Thu, 5 October 2023
Weekly Newsletter

DVN-I
Automotive Interior

NEWSLETTER #181

Editorial

Motion Sickness And New Mobility

ZOOX CAR (ZOOX IMAGE)

Motion sickness has been an issue ever since human beings started moving in vehicles. Research is showing that the problem could worsen with electric and autonomous vehicles, and any other kind of vehicle or system taking occupants' attention away from the outside world. This week's in-depth article provides an update on recent developments in the field of motion sickness mitigation.

It's an issue that's going to have to be dealt with if robotaxis are to gain serious traction; meanwhile, as described in Coffee Corner, the robotaxi business model is still quite unclear.

Should dashboard screens be vertical or horizontal? The debate rages on! Your feedback is welcome, and DVN Interior will present this as an HMI topic at the next DVN Interior Workshop, planned for 23-24 April 2024. We'll come back soon with practical information about location and venue to help you plan your participation as exhibitor, speaker, or attendee. For now, just pencil it in!

Sincerely yours,

Philippe Aumont
DVN-Interior General Editor

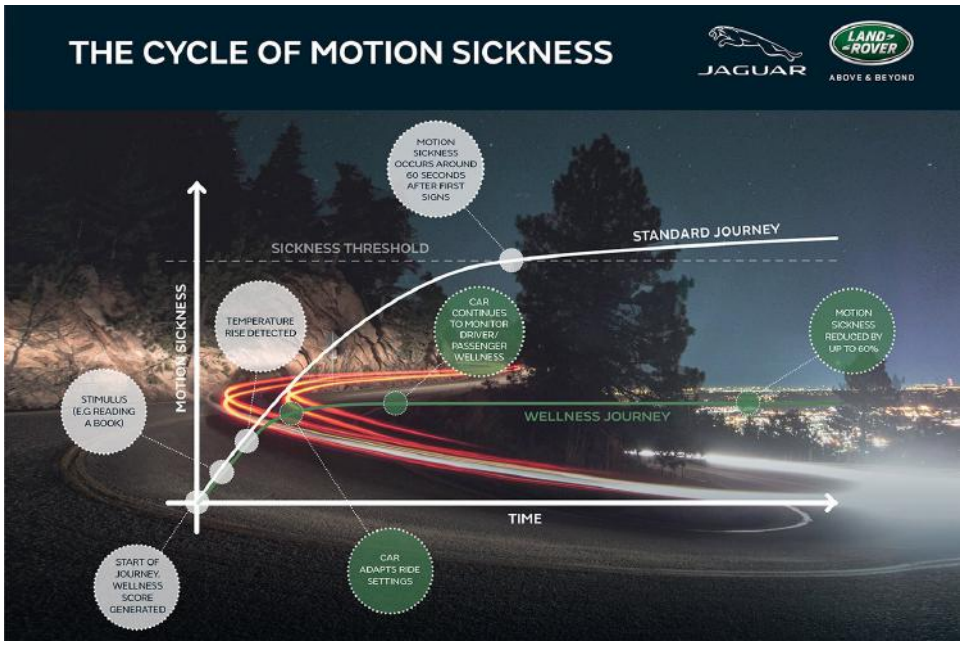
In Depth Interior Technology

Image-Based Motion Sickness Mitigation

Motion sickness occurs due to a difference between actual and expected motion. It is more likely to affect a passenger than a drive (with obvious implications for automated vehicles) because passengers are free to focus on something other than the view outside the car—reading or scrolling through a phone, for example. Those are the kinds of things we're talking about people doing in vehicles when they no longer must drive themselves. So, eliminating motion sickness is even more important in autonomous cars.

It's been a big issue ever since automobiles have existed, and it's commonly known as "car sickness". Drivers have some buffer against it because they must keep their eyes on the roadway and they have an interactive connection with the car; passengers, even when they're looking outside, are prone to feeling sick because they are deprived of the capacity to anticipate trajectories. Children are especially prone.

A lot of academic research has and is happening worldwide to understand the issue, and to identify solutions.



JLR IMAGE

Comfort Damping Solutions

For a long while nobody cared much, as the driver was making the purchasing decision. That has changed with more automated vehicles, as the driver gradually becomes more of a passenger. We can expect that autonomous car development will also benefit human-driven vehicles, as a by-product.

Motion sickness is mostly experienced by rear-seat passengers, so mostly children, who are boxed in by the seats in front and the high window sill to the sides, so less able to perceive the vehicle's motion due to the restricted view.

Traditional Solutions

Seating-based solutions have been developed for decades—zero-gravity seats, better head support with headrest for NHK springs , redesigning airflow and temperature to the occupants as identified by a Nissan Research team, activated carbon in suspension with Carbon Air, ZF research, Forvia with sensors, that's a few recent examples of technologies (2021 In-Depth) which have been reported in DVN Interior.

Traditional solutions to motion sickness also involve medication, which can have side effects, or the use of special **anti-nausea glasses**, which can be uncomfortable and affect the user experience.

Electric Vehicles

Electrification has also the potential to increase the problem. By nature, an electric motor is more linear and quieter than a combustion engine. This advantage has the downside of preventing certain car users from assimilating the movement of the vehicle. For example, whereas we would associate acceleration with the engine revving in ICE cars, electric cars deprive passengers of this reference point. Also gone are the combustion engine's vibrations, which some perceive as soothing.

The use of regenerative braking, which captures the kinetic energy from braking and converts it into the electrical power that recharges the vehicle's battery, can also upset passengers' balance. The decelerations induced by this system are usually low frequency, which is typical of a sickness-inducing motion force.

Digital interiors that encourage distraction

SAMSUNG IMAGE

Another technological advance inducing motion sickness is the growing presence of ever larger and numerous screens inside vehicles. These screens overburden users with visual information, which reduces looking outside. They thereby lose their ability to take in the correct visual signals; i.e., the view outside the vehicle which allows them to correctly perceive their position in space. That, in turn, induces sickness.

Immersive experience could become, in that respect, invasive with an environment which can make passengers sick. Indeed, the mere knowledge one is likely to suffer nausea from screens can stress vulnerable passengers, with research linking up to 40 per cent of motion sickness symptoms to passenger psychology.

Autonomous Vehicles

UNIVERSITY OF MICHIGAN SHUTTLE (M CITY IMAGE)

Autonomous shuttles typically have some rear-facing seating positions. In the collective unconscious, facing opposite the direction of travel is associated with the likeliness of becoming sick (though research has found no difference to forward-facing orientation). This may be a psychological bias toward symptoms, and many people can’t stand facing the rear.

Fully-automated vehicles are also likely to worsen the problem. While today's vehicles are only partially automated, in future, they will be able to pilot themselves. This is problematic when we know the act of driving is the best way to anticipate trajectories and curb symptoms.

Moreover, the disappearance of the driving cockpit will make it possible to redesign vehicle interiors to become more welcoming, like a living room on wheels. The cabin of a robotaxi, where users tend to gaze at their digital devices, creates distractions which deter passengers from engaging with the landscape.

Finally, incidence of motion sickness remains moderate in non-automated cars because of drivers' ability to adapt their driving style when their passengers report discomfort. Will AI do the same in more automated vehicles? Possibly, but probably not, because it would be very complex and expensive to develop.

Last year, we published an **article** about General Motors filing a patent for anti-motion-sickness technology, with a system of lights and images that visually represent the forces of acceleration, braking, and cornering in the form of an image of the vehicle on the screen, or changing color or light patterns. A sound system or haptic feedback could be used to provide a similar effect. Chinese electronics giant Huawei has also patented an in-vehicle anti-nausea system based on visual compensation images, with a principle like the one patented by GM.

Motion sickness occurs when the brain receives conflicting information from the vestibular, visual, and proprioceptive systems. For example, when someone is riding in a car, their eyes may see the car interior as stationary, but their vestibular system will sense the car's movement. This conflict causes motion sickness.

HUAWEI IMAGE

Huawei's patent describes a system which works by generating real-time images of the vehicle's movement relative to the road or ground. These images are then displayed on the vehicle's infotainment system, allowing passengers to see themselves moving along with the vehicle. This helps to reduce the conflict between visual and vestibular signals, which is the main cause of motion sickness.

This would allow passengers to sort of follow the body with their eyes, which could help reduce the symptoms of motion sickness. The system is still in the patent stage, and it is not yet known when it will be available in vehicles. The idea is to reduce the conflict between visual and vestibular sensory inputs, providing a user-friendly solution that enhances the passenger experience without the need for special eyewear. However, the technology has the potential to be a breakthrough in the fight against motion sickness. Especially also considering the increase in popularity of AR/VR technology.

As children in the rear seats are the most likely to suffer car sickness, the Huawei solution might be displayable for rear occupants via rear-seat entertainment systems.

Anyway, limitation of self-driving vehicles will come from users' ethical, psychological, and legal concerns, which is why the industry has shown growing interest in this phenomenon in recent years.

Future Solutions

BIOMETRIC SENSORS (ROBOTICSBIZ IMAGE)

Many countermeasures are currently being researched, including the use of visual, auditory, olfactory, and tactile signals, and/or sensor to track occupants' state, to help users better perceive and anticipate the vehicle's movements. Also in the toolbox: programming a comfortable driving style that imitates that of a human being.

Driver and occupant monitoring systems, especially camera-based ones, could help understand occupant state of wellbeing. Once the sensors detect a scenario or movement which might cause (or indicate) motion sickness, a countermeasure could be triggered in response.

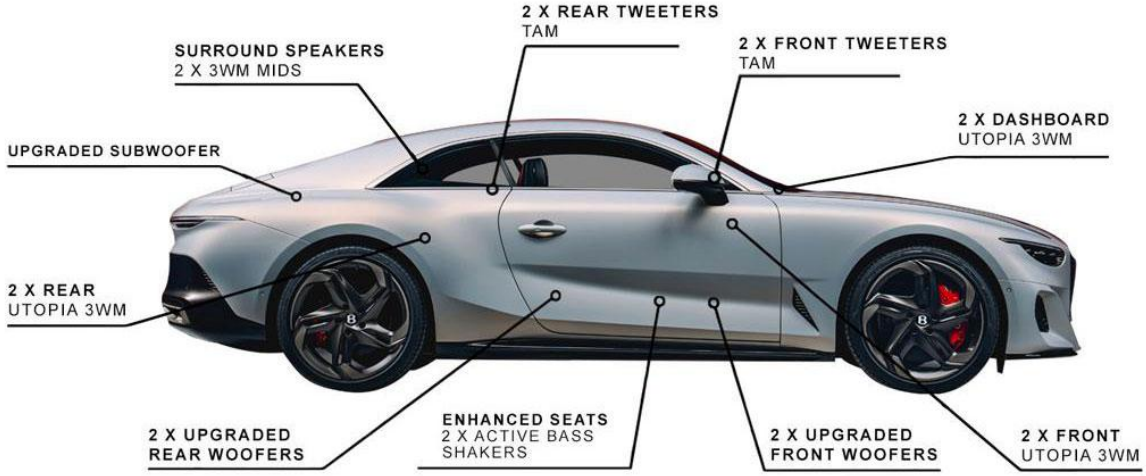
Interior News

Mulliner's 20-Speaker Sound System for Bentley Batur

INTERIOR NEWS

BENTLEY IMAGE

Bentley has revealed details of the new sound system created by Mulliner for the **Bentley Batur**, following 10,000 hours of development work. The USD $31,600 system, called Naim for Mulliner, consists of new hardware and a complete system recalibration.



NAIM IMAGE

The new system uses Naim for Bentley as a foundation for further audio development, with the aim of delivering more power and immersion for vehicle occupants. Naim Audio is a British hi-fi manufacturer, which merged in 2011 with French loudspeaker manufacturer Focal.

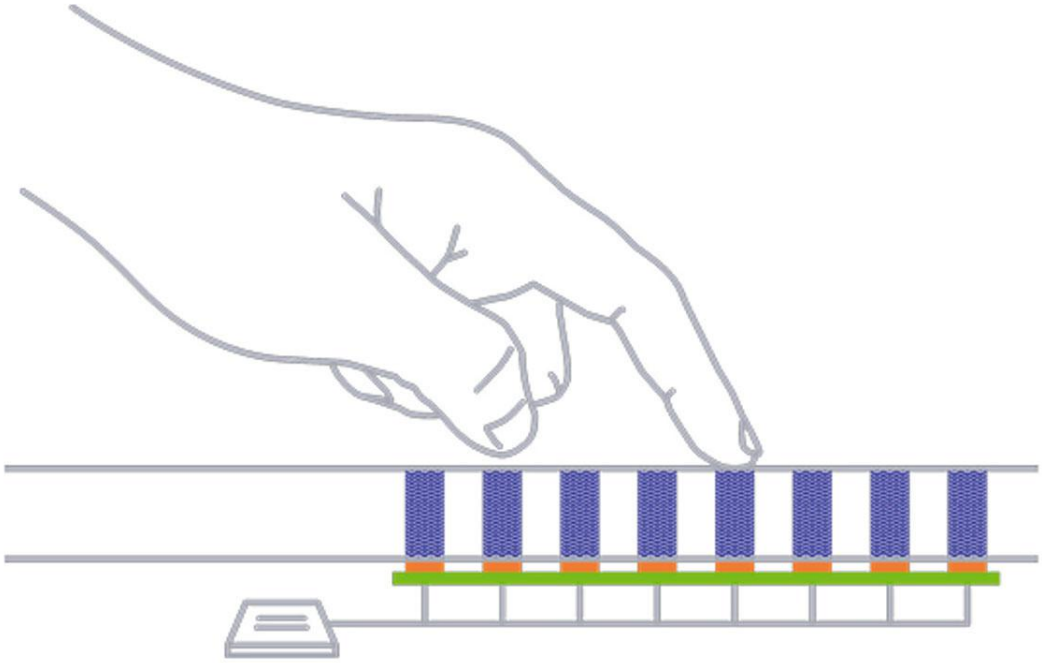
Working with Naim and Focal, the group came up with more than 56 requirements for the new 20-speaker system. Focal speaker drivers are fitted within Bentley's speaker baskets, produced using additive manufacturing. The entire system consists of six tweeters; nine midrange speakers; two woofers; two active bass transducers, and one subwoofer. All midrange speakers and tweeters have new drivers, while the woofers and subwoofer have been customized to enhance linearity and dynamics.

The speakers are derived from Focal's Grand Utopia series, and the midrangers and tweeters feature patented 'M' cones. These are made from a single piece to provide rigidity, lightness, and damping. This results in a linear frequency response with low distortion and better sound dispersion.

Sound settings are accessed via a 12.3" touchscreen in the center of the dashboard. The screen can be configured as a single display, split 2:1 or show three different functions at the same time.

New Force-Sense Tech from Mobase and UltraSense

INTERIOR NEWS



MOBASE / ULTRA SENSE IMAGE

Korean automotive switch supplier Mobase Electronics has announced a strategic partnership with UltraSense Systems. Mobase will adopt the UltraSense TouchPoint Q TapForce HMI controller in their latest solid-surface infotainment button bars entering production later this year, with further collaboration using UltraSense CapForce HMI controllers.

UltraSense transforms driver touch interfaces with their In-Plane Sensing solutions, which enable multi-mode sensing, processing, and AI / machine learning algorithms to turn almost any surface into a touch smart surface. UltraSense In-Plane Sensing includes a SmartSurface HMI controller for programmable audio, illumination, haptics, and user feedback.

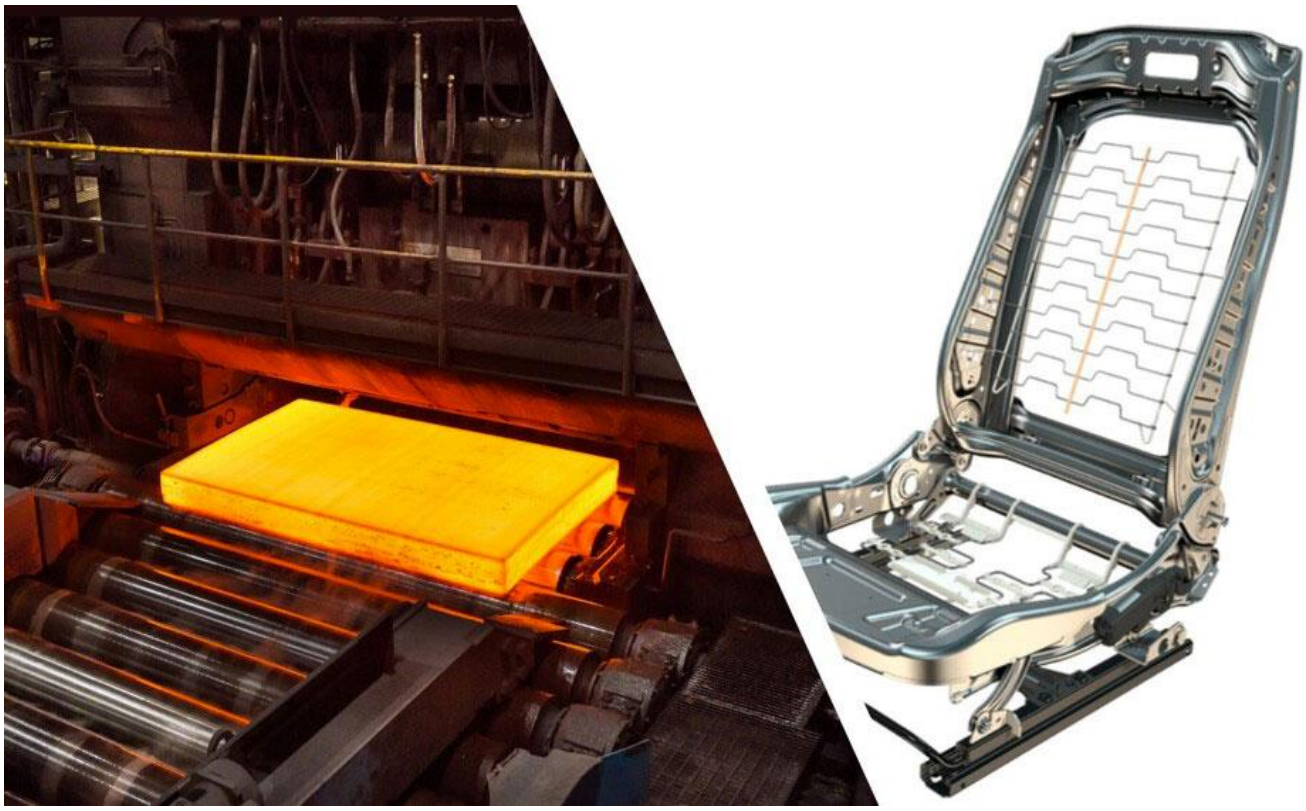
UltraSense's QuadForce architecture provides force-sensing technology by using a MEMS piezo-electric process to etch four microscopic strain sensors into each touchpoint controller. This provides several benefits, including immunity to low and high temperature sensitivities, resilience against mechanical and ageing stresses, instant robustness to capacitive touch systems, and calibrable force thresholds that may be tuned for the requirements of each use case.

Mobase chair and co-CEO Son Byeong-Jun says, "With UltraSense's partnership, we are confident that our solid-surface infotainment systems and other next generation touch products will stand out with our customers to deliver exceptional touch user experiences."

The customers for this technology include Hyundai Kia, as well as other automakers around the world.

SSAB Fossil-Free Steel for Forvia Seat Structure

INTERIOR NEWS



SSAB IMAGE

Forvia has unveiled a seat structure made from fossil-free steel, produced with a very low CO_2 footprint, reduced by almost 90 per cent compared to a traditional steel seat structure. It was realized through a collaboration with Swedish steel manufacturer SSAB.

Emerging from a partnership forged in 2021, Forvia and SSAB now materialize their common vision in a new front seat structure. This prototype positions Forvia as an innovator in employing European green steel for its seats, with full-scale integration projected for 2026.

Manufactured within Forvia's Hanover R&D hub, the seat structure is built around a structure having 1.5 mm-thick parts for a total of 10 kg of steel. The steel comes from the Hybrit pilot plant in Luleå, where iron ore is reduced with hydrogen and fossil-free electricity instead of coking coal and other fossil fuels traditionally used to make steel.

This development represents an important step in the implementation of Forvia's objective to reduce CO_2 emissions in their supply chain by 45 per cent in 2030, to reach net-zero CO_2 emissions by 2045.

Executive Vice President of Forvia Seating Frank Huber says, "Steel is the backbone of our products and as such can make a significant contribution to reducing our carbon footprint. This world-first use of fossil-free steel in the manufacture of a front seat structure, a key vehicle component, shows that it is now possible to develop new automotive equipment compatible with today's environmental challenges, to reduce our impact on the climate, as well as that of our customers. This new development thus paves the way for a more sustainable transport and infrastructure system."

And SSAB's head of sustainable business says ”SSAB’s partnership with Forvia has truly reached the next level now that we can present results in the form of an actual product made with fossil-free steel…we want to help our partners decrease their carbon footprints while also continuing our own journey toward becoming fossil-free around 2030.”

Continental V- Display for Immersive Hyundai Kona Experience

INTERIOR NEWS

CONTINENTAL IMAGE

Continental is supplying V-shaped displays for the Hyundai Kona. The V-shape display consists of two flat, high-resolution display panels with a backlight, covered with a curved ('V-shaped') glass, which creates a seamless look by optical bonding. It combines the two screens of the instrument cluster and infotainment display under one glass surface.

The display extends from the driver's area to the center console; the radius and angle focus on the driver's perspective. This comes with several advantages for the driver, such as a more comfortable view of the visual content from the driver's seat. Thanks to this ergonomic arrangement, all controls displayed on the screen can be accessed conveniently and intuitively by the user.

The Kona also gets over the air (OTA) software updates for new functions managed through the display.

Volvo-Polestar App Adds Video Options

INTERIOR NEWS

POLESTAR IMAGE

Volvo and Polestar want to offer customers more video streaming options in their future vehicles, so the auto brands are now offering a self-developed app.

The video streaming app is now available for download as a beta version in the Google Play Store in European markets. It enables the consumption of web-based content from various providers directly via the center displays. The use of the app is supposed to be limited to situations in which the vehicle is not being moved, i.e. when parked or charging.

The content includes news services such as the Tagesschau (German TV Daily News Report) and the BBC, as well as other national TV broadcasts in Europe. A curated playlist is also in the works. The data volume used by the app is already included in the vehicle's data plan, so there are no additional costs.

The app was developed using an online emulator, which is available on the automakers' own developer portal and is intended to enable app designers to further develop the application relatively easily and adapt it to changing customer needs. The carmakers expect this to result in much shorter development cycles than is usual in the automotive industry.

Nissan London Design Studio 20-23 Concept Car

INTERIOR NEWS

NISSAN IMAGES

Nissan is confirming their faith in EVs, even while some European governments—including the UK's—are backing away from their planned 2030 ICE ban. The Nissan Concept 20-23 concept was unveiled to celebrate the 20th anniversary of Nissan Design Europe (NDE) in London, England, by Nissan President and CEO Makoto Uchida.

Nissan said the 20-23 name refers to the design studio's anniversary as well as the brand's traditional number 2 ('ni') 3 ('san') and the current year.

Nissan says their designers have created a living space that properly reflects the sporty exterior. Entry is by two scissor doors which hinge upwards from the base of the A-pillar.

The Concept 20-23's interior is also said to come with two deep bucket seats trimmed in a near-white finish, along with a long extended steering column; a rectangular steering wheel, and paddle shifters for the electric powertrain. Between the two occupants, there are two metal beams holding the center console in position and are bolted to the 'spine' of the car that appears from the floor.

The modern twist on this small car reflects both the world of online racing and Nissan's participation in Formula E. The Concept 20-23's basic 3-door hatchback body-style has deep skirts which direct the airflow away from the front of the car, through apertures to cool the brakes and out through vents just behind the front wheels.

Uchida used the event to highlight Nissan's future battery technology and strategy telling journalists that the automaker will be introducing 27 electrified vehicles by 2030, including 19 BEVs. In this period Nissan also will introduce cobalt-free technology to cut the cost of EV batteries down 65 per cent by fiscal year 2028. They also aim to launch BEVs with their proprietary all-solid-state batteries (ASSB) by 2028.

By cutting charging time to one-third present times, ASSBs could make BEVs more efficient and accessible. Nissan expects ASSBs to bring the cost of battery packs down to $75 per kWh by 2028, and they aim to bring it further down to $65 per kWh to achieve cost parity between BEV and ICE vehicles in the future.

Uchida said, "More than a million customers have already joined our journey and experienced the fun of a Nissan electric vehicle, and there is no turning back now. EVs powered by renewables are key to us achieving carbon neutrality, which is central to our Ambition 2030 vision. Nissan will make the switch to full electric by 2030 in Europe—we believe it is the right thing to do for our business, our customers and for the planet".

The new battery-electric Micra is being engineered by Renault as a sister car to the Renault 5 electric small hatchback and Renault 4 electric small SUV. The two cars will be built at Renault Group's factory in Douai, northern France.

Vertical Or Horizontal Displays? BYD Swivel Screen Allows Both

INTERIOR NEWS

BYD IMAGE

Is a portrait (vertical) orientation the best way to have a touchscreen, like in Teslas and the Ford Mustang Mach E? Or is landscape (horizontal) better, as in most other new vehicles? There is probably no right or wrong answer; it's a nuanced consideration. Each approach has benefits and drawbacks.

MERCEDES E CLASS – MERCEDES IMAGE

FORD MUSTANG MACH E – FORD IMAGE

The BYD Tang is a crossover SUV, available as an all-electric vehicle, a plug-in hybrid or a conventional ICE vehicle, with a central display which can be rotated into a vertical or horizontal orientation.

BYD IMAGES

The System objective is to adapt to user preferences. It's a simple fact: screens should be positioned in a way that minimizes driver fatigue, to improve safety and comfort. It should avoid potential distractions if the driver takes their eyes off the road while **trying to operate** controls available only through the screen. Rotating the display when driving shouldn’t be possible. There are probably other options, like having a different cockpit architecture with display mounted on top of the dashboard, and probably HUD solutions with AR around the main display. The 'best' solution is still an open question, **what are your thoughts on this**?

The Design Lounge

Tesla Robotaxi

THE DESIGN LOUNGE

By Athanassios Tubidis

TESLARATI IMAGE

' …maybe the age of working is coming to an end.'

This is one out of several predictions by science-fiction author Isaac Asimov, written in his essay at The New York Times, after attending the 1964 World's Fair and projecting to the World's Fair 50 years in the future, in 2014.

In 2024 and while this statement still seems to be unlikely for most of us, for Uber and taxi drivers might become somewhat more tangible. Tesla plans to bring on the streets a dedicated robotaxi with no steering wheel nor pedals.

Indeed, between the average estimate cost of an Uber ride from 1 to 2 US dollars per mile and the estimate average cost of an autonomous vehicle ride at well below 50 cents per mile, the problem is on the driver seat.

Vehicles, are made to move, and the more they do the more their usage efficacy and financial revenues. Despite their additional technology costs, on both hardware and software, if robotaxis emerged at scale, they may achieve very low rates per mile compared to private cars or transit services, due to higher use and longer lifetime mileage. This will require though purpose-built vehicles designed for higher durability. Besides fuel, cleaning, maintenance, and parking costs, robotaxis would have a lower depreciation rate. Registration and financing costs per mile are also lower because AVs project to a much higher number of miles driven than maned vehicles.

External factors, such as urban density, can play a significant role in the per-mile cost of shared AV services. For areas of lower population density, robotaxis will have a higher share of empty miles driven without generating revenue; that is with no occupant and independently of vehicle type (ie 2-seater vs 7-seater). Since downtown parking is expensive, we may need to get used to empty AVs driving around, instead of parking. In cases, that scenario might be reasonable or indeed cheaper. Nonetheless, mobility services account for the largest share of the total cost, including customer app development and operation/data analytics fees to drive strategic decisions on fleet size, vehicle type, region, and operating area.

It is certainly difficult to evaluate beforehand the competitive advantages and liabilities of the upcoming AV trend as well as the legitimacy of such business scenario that mainly depends on technology. Often in automotive history, there was consensus among experts regarding the potential of automation processes however, at the initial stages was always a topic of speculation, imagination, and philosophical inquiry.

During a factory visit, at one of the most modern and highly automated facilities, Henry Ford II and the leader of the automobile union Walter Reuther, had a short yet brilliant dialog that broadly captured the paradox of automation:

_Henry Ford II: *'Walter, how are you going to get those robots to pay your union fees?'*

_Walter Reuther: *'Henry, how are you going to get them to buy your cars?'*

Perhaps this is what Asimov disregarded in his 2014 prophecy: the future is less about technologies themselves and more about the systemic aspect of things, the organization, the means and the will to put them into practice.

Pininfarina Barchetta, EV to Celebrate Pura Design

THE DESIGN LOUNGE

PININFARINA IMAGE

Pininfarina has unveiled their first-ever coach-built vehicle, the all-electric B95 hyper Barchetta. See **video presentation** by Chief Design Officer Dave Amantea. Ten vehicles will be built, with design carried out by the Pininfarina Design team in Cambiano, Italy, and construction undertaken by Pininfarina.

Pura design philosophy, first shown during Monterey Car Week, hearkens iconic classic models into the future, to mix and contrast classic race car features with futuristic design elements. These include here a concept-car-inspired dashboard that appears from the driver's point of view to merge with the exterior.

The interior is the epitome of a classic race car meeting futuristic design, with a concept car-inspired dashboard and cabin environment that leaves occupants feeling safe and cossetted.

From the driver's seat, the expansive dashboard appears to merge with the exterior, extending the distinctive lines of the hood into the cabin, as seen on the Pura Vision design concept. Together with this sculptural carbon-fiber dashboard, a floating wing effect is created.

The dashboard is upholstered in tan sustainable luxury leather with bespoke embossing, which contrasts with the brushed black aluminum anodized finish that features elsewhere.

The seats, also finished in the tan sustainable luxury leather, are inspired by those of a classic race car, designed to curve around the occupant. Both seats have been profiled to cocoon the driver and passenger, ensuring comfort and protection, with a two-part design inspired by the seats found in Pura Vision, with unique aluminum inserts.

The headrests, featuring electro-welded Pininfarina logos, are finished in a Pied de Poule houndstooth luxury textile while black and tan contrast stitching continues across the seats, door interiors and dash.

Pininfarina states that there will be unlimited and bespoke options for the B95, ensuring each is unique.

News Mobility

Imaging Radar from Mobileye and Valeo for AD

NEWS MOBILITY

MOBILEYE / VALEO IMAGE

Mobileye and Valeo have been working together since 2015. In a new partnership, they aim to advance the development of software-defined imaging radar systems. The imaging radar system will provide a foundation for more advanced hands-off ADAS solutions and eyes-off capabilities for automated driving on highways and urban roads. Mobileye's imaging radars feature a Massive MIMO (Multiple-Input, Multiple-Output) antenna design, a high-end radio frequency design developed in-house, and high-fidelity sampling. This is said to enable precise object detection and higher dynamic range. With its integrated system-on-chip design and algorithms for interpreting radar data, the imaging radar system provides a detailed, four-dimensional image of the environment up to 300 m away. With a field of view of 140° at medium range and 170° at close range, the radar is said to enable more accurate detection of pedestrians, vehicles or obstacles.

Valeo will integrate Mobileye's imaging radar technology and the corresponding software and algorithms embedded in the Mobileye radar chipset into its automotive software and hardware radar solutions, meeting the latest and most stringent software and hardware requirements of automotive manufacturers. These include functional safety, cybersecurity, high-speed communication protocols with vehicle networks, electromagnetic robustness, and validation of overall system performance and durability over the life of the vehicle. Valeo also manufactures the imaging radar systems.

BMW One Step Further in Autonomous Driving

NEWS MOBILITY

BMW IMAGE

BMW's 7 Series is expected to be the first BMW car to receive the maker's newest L^3 semi-autonomous system later this year

That will make BMW the second German manufacturer, after Mercedes-Benz, to receive permission from the authorities to control the car completely by computer at times. The customer can take their hands and attention away from the driving task, and may watch videos or answer e-mails. BMW, like Mercedes, is thus demonstrating greater capabilities than Tesla—with Tesla's L^2 "Autopilot" and so-called "Full Self-Driving", the driver must always keep eyes on the road and be ready to intervene; the driver is liable for all maneuvers.

With the Mercedes and BMW systems, the driver can officially turn away from traffic, and the car decides and acts on its own. For the first time, German manufacturers are prepared to assume liability.

The function is initially nly permitted up to 60 km/h as a traffic jam pilot on the highway, and only in good weather. Mercedes wants to increase the speed to at least 90 km/h by the end of 2024, and to 130 in the long term, then longer distances could be covered on the highway, for example.

The prerequisite for this is a secure legal framework. The law on autonomous driving has been in force in Germany since 2021—a globally unique set of regulations because it aims to ensure general legal certainty. Central to the assessment of the technology is a positive risk balance: manufacturers must prove the computer makes fewer mistakes than a human. To do this, general accident statistics are evaluated and compared with the manufacturers' data-based simulations.

General News

Mercedes to Build Cars Faster with Digital Twin

GENERAL NEWS

MERCEDES-BENZ IMAGE

Mercedes-Benz wants to convert plants to produce new models more quickly from the middle of the decade with digital technology. The changeover to new vehicles is to be planned and virtually simulated with the help of a digital twin, so that ongoing assembly would only have to be interrupted minimally.

Production can also be ramped up much faster this way. The new technology was developed with graphics card specialist Nvidia. The digital twin, for which a true-to-life virtual image of a factory must be created, is to be used at the start of the next generation of compact models on the MMA (Mercedes Modular Architecture) platform. It is planned for the middle of the decade in the maker's plants in Germany, Hungary, and China. In Rastatt in Baden, which is to serve as a blueprint for the other plants, a low three-digit million-euro sum will be invested for this purpose.

The new electric models are based on MMA, the first being the CLA presented as a concept at the IAA. At the same time, it can still serve as a basis for combustion cars. In the transition to e-cars, Mercedes will be able to assemble vehicles with different types of drive on one and the same production line in order to respond flexibly to demand from car buyers.

Xiaomi Auto Patent to Anticipate User Preferences

GENERAL NEWS

XIAOMI IMAGE

Xiaomi Auto has recently filed a patent titled "Vehicle Wake-Up Method, Device, Storage Medium, and Vehicle" with the China National Intellectual Property Administration.

Xiaomi says that while some vehicles already support remote control functions, such as using a smartphone to start the heating or air conditioning or unlock and lock doors, there are scenarios where the response time of vehicles to user commands is relatively long, which can degrade the user experience.

The recently-disclosed Xiaomi patent aims to allow vehicles to retrieve users' driving records and determine the preferred vehicle usage time based on these records, ultimately achieving the goal of waking up the vehicle when needed and providing Xiaomi—and other parties, presumably—with a further channel of end-user surveillance. The patent involves a method, device, storage medium, and vehicle. The method includes obtaining records of user vehicle usage, determining the user's preferred usage time based on these records within a time period, and waking up the vehicle before the user's preferred usage time in that time period.

The claimed benefit is that users can experience quicker responses to their commands, ultimately improving the overall user experience and addressing the issue of slow vehicle response times in specific scenarios. This approach, which wakes up the vehicle ahead of the preferred usage time, can also help reduce vehicle energy consumption compared to keeping the vehicle continuously awake.