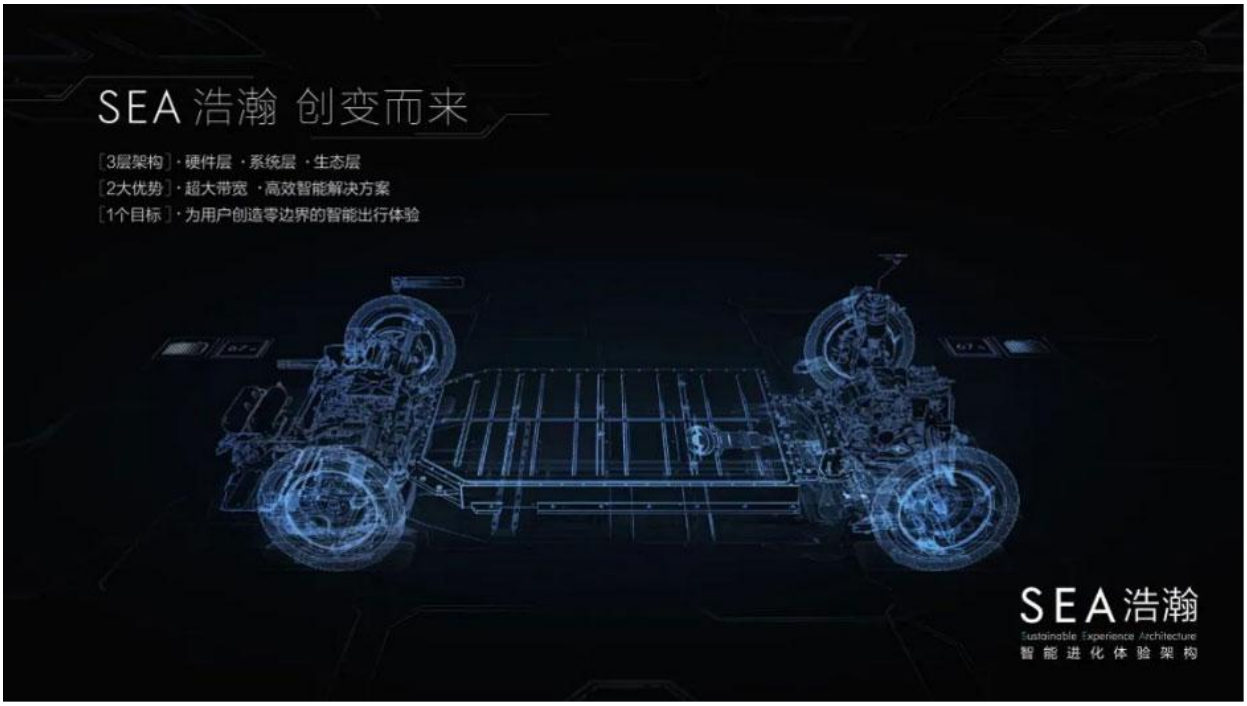


IMAGE: GEELY

Geely has announced they will form a new company to participate in the competition in the smart pure electric vehicle market. In parallel, the Chinese automaker released information about their new flexible platform basis, named SEA forSustainable Experience Architecture. Involving four years' worth of effort and almost USD $3bn of investment, the SEA will be deployed across nine auto brands of Geely Holding. The first model to be based on SEA is the Lynk & Co Zero Concept, a production version of which which is expected to launch later this year. Geely will make the architecture accessible to other automakers and third parties, as well. The company revealed at the launching ceremony that they have worked with seven auto brands, some of which are not in the Geely portfolio, on the R&D of 16 vehicle models.

LYNK & CO ZERO CONCEPT INTERIOR, BASED ON GEELY SEA ARCHITECTURE, VIEW THROUGH PANORAMIC ROOF

Besides cost reduction, this platform will be open for new technology, such as the SEA-based Zero Concept EV features Lynk & Co's CoPilot solution powered by Mobileye SuperVision™ surround-view advanced driver-assistance system (ADAS) with over-the-air (OTA) update capabilities, IoV(Internet of Vehicle) developed with Baidu, battery swapping.

They will start to include their recent acquisitions, the Malaysian company Proton, the British Lotus and the American flying car developer Terrafugia. Geely also will jump into aerospace industry, with GEESPACE, planning to launch two low-earth orbit satellites that run about 200—2,000 kilometers above the ground so as to provide high-precision positioning service for automobiles.

Adient's Future of Mobility Podcast

INTERIOR NEWS

In a **recent podcast** sponsored by FEV, Tom Gould and John Gomez from Adient presented their views about the impact of new technologies on future interiors.

As a major global seating provider, Adient sees a lot of room for growth as autonomous and shared vehicles continue to gain traction.

Thomas Gould leads Design and Technology at Adient. John Gomez is the Advanced Studio Design Manager for Adient North America.

The Adient Advanced Design Team leans heavily on both consumer and market research to identify new opportunities that benefit the end-user experience. Pairing these opportunities with the latest technologies and a capable design and engineering team, sets the groundwork for product development and interior concepts like the Ai19, which was shown at CES 2020.

The Future of Mobility podcast is focused on the development and implementation of safe, sustainable, and equitable mobility solutions, with a focus on the people and technology advancing these fields as well as user experience, on how driver will cope when they miss human-controlled driving, and how to leverage time availability to optimize the day when being autonomously chauferred from A to B.

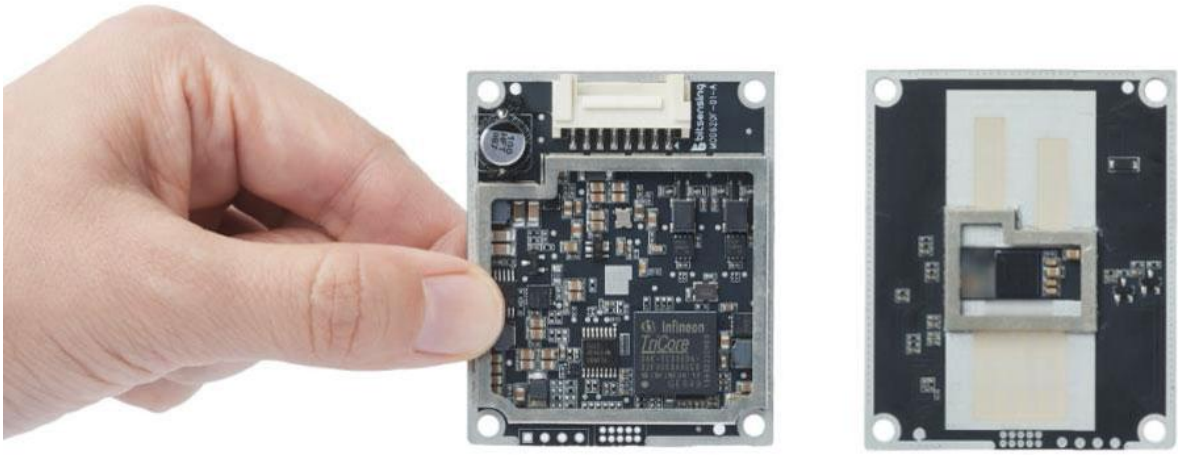
They differentiate mobility between less than 20 minutes and more than 20 minutes. Most innovation will support the more-than-20-minute travel, like saloon seating configurations with the clover concept (sitting in the corner, facing towards each other), fostering privacy or community when needed. Other top topics:

• Cleanability, sanitization, and waste management are strong future design elements, especially for shared vehicles.

• Motion sickness mitigation needs a smoother ride with counteracting seating movement to be invented to compensate, and "travel windows" displayed behind each seat to give an augmented view.

Bitsensing-Infineon Pact for In-Cabin Sensing

INTERIOR NEWS



South Korean startup bitsensing is partnering with Infineon Technologies to launch a new DMS (driver monitoring system) sensor for vehicle interiors.

Founded in 2018, Bitsensing is an imaging radar technology company working to build safer smart cities and elevating connected living. By designing cutting-edge sensor fusions and AI solutions, they are bringing an unprecedented level of intelligence to smart living.

They designed their MOD 620 60-GHz radar to provide an ultra-powerful monitoring solution that drivers can trust. It reliably detects in-car passenger presence and location. It can also detect in real-time the presence of a child left in a car, even when the car is shut down and locked, as well as monitor the vital signs of occupants and send an alert if there are any abnormalities. This radar has a 20° field of view combined with the customizable detection range up to 2.5 m. The rearrangeable antenna allows for customization in channel length compensation, Field of View, and matching circuits for transmitters and receivers.

The sensor also recognizes gestures and motions of the driver to detect drowsiness, and can send distraction warnings and provide post-crash monitoring. It can also be used to identify passengers left unattended in emergencies such as car crashes.

The child presence detection system is known as ROA (Rear Occupant Alert). According to EURO NCAP's roadmap, manufacturers will be required to offer this feature in future cars.

Privacy concerns are eliminated as it does not rely on cameras for presence detection. It works in high-speed cars, day or night, with no interference to seatbelts.

The Design Lounge

Platform Design Comparison of BEV CUVs • Part I

THE DESIGN LOUNGE

Two recent BEV introductions—Hyundai's new Ioniq 5 and Chevrolet's updated Bolt EUV—offer us an opportunity to compare how interior results differ when designing from a brand new BEV platform versus basing a BEV on a traditional ICE platform.

Ioniq 5		Chevrolet Bolt EUV	
Wheelbase	3000 mm	Wheelbase	2675 mm
Length	4635 mm	Length	4326 mm
Height	1605 mm	Height	1615 mm
Cargo Volume	531 l (18.8 cu ft)	Cargo Volume	462 l (16.3 cu ft)

Let first compare the numbers. Both vehicles have a long wheelbase to overhang ratio, but the Ioniq 5 rides on a long 3-meter wheelbase. Although only slightly lower in

overall height, this gives the Ioniq 5 the feeling of a hot-hatch, rather than a small CUV feeling that the Bolt EUV gives.

The interior volume is maximized with the Ioniq 5, but this is only the beginning of how having this new platform can enhance the interior design as using a carryover platform is not only conditional to the overall proportions, but also to the interior architecture and component usage.

IONIQ 5

BOLT EUV

Clearly the carryover componentry exerts a strong influence on the overall feel of the Bolt EUV. Although both car use displays for the cluster and center console UX/HMI, the traditional cluster brow and lower console are worlds away from the Ioniq 5's open, airy interior ambiance.

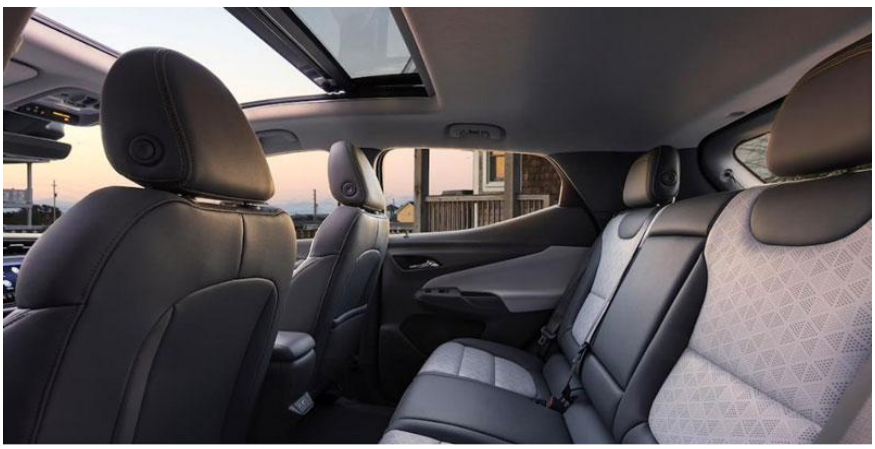
IONIQ 5

BOLT EUV

Comparing both interiors show how the theme, or goal, used in the Ioniq 5 was to create a calming and open environment that allows both the driver and passengers to relax.

With the Bolt EUV, it was clear that the design theme or goal, was one of a multi-purpose people carrier—note the traditional center stack, console, and seating.

IONIQ 5



BOLT EUV

The rear seating areas also show how the use of a new platform/architecture can have in conjunction with a modern design theme. The Ioniq 5 is clearly design for passenger comfort and use options, while the Bolt EUV holds on to utilitarian functionality.

IONIQ 5

IONIQ 5

Part of creating a relaxing environment is the ability to relax. Using clean, smooth and rounded shapes in conjunction with an open/moveable center console and integrated leg rest into the seating, the Ioniq 5's environment is far from traditional or utilitarian.

BOLT EUV

BOLT EUV

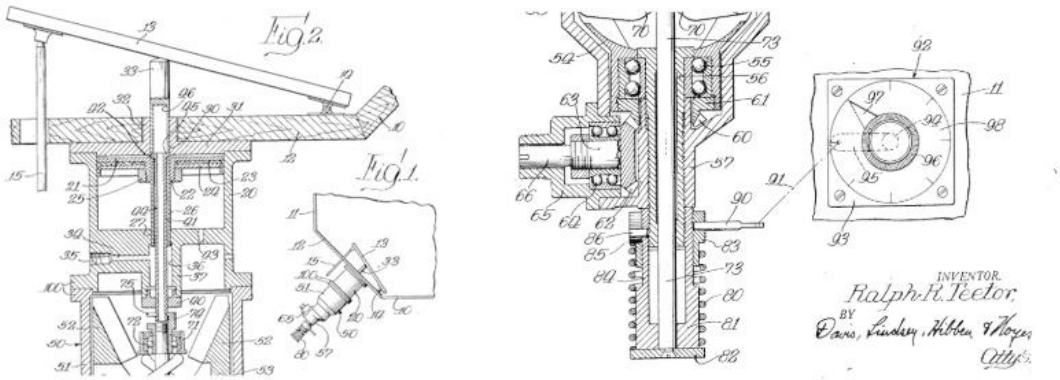
Chevrolet created a traditional usage environment with a glass roof and a fold-flat rear cargo area, all of which are good features for this vehicle class—and might well appeal to buyers not yet ready to depart from vehicle configurations they've grown accustomed to—but the tradeoff is no new ambience or excitement for consumer.

Next week we will look at how the front compartment with their integration of displays and UX/HMI enhance each vehicle's theme.

News Mobility

_Car interiors Unplugged

NEWS MOBILITY



1950 PATENT FOR A "SPEED CONTROL DEVICE FOR RESISTING OPERATION OF THE ACCELERATOR"

8. In search of an epic II_

(this story is part of an ongoing series introducing automotive interiors as an evolution of our habitat)

Ralph Teetor, a blind engineer from Hagerstown, Indiana, daily driven to his office, noticed that during routine conversation and while the driver was talking, the car would slow down, to speed up while he was listening. This unbearable rocking motion had a side effect that changed commuting chronicles with no return. The quality of social interaction became priority within the act of mobility hence he put together his prolific engineering skill to solve a problem that to most people remains unobserved. In 1945 he received a **patent** on his invention, a speed-regulating device, the 'speedostat', that due to its very specific function, stayed unknown for many decades. It took quite an event, the first oil crisis, when the idea was marketed as a fuel economy gadget and found its reason of existence. This is the curious story of cruise control. An unexpected global episode, unimaginable by the inventor, gave 'life' to his idea. The coherence of such effort is given by the final result: there is no innovation without circumstance.

In the pandemic growth of tech apps and tech companies today, we are at this very moment of ongoing transition, straggling to find 'the context' and every so often, the reason. Cruise control is an automated approach to mobility that unlike railways, that rail defines direction, here the fixed factor is speed. Besides the innovation, the notion of driving in constant speed coded our perceptions of a particular type/mode of driving thus a specific environment, pathway and scenery. It implies streamlined highways far from city congestion, over relatively flat, infinite landscapes, adapting everything else to its specific value, route, setting, proximity, just like sailing or flying on automatic pilot. It took several years and socioeconomic episodes to find its most compelling label that, instead of its mechanical genius, communicated a certain type of a dream while travelling, shifting ever since a great deal of attention towards car

interiors and quality within. Cruising and seating comfortably have drawn notions unrelated to performance and engineering mastery, addressing something more difficult to conceive and describe: the luxury of inhabiting motion. Ever since, the obvious question has been repeatedly asked. How long before a completely automated car?

Several show-cars later, the idea gained physical traits bringing to reality powerful, often unreal scenarios, leading though imagination into new places. Cruise control became the car itself but also its surroundings and the way we project to the future of driving. The cult of the highway assimilated values related to comfort and the living experience of the voyage. Unbeknownst to automakers, car interiors acquired a key standing.

Today on the verge of autonomous cars, overwhelmingly growing parameters lead into a systemic interconnected mobility, instead of vehicle-centric solutions. The perception of our surroundings is a condition of being mobile; vehicles become devises controlling speed and proximity, but also connectivity enablers and information managers in order to enhance motion. It is almost as if we were to put in place an automated logistics ecosystem to transport to all pre-coded destinations, integrated habitable spaces (previously called car interiors) and up to here, nothing is surprising.

_to be continued…

NDUSTRIOUS_____

Akka's Multimodal Road+Railway Vehicle

NEWS MOBILITY

The Akka Group, an engineering consulting and R&D service provider based in Paris, has announced a key milestone in their Flexmove project, the multimodal mobility service launched in January 2020. The project has at its core an electric vehicle that can be driven like a normal car on the road, and also can move on rail tracks thanks to a special tyre-to-tracks technology.

Akka has 22,000 employees, and recorded revenues of €1.8bn in 2019. The scope of their work includes automotive and railway transport, among many other domains.

They have created an economic model which has attracted the interest of initial investors grouped in the Société d'Ingénierié, de Construction et d'Exploitation de la Ferromobile (SICEF), "Ferromobile" which could be translated "Railomobility" to drive the Flexmove system.

This project fits coherently into the Akka's innovation portfolio; their projects focus in particular on electric mobility and decarbonization of the environment.

General News

Adler Pelzer Buys Faurecia Business Unit

GENERAL NEWS

FAURECIA MOUZON PLANT; SOURCE LARDENNAIS.FR

APG—the Adler Pelzer Group—and Faurecia have reached an agreement to engage exclusive discussions towards the acquisition of Faurecia Acoustics and Soft Trims (AST) by APG.

Adler Pelzer, based in Hagen, Germany, is a global expert in the design, engineering, and manufacturing of acoustic and thermal components and systems.

Faurecia AST operates in Europe with industrial activities mainly carried out in plants located in France (Marckolsheim, Saint-Quentin, Mouzon, Mornac); Luxembourg (Eselborn); the United Kingdom (Washington); Spain (Olmedo); Poland (Legnica), and the R&D centre in France (Mouzon) with around 1820 employees and €385m sales in 2019.

This deal will add the Faurecia AST R&D center at Mouzon, France into APG's worldwide R&D network, allowing APG to dedicate a full matrix of competence centers by product family, and offer local customer support.

It will also help APG consolidate their business portfolio with Stellantis and Renault through the relationship capitalized by Faurecia AST along years of cooperation and presence in France and UK, as well as a strong foothold with automakers in Germany and East Europe, as well as with Stellantis in Italy and America.

Further, it will help Faurecia prepare for a future as a fully independent company following the merger between PSA Group and Fiat Chrysler Automobiles that created

Stellantis. APG will be benefiting from synergies on material supply and vertical integration of semi-finished products like heavy layer and carpet roll goods for interior and trunk, reduction of waste, recycling, and process innovation.

Fisker Partner With Foxconn

GENERAL NEWS

California-based Fisker debuted in 2008 with the Karma. They struggled to find a viable business model to transform their brilliant engineering and design into mass production. Now they're working to introduce an emotionally desirable and eco-friendly electric vehicle, the Fisker Ocean.

Foxconn Technology Group was established in Taiwan in 1974. It is now the world's largest electronics manufacturer. Foxconn is also the leading technological solution provider and they apply their expertise in software and hardware to integrate their unique manufacturing systems with emerging technologies. They are well known as the Apple manufacturing arm.

"We created our company to disrupt every convention in the auto industry," says Fisker Chairman and CEO Henrik Fisker. "The creation of Project PEAR with Foxconn (Personal Electric Automotive Revolution) brings together two likeminded and complementary companies, each focused on creating new value in a traditional industry. We will create a vehicle that crosses social borders, while offering a combination of advanced technology, desirable design, innovation and value for money, whilst delivering on our commitment to create the world's most sustainable vehicles."

The car will be built by Foxconn and sold under the Fisker brand, according to a joint statement. Production is set to start in the fourth quarter of 2023, to go up to a 250,000-per-year level. Foxconn is also planning to help launch an electric bus around the same time.

Last October, Fisker said Magna International would help build the Ocean SUV. In January, Foxconn signed a manufacturing deal with Byton to start mass production of that company's M-Byte by the first quarter of 2022.