DVN-I
Automotive Interior

Thu, 19 November 2020 Weekly Newsletter NEWSLETTER #41

Editorial

Digital Cockpits: Front And Center

SOURCE: SHUTTERSTOCK

An enormous number of technologies are driving the long journey toward increasingly autonomous vehicles—telematics, cloud, V2X, and scads more. One of them that's been rapidly rising in prominence is the digital cockpit, which replaces traditional controls and displays with digital screens. A wide range of multiple-screen configurations is possible with elements including digital instrument clusters, head-up displays, infotainment system control screens, passenger screens, digital assistants, and others.

This week we take an in-depth look at digital cockpits and how they can influence car safety for the better. Rest assured, this first scrutiny won't be the last. Far from it; at DVNI we're closely monitoring digital cockpit technology to you, our subscribers, all the relevant developments and innovations.

We've also got coverage of Electronica Virtual, the digital trade fair and conference for the electronics industry. The relevance is quite large for the vehicle interior community with innovations in connectivity, cloud functionality, security, displays, ADAS, comfort, lighting, and

general electronics for the interiors of tomorrow's motor vehicles. And "motor" is right—the car of the future is powered by electricity. In this week's Design Lounge, we pick apart an example of how electric powertrains influence interior design.

All good things must come to an end, and our ten-part series "Trajectories", a designer's look at our mobility-centric culture, has run its course. A complete synthesis of the story will be published next week, exclusively for DVN Interior members.

There are so many reasons to become a member of the DVN-I community; come **join us**!

Sincerely yours,

Philippe Aumont
General Editor, DVN-Interior

In Depth Interior Technology

Digital Cockpits Drive Toward Vision-Zero Safety

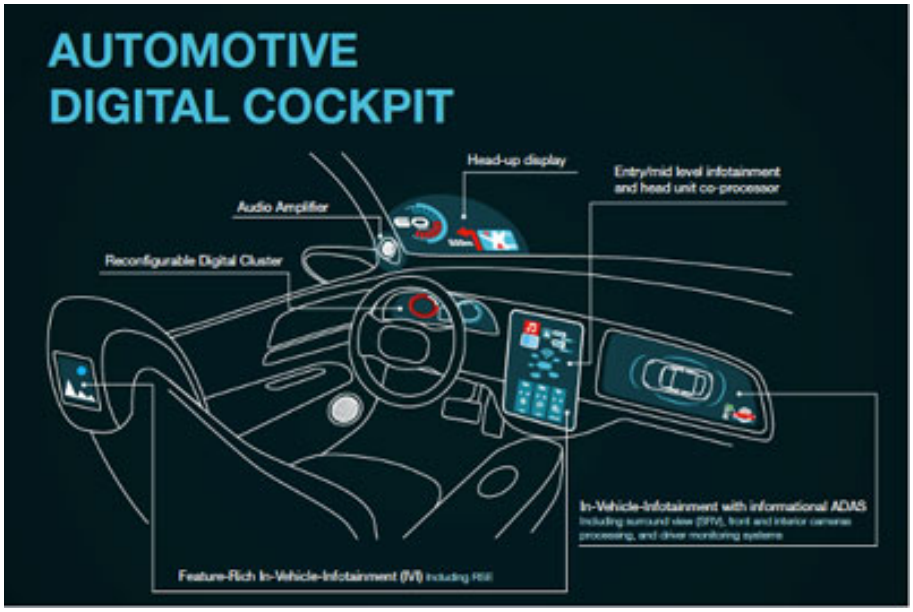
Vision Zero is a multinational road traffic safety project that aims to achieve a highway system with no fatalities or serious injuries involving road traffic. It started in Sweden as a project approved by that country's parliament in 1997.

Advances in technology and technique are dramatically redefining standards and best practices in vehicle design, and one very salient example is in the field of controls and displays, wherein the steady development of ADAS is pushing toward digital cockpits. Not just for expensive premium cars—like most advanced features, digital cockpits have debuted in luxury cars, and one can be forgiven for assuming it would be a long time before they would become available to the mass market.

But advanced features have a decades-long track record of incubating in the premium segment, then breaking out into the popular-priced segments as experience with the high-end models gives insight into how to make them affordable for lower-priced cars. ABS, electronic stability control, adaptive cruise control and automatic emergency braking have cascaded from luxury models into the mainstream models, and we anticipate digital cockpits will follow a similar path.

VW GOLF 8 DIGITAL COCKPIT

For evidence, just look at the likes of touchscreen-based entertainment and HVAC systems, digital instrument clusters with head-up displays, driver monitoring systems, blind-spot monitoring, lane-keeping assist, night vision systems, and high-speed wireless connectivity. When a vehicle is equipped with a critical-mass plurality of these kinds of features, it can be said to have a digital cockpit. In the meantime, many of these features (and others besides) are making significant progress on an à-la-carte basis toward availability for every consumer.



SOURCE: TEXAS INSTRUMENT

This trend is enabled by silicon integration. Consolidation of individual control units due to evolving system architectures, and the move toward software-defined functionality in vehicles, are forces pushing toward a new paradigm for in-vehicle computing with its attendant functional safety requirements defined by the industry's ISO 26262 standard.

The cockpit's interface points are evolving from discrete controls and displays toward integrated and immersive digital cockpits including driver and cabin monitoring, digital rear- and side-view mirrors, vehicle surround view and head-up displays, vision and hazard monitoring, lane-keeping, adaptive braking, and dynamic acceleration.

All of this is becoming possible by dint of increased computing capabilities— —deploying a system-on-chip with a higher-performance CPU, or a CPU with multiple cores, for example, in the sturdy framework of ISO 26262. That's a standard for functional safety management for automotive applications, defining standards for overall organizational safety management as well as standards for a safety life cycle for the development and production of individual automotive products.

A core principle of Vision Zero is that life and health can never be exchanged for other benefits within the society. This is a marked departure from traditional cost/benefit comparisons, wherein a monetary value is placed on life and health, then that value is used to decide how much money to spend on vehicle or infrastructure safety features.

SAMSUNG DIGITAL COCKPIT AT CES 2020

At CES 2020, Samsung Electronics unveiled their digital cockpit, which uses 5G to link features inside and outside the vehicle and provide connected experiences for drivers and passengers.

Digital Cockpit 2020 is the third co-development between Samsung Electronics and Harman International, and combines Samsung's telecommunications technologies, semiconductors and displays with Harman's automotive expertise. The solution enables seamless two-way connections between the home, the office and all the other spaces that users may visit while providing personalized experiences and in-car infotainment. Smart features actively support the driver, further reinforcing safe driving.

Digital Cockpit 2020 has an ASIL certification level of "B" (ASIL is the Automotive Safety Integrity Level, risk classification scheme defined by the ISO 26262). There are eight displays inside the vehicle, as well as eight cameras. Hardware is built around Samsung's Exynos Auto V9 SoC (System-on-Chip), a semiconductor for vehicle electronics, and Android 10, which allow for multiple features to be run at the same time. Arm multi-core CPUs and multi-cluster GPUs are combined with an NPU to meet the computing demands of rich in-vehicle experiences and safety functions such as driver monitoring.

IMAGE: ARM

IMAGE: ARM

Arm's headquarters is in Cambridge, England; the company is in the process of being acquired by Nvidia. Arm delivers a complete Internet of Things (IoT) solution, from providing the IP for the chip to delivering the cloud services.

Arm IP core is progressing towards the next era of computing, wherein autonomous decisions will be the predominant new workload for in-car computers. Machine learning and AI mean there will be no need to further enhance every day the automation capabilities of ADAS and IVI (In Vehicle Infotainement) technology, with new CPU, GPU, and ISP technology for safety-critical systems. Only a flexible, scalable heterogeneous compute solution can address the range of process capabilities for complex and different workloads in a power-efficient way. This will not be an overnight transformation, but rather a journey up to level 4 autonomous decision making and zero fatalities.

GUARDKNOX ZONAL ARCHITECTURE (IMAGE: GUARDKNOX)

GuardKnox describe themselves as the automotive industry's first cybertech tier supplier. They leverage automakers, tier-1 suppliers, and the aftermarket to deliver software-defined, and service-oriented vehicles. GuardKnox's flexible and scalable solutions enable added connectivity, zonal E/E architecture, hosted applications, high-speed routing (including network recovery and service discovery functionalities), vehicle personalization, and security. The company's approach to automotive innovation is inspired by technology from the aviation industry, with the experience needed to develop secure, high performance computing solutions using a patented services-oriented architecture (SOA). Founded in 2016, GuardKnox is based in Israel with subsidiary locations in Stuttgart, Germany, and Detroit, Michigan.

Guardknox "Zonal E/E Architecture" is a concept that reflects the technological shift, that addresses the increasing complexity and computational demands of the automotive electronic/electrical (E/E) system to meet the expectations of the new generational automotive consumer—permanent internet connectivity for downloads, over-the-air updates, apps, and so on; fully customizable driving experience, immersive in-car infotainement, and more, all while feeling safe and secure. The goal is for the vehicle and its systems to step aside as the focal point in the consumer's mind, allowing the mobility service or mobility experience that the vehicle provides to take center stage.

Vayyar Imaging, from Israel, is providing real multifunction radar applications, instead of a narrow field of view limited to one or two applications. Ian Podkamien, the company's Director of Business Development, says "The alternative is that the Tier 1 or automaker buys two different sensors, two different types of solutions, which represents a heavy investment, we also provide access to a high-performance 4D imaging radar platform, which will allow them to develop additional features down the line. This approach not only saves the direct cost of the sensor itself, but also saves on wiring, connectors, engineering efforts, validation, and so on."

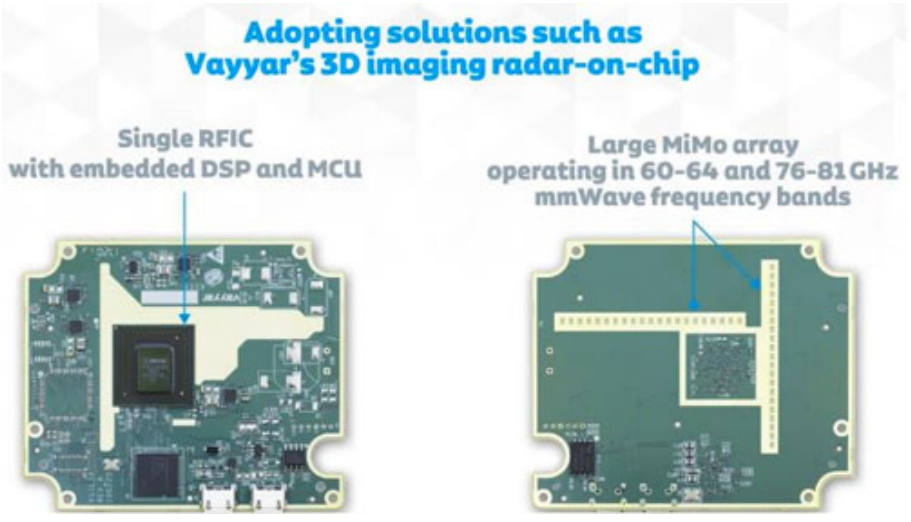


IMAGE: VAYYAR IMAGING

For in-cabin monitoring, the 3D imaging system draws on about 40 antennas that transmit and receive across a wide field of view—almost 180° on each axis. That allows it to cover both the front and second rows in the vehicle at the same time, and to create high-resolution images. The system can detect objects and people inside the cabin, distinguishing between children and adults. It constructs a fully filtered and analyzed 3D image of the cabin, made up of small voxels (a voxel is a single data point on a regularly-spaced, three-dimensional grid) that signify the targets it has detected.

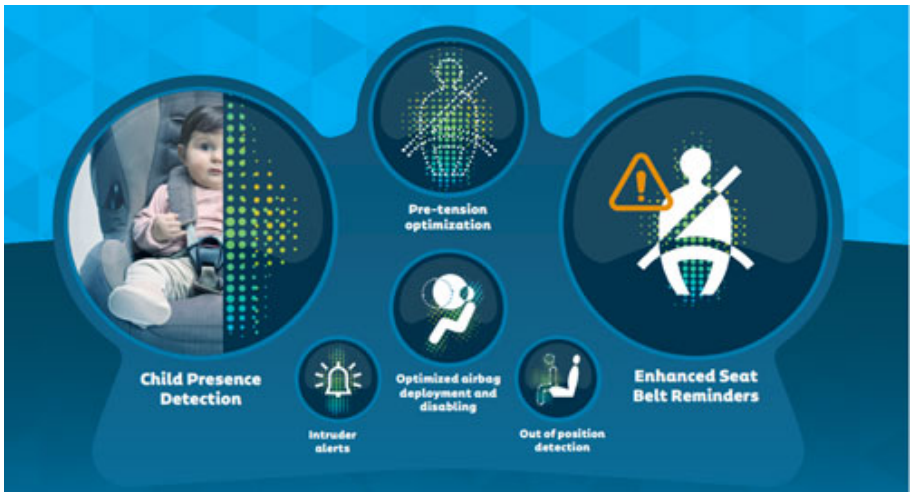


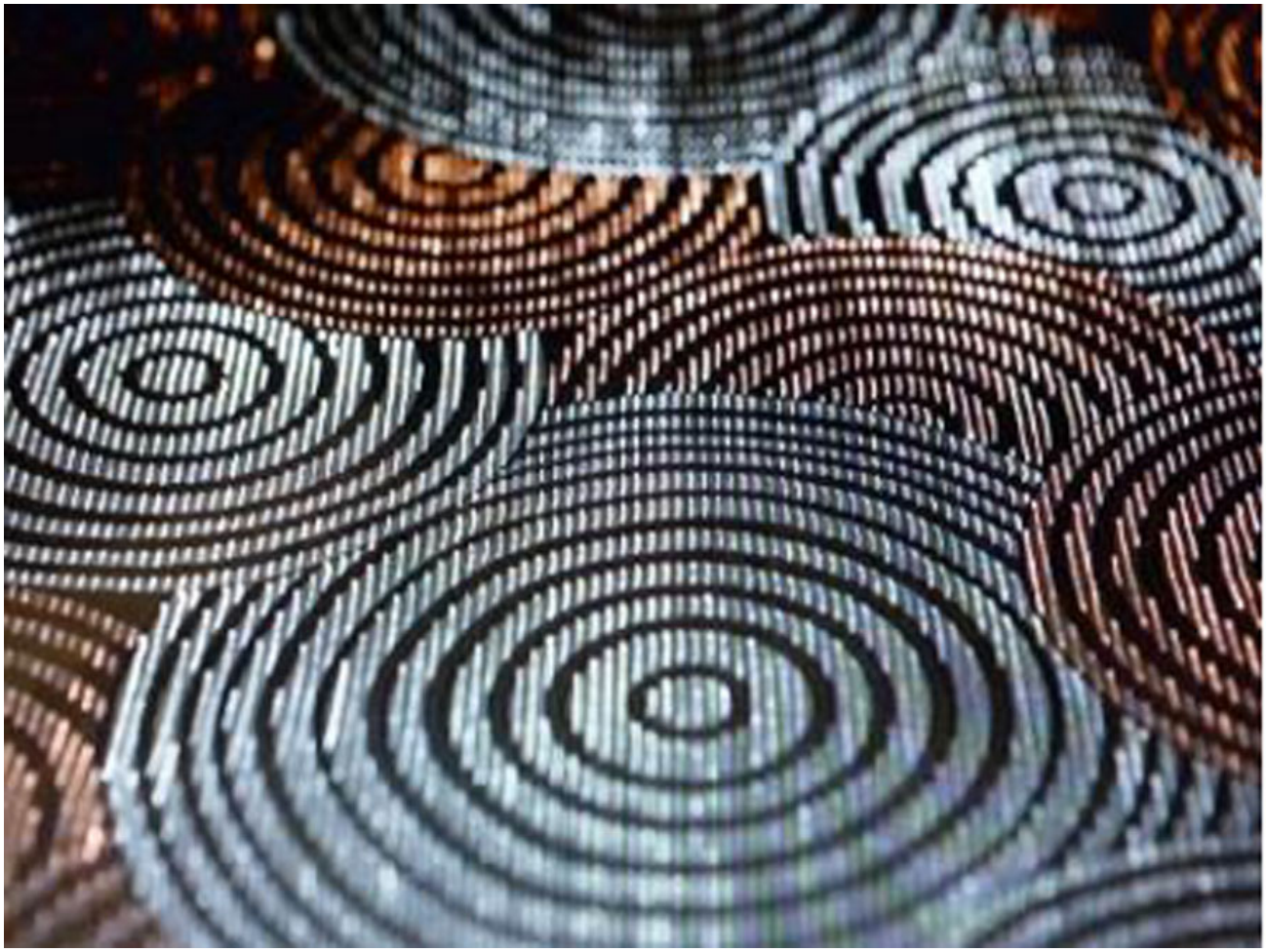
IMAGE: VAYYAR IMAGING

This sort of information can be applied to various life-saving use cases, like combination of child presence detection and a seat belt reminder on a single chip.

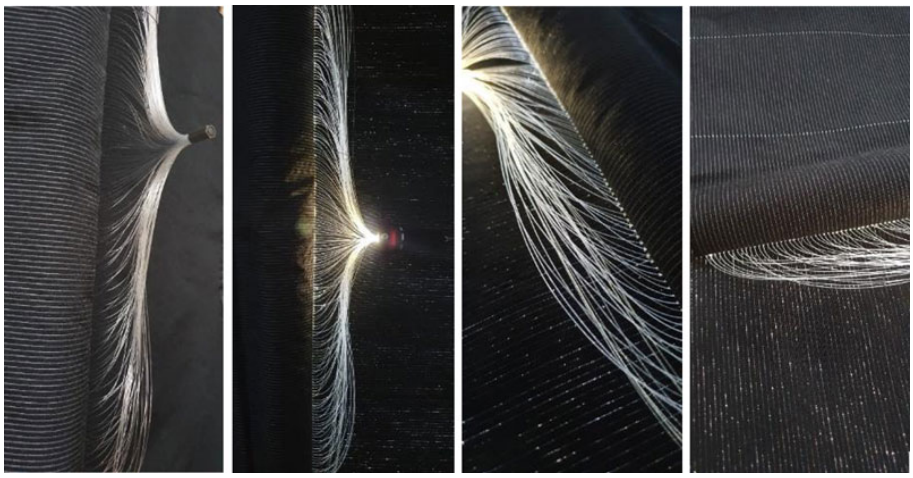
Interior News

Smart Textiles Lighten Interiors

INTERIOR NEWS



Companies like Future Lighting Technologies (FLT) and Aunde work on the development of textile lighting systems for implementation in the car interior. Aunde, based in Mönchengladbach (Germany), works through Munda—a joint venture with the lighting specialists at Mentor.



Principle of textile lighting systems:

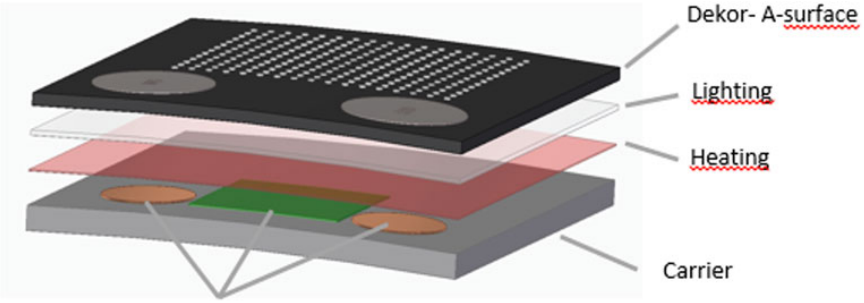
The light of LEDs is fed into the fabric's fiber ends and can be emitted in lateral or axial direction. The fabric is provided with suitable light-scattering surface structures at the desired light output points. The fabric consists of clear plastic PMMA optical fibers, which are woven with warp threads to form light-guiding fiber mats. A diffusor and top fabric are placed over the light-conducting fiber mat and a reflector is placed under it. The light guides are combined into one or more ferrules, and the ferrules are connected to the LED modules. A special mixer optic in the LED modules ensures that the LED light is distributed optimally to all polished fiber ends in the ferrule.

For integration in the car interior with traditional small installation spaces, it's a great advantage that the textile lighting systems are flexible with very flat structures. They can illuminate or backlight textile and non-textile surfaces in door panels, headliners, seats, in the cockpit or footwells for decorative purposes, branding, safety or orientation functions.

Further advantages are the personalization of illuminated textiles by displaying light patterns on demand or by printed light patterns with sharp contours on the textile and changing LED colors and brightness. The light design can also be modified by special developed A-surface materials.

Beyond that, FLT works on textile composites for even more functions. Lighting, heating, switching, sensor technology, up to the required electronics - almost everything is possible. If required, all functions can be brought together in different positions as so-called laminating compound with a thickness of about 1 mm.

For heating, electrically-conductive yarns are integrated into the textile during weaving or knitting. Connected to a power source, the heating filaments can reach as high as 100 °C. Another technology for heating material is the use of nonwovens. Already at the production process chips of iron, stainless steel, silver or carbon become integrated into the textile. After calendering, pressing and fixing, the textile/conductor composite forms a conductive unit with homogeneous heat over the entire surface. A laminating composite of surface textile with light and a heating fleece results in a bond with possible thickness of about 0.5 mm, to allow very rapid heating up of the whole surface.



In the case of an automotive seat or door heater, the switch should be invisible behind the surface material. For this purpose, electrical contacts can be inserted into the composite during lamination in a precisely placed position, which are led out of the composite via contact wires and then connected to an electronic control unit. In this way, a finger that presses the defined area can trigger an invisible switch below the surface. Small vibration motors can also be laminated into a compound for a haptic feedback. These feedback motors can also be installed in completely different places, so that e.g. the haptic feedback to a contactless switching window lifter can be placed in the armrest below the elbow. The possibilities are wide open, and so the smart-textiles realm is very exciting!

TS–Canatu Door HMI Demonstrator

INTERIOR NEWS

Japanese interior parts supplier TS Tech, who supply many seats to Honda, has been working with Canatu, a Finland-based maker of 3D formable and stretchable films and touch sensors. The two companies have jointly developed a new demonstrator to showcase the capabilities of both companies' technologies in interior applications.

The new demonstrator is in the form of a decorative door trim with 3D touch switches to control the power seat adjustments. Canatu and TS Tech will present this new demonstrator at Automotive Interiors Expo Virtual 'Live' to be held 1–2 December.

In L^{2+} vehicles (conditional driving automation), it is assumed that the driver could take a relaxed posture within a range where they are always ready to take control if necessary. However, when the driver enters this relaxed position the car's center display and instrument panel will be out of instant reach. Seats and door trims are ideal places for user interfaces as they allow a driver to effortlessly control the functions from a leaned-back position.

In that context, seats and door trims will rise in relevance when designing HMIs as they are always closest to the driver.

According to Canatu, with its bendable and transparent Carbon NanoBud (CNB) film, it is possible to incorporate touch switches that conform to the shape of the door trim grip. Together with TS Tech's decorative door trim technology, the solution is said to offer an intuitive user experience.

In the demonstrator, functions are divided into upper and lower operating areas that are activated by two grip detection sensors located on the side of the door handle. Upon activation, touch switches and lights turn on in the respective operating area.

In addition to forward and backward adjustments, the seatback recline can be adjusted, and the power seat can be raised or lowered and tilted to suit the comfort of the driver/passenger. When the hand is released from the door handle, touch switches are disabled and lighting turns off.

Magna's Augmented Mirror System

INTERIOR NEWS

Augmented reality with camera-based technology is developing everywhere in the automotive market. Magna will release their Clearview™ system in 2022. It uses a combination of camera and mirror technology to provide drivers with an enhanced field of view.

The system's interior mirror features a frameless design with the ability to electronically switch between a traditional rearview mirror and a video display that has a customizable field of view and can display up to three camera views at the same time.

This video system is particularly helpful when passengers, cargo, mist and/or a trailer restrict the driver's view when using rearview mirror and direct reflection. The system could also insert special messages with a capacitive-touch interface.

The system's exterior mirror integrates a camera with an old-fashioned glass mirror (to satisfy American regulations which still don't allow deletion of sideview mirrors in favor of cameras) to display a live feed inside the vehicle. To avoid blind spots and provide a maximized field of view, cameras are mounted on the mirrors beyond the widest point of the vehicle.

Thusly equipped, the exterior mirror could include safety and convenience features such as surround-view cameras, blind zone indicators, auto dimming glass, and forward/rear lighting.

Sanitize the Car in Just Two Minutes!

INTERIOR NEWS

The Covid-19 pandemic has highlighted the risk of contamination in all types of transportation. The coronavirus adds to the risk of car interiors which due to their warm, humid, seldom-cleaned environments are practically petri dishes for bacteria and germs to multiply.

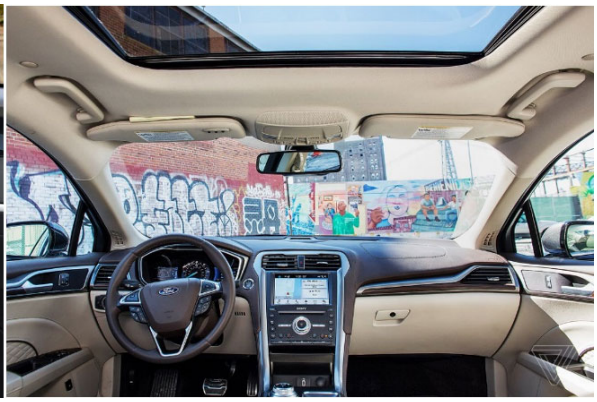
According to several consistent study results, (U.S. National Center for Biotechnology Information; Queen Mary University in London), steering wheels, seats, and armrests, can contain more than 700 bacteria/cm², which is more than five times that of a typical toilet seat! To disinfect a vehicle interior, one principle is to use germicidal ultraviolet light which quickly destroys the DNA/RNA of bacteria, fungi, and viruses. Ultraviolet-C light (UV-C) has been used for decades to disinfect operating theatres, medical equipment, and water.

UV Mobi, a startup based in Paris, France, is proposing such a solution for car interiors. Within an initiative from the European Institute of Innovation and Technology, a body of the European Union, two pilot tests will happen this November in Barcelona, Spain and Thessaloniki, Greece, in a consortium of six partners from four countries.

With four ultraviolet lamps, via one of the car's windows, a maintenance operator starts the two-minute disinfection cycle. Tests have shown that only after 1,500 consecutive disinfection procedures can a very slight change in color can be detected in some of plastic materials.

Two Makers, Two Methods to Zap In-Car Odors

INTERIOR NEWS



In a previous issue of DVN-I, we reported on an unusual problem with Hyundai's deluxe Palisade SUV: the top-of-the-range Ultimate AWD trim's head restraints emit a foul smell that defies efforts at remediation. At fault is the nappa leather wrapped around the head rests (lower-trim models with cloth seats don't stink).

Now Hyundai has a three-stage fix: first, dealers will spritz an odor-neutralizing solution into the head restraint post holes. If luck is favorable, that'll dispatch the disagreeable odor. But Hyundai acknowledges it's not a 100% effective fix. If the smell comes back, owners will be asked to bring their Palisades back to the dealership again, where a different odor-eater will be sprayed into the head restraint post holes.

If the stink still sticks around after that, then Hyundai will replace the head restraints, but Hyundai representative Miles Johnson says it's a "rare occurrence" that all seven head restraints in the vehicle would have to be replaced to clear the air.

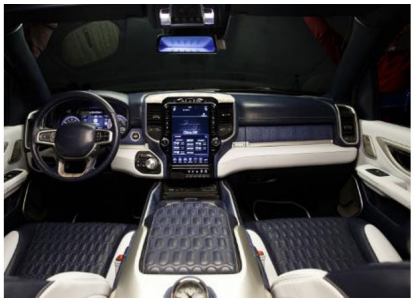
Meanwhile, Ford is learning to cater for needs that seem alien. That new-car smell, so highly prized in America and other Western markets, is considered unacceptable in China; it is considered toxic by Chinese consumers, who rate it a bigger problem than engine noise, road noise or bad fuel economy. Ford has a special smell team to identify how bad the smells can be, assigning ratings from “not perceptible” to “extremely disturbing.”

The smell is from vehicle interior materials and assembly materials offgassing. It eventually goes away on its own as the VOCs from leather, plastic, fabrics, carpets, adhesives, sealants, fire retardants, and other suchlike dissipate. But the Chinese auto buyer wants it gone *now*, not "eventually", so Ford has a new system that will help its Chinese-market autonomous or semi-autonomous cars get rid of their new-car smell quickly after purchase. The system has been designed to "bake" the cars by having them self-park in the sun and automatically opening the windows to let the VOCs disperse. The system can also run the engine and turn the heater up to full hot.

Aznom Palladium: Pickup Converted to a Luxury Limousine

INTERIOR NEWS

Aznom is an Italian coachbuilder based in Monza. They offer no catalog or price list (if you have to ask…!). Their stock in trade is expertise, attention to detail, and high-quality materials such as leather, wood, and fabrics. Using these, they create bespoke customization to suit the desire and whim of their clients.



As a recent development, they converted a Ram 1500 pickup truck into a "hyper-limousine", a sedan-like four-seater luxury limousine which shows off at first sight. To hear Aznom describe it: "On the exterior, the horizontal lines are broken only by a classic fender at the rear, while front and rear of the car are framed and treated like rough gems inside a continuous and harmonious shape with smooth constant surfaces".

A lot has been done for the vehicle's interior design; extensive used is made of Foglizzo leather and wood for the interior trims, with a variety of aluminum detail, the center console features a sizable touch screen display and fully digital instrument cluster.

One notable feature is the integration of a touchscreen display on the driver's door panel, providing control of the interior lights, air conditioning, onboard refrigerator, the opening and closing of all drawers and compartments, the trunk and the windows and doors.

The passenger door meanwhile has a touch display to control the door locking, window, lights and other accessory functions. Furthermore, rear seat passengers are provided with a pair of Microsoft Surface X Pro tablets.

Hinting at the ostentatious nature of the car, a clock made of gold and palladium is an option for the rear central console, which can "be removed and become an elegant piece of home furniture".

SEAT Targets Sustainable Interior Materials

INTERIOR NEWS

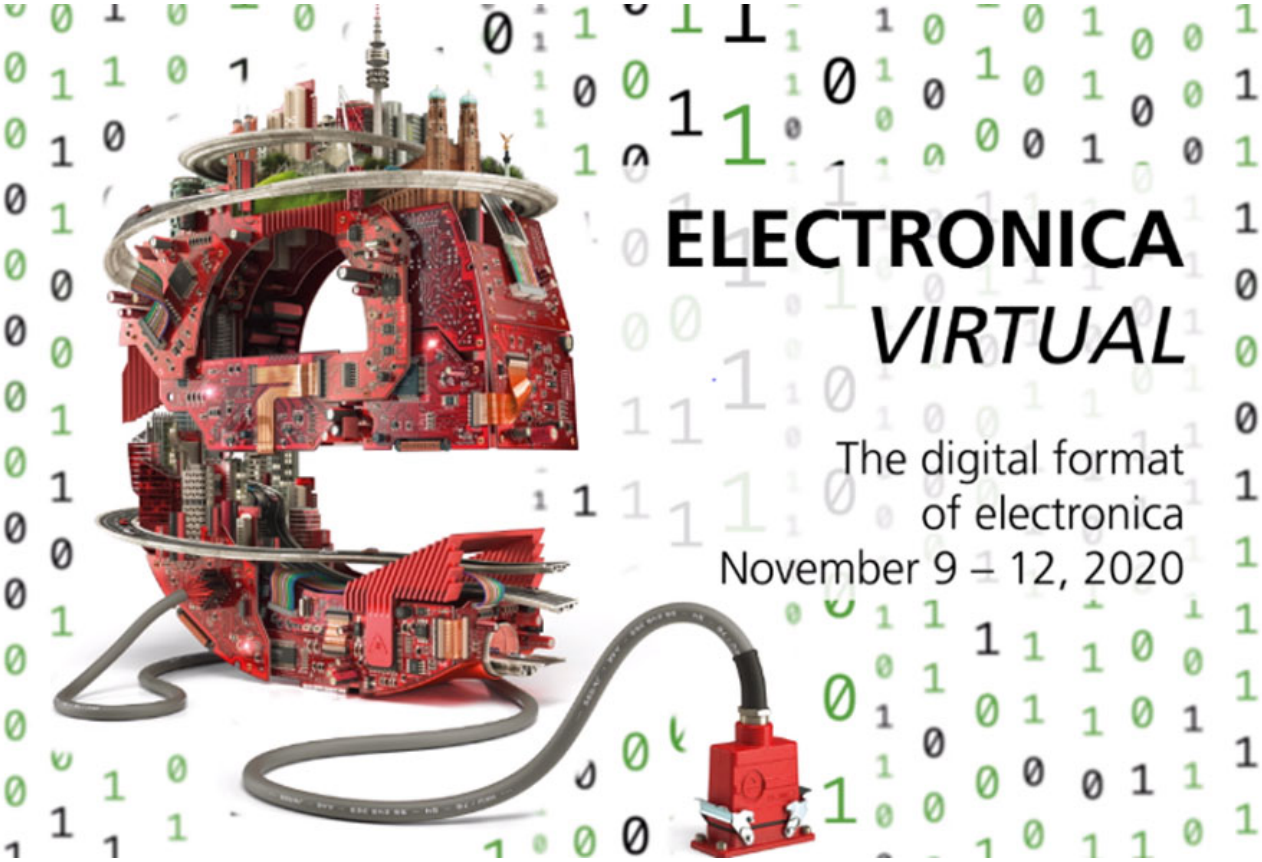
SEAT held their second Innovation Day, an event centered on identifying and encouraging the spirit of innovation among the company's own employees, with a focus on materials innovations that will improve the sustainability credentials of interiors.

The first one, called Ku-Fizz™, is a physical foam technology that reduces the weight of plastic parts, through the introduction of gas into the component as it is injection molded, generating a foamy structure in the component's interior. This means that not only is less plastic and injection material is used, but the weight of the parts is reduced, benefiting overall vehicle efficiency and saving production costs and time.

The second one, called Oryzite, is a material that uses rice husks to replace plastic products. SEAT notes that more than 635 million metric tonnes of rice are harvested worldwide each year. Twenty percent of this is husks—some 127 million tonnes of which are discarded. The raw material is being tested on interior linings of the SEAT Leon. The tests consist of producing parts such as the rear hatch lining, the double load floor of the trunk or the headliner using rice husks mixed with polyurethanes and polypropylenes. Apparently, these do not visually differ in any way from those made with conventional technology, but weigh less while also being sustainably sourced.

Electronica Virtual 2020

INTERIOR NEWS



This year's fair was held purely online from 9 to 12 November. With **Electronica Virtual**, exhibitors and visitors had the opportunity to meet despite travel restrictions and to exchange information about new products and innovative solutions in the field of electronics.

Electronica virtual at a glance:

- Virtual exhibition for product presentations, discussions and networking
- Virtual conference program with presentations by top expert speakers
- Broad, virtual forum program
- Innovations and product premieres from all areas of electronics
- Live contacts between exhibitors and visitors via text and video chat

The Electronica Virtual included 4 different Conferences:

- Automotive Conference (eAC)
- Embedded Platform Conference (eEPC)
- Medical Electronics Conference (eMEC)
- Wireless Congress

Electronica Forums enhanced the Supporting Program with the following topics:

- Cyber Security Forum
- Embedded Forum
- IoT Device Security Forum
- Power Electronics Forum
- Printed Electronics Forum
- Obsolescence Forum

In the Industry Portal you could find a lot of information on:

- Global Markets and Trends in the electronics industry
- Fair insights behind the global electronics network and in the growth market China
- Current and future applications and technologies from the worlds of electronics

At the virtual exhibition booths, you could learn more about new products and applications by watching presentations and contacting more than200 exhibitors directly.

The electronica Automotive Conference(eAC) offered a platform for the automotive industry's experts and decision-makers to gather information and exchange ideas about significant technology trends while automakers, component manufacturers, and software developers met at management and engineering levels.

The focus in 2020 was on the following topics:

- Technologies and solutions for High(er) voltages in vehicles
- Connectivity, Cloud, Security
- Displays
- ADAS / Autonomous Driving
- Interior Lighting and Electronics

The electronica Automotive Conference consisted of around eighteen 30-minute lectures.

The first keynote speaker was Audi's Dr. Wolfgang Huhn with a lecture about "**Lighting Technologies enabling New Comfort and Safety Features**", followed by Marelli's Dr. Joachim Fetzer with "**Trends in electrification - the future of the electric powertrain"** andZF's Torsten Gollewsky with "**Markets and Technologies for Autonomous Driving".**

After the keynotes the conference was divided into two parallel tracks on current automotive topics:

- Track 1: **Technology Trends for E-Drives** with lectures about future power electronics and e-powertrains, cell connections in battery modules, 3D shapable heater technology and "the Heart of Electric Vehicles"
- Track 2: Technology Trends for Car IT in Connectivity, Cloud and Security and Car Interior with Android for Cars, Car in the Cloud, Security and Safety for rich automotive

applications, Mobile Wi-Fi and scalable and intelligent IC system solutions for future interior car lighting.
- DVN-Interior gave a lecture: Vision of Future Car Interior Lighting

The electronica Automotive Conference ended with a Panel Discussion about "**Challenges for High-Voltage Applications and Technologies**"

The electronica Embedded Platforms Conference served the fact that embedded systems are making up the main share of the electronics market. Billions of semiconductors and electronic components are integrated in embedded solutions, and the overall expenditure for the associated software will increase in future.

The focus of the electronica Embedded Platforms in 2020 was on:

- Embedded processors, MCUs, multicore modules, FPGAs, and SoCs
- Operating systems, tools and software for safety and security
- Embedded boards and starter kits for fast development times
- Smart sensors, wireless connectivity, and Internet
- Low-power design, energy harvesting, and energy efficiency
- Intelligent edge, machine learning, and artificial intelligence

Also, the electronica Embedded Platforms Conference consists of about 30 30-minute lectures, distributed on Track1: **Embedded ICs & Boards**, Track 2: **Machine Learning & Artificial Intelligence**, Track 3: **Sensors & IOT**, and Track 4: **Software & Tools**.

The electronica Medical Electronics Conference (eMEC) offered a platform for mutual exchange between the electronics industry and medical technology manufacturers. A central topic was mobile health monitoring, centrally relevant to evolving vehicle interior functions.

The Wireless Congress: Systems & Applications was also part of the show. In the automobile, lower costs in the development and operation of radio applications make wireless technologies economically interesting for Mass applications.

The Wireless Congress had the focus on thefollowing topics:

- Mobile technologies and M2M
- Low-power radio technologies
- Radio sensor networks
- Reliability, safety and protection in radio networks
- Energy self-sufficient radio nodes and energy harvesting
- Radio communication technologies with low latency for automation technology, the use of in cars and tactile internet
- Standardization, interoperability and conformity

The target groups are developers of radio systems, software developers for radio applications, system developer and integrators and product designers.

The Design Lounge

ICE vs. BEV Interiors

THE DESIGN LOUNGE

The emergence of the BEV is making an impact on the overall marketplace, including design execution. Let us compare some of the latest offerings from Nissan and Hyundai in the CUV segment, first with some promotional videos from **Nissan** and **Hyundai**.

The Nissan Ariya exterior design follows the current form trends while also including a front 'grille' form that showcases the Nissan brand language without the actual functionality of a traditional ICE grill for cooling purposes.

The Hyundai Tucson, on the other hand, has a traditional grille as it does require cooling for the engine. Both designs have used plastic cladding to provide an image of ruggedness, although without any real off-road capability.

The Nissan's overall interior look and feel creates a very clean and peaceful environment by using subtle surfaces and material usage. The cluster/UX/HMI display is integrated; although it is driver-focused, it has a strong horizontal theme that opens the interior space.

The Hyundai creates a very driver-centric environment with the center console flowing up into the instrument panel and into the door panels. These elements create two isolated areas for both the driver, with a floating display cluster, and passenger with an open clear space.

The Nissan enhances the horizontal theme by also separating the floor console form the instrument panel.

The Hyundai Tucson encloses the space between the floor console and the instrument panel to create two separate pods forming the front compartment.

The Nissan separates the cluster/UX/HMI screen by using contrasting materials; high gloss for the screen itself and stitched cloth for the instrument panel covering.

The Hyundai also floats the cluster with a high gloss surface, but then uses the metal elements to wrap around the driver, creating an uninterrupted line from the door panel to the center console.

NISSAN ARIYA

The use of unfinished(-looking) wood with integrated buttons and symbols on the Nissan brings a fresh and clean tactile environment to the interior.

The Hyundai has a more traditional approach to its switchgear: rugged aluminum finishing that contrasts with the piano-black finish of the plastic surrounds.

A detailed look of the unfinished wood with lighting and switch integration highlights a high sophistication that is desired form the Nissan Ariya's interior.

The Hyundai Tucson's switchgear is well finished with a bulky and rugged appearance.

NISSAN ARIYA

HYUNDAI TUCSON

By comparing these vehicles' floor consoles, it is clearly visible that Nissan's more subdued approach with the use of matte materials with contrasting copper contrasts feels fresh and

modern.

The question remains though, is this driven by the BEV vs, ICE architecture?

NISSAN ARIYA

NISSAN ARIYA

NISSAN ARIYA

HYUNDAI TUCSON

Both vehicles are well executed and follow the functional requirement for the CUV segment.

NISSAN ARIYA

HYUNDAI TUCSON

Both vehicles are well executed and follow the functional requirement for the CUV segment for the cargo area, as well. There may be a slight space advantage for the BEV Ariya, but it is minimal at best.

NISSAN ARIYA

HYUNDAI TUCSON

In summary. Both Nissan and Hyundai have focused on the CUV segment needs but with contrasting approaches for their respective interior executions. Nissan went for a sophisticated and modern environment, while Hyundai opted for a more traditional and rugged feeling for their interiors.

What does seem clear, at least with this comparison, is that the BEV vs. ICE influence is relatively minor compared to the material and visual feel of the interior environment.

So things are about equal, BEV versus ICE, in the interior. But…for…how long? Time will tell

News Mobility

_Trajectories of Our Mobile Signature

NEWS MOBILITY

A synthesis of our 10-episode series on mobile trajectories as a defining element of our cities will be published exclusively for DVN Interior members on 26 November. This is a summary of that synthesis.

Epilogue

This story began from a simple line on paper and continued to early representations, scribbled by the traveler's hand, during the 17th century while commuting by carriage all the way to the various trajectories traced on the landscape canvas by motorized vehicles that became the rough draft of our infrastructure, re-territorializing every era to our up-to-date footprint.

The reading of this 'mobility' saga unfolds through one of its most enigmatic characteristics that involves specific objectives, projects and aspirations that crossed different historic moments to come at their best, most updated tech/digital version and thus, the unpredictable happened.

Originally, it was the intention towards a destination but not always the destination itself. The most intriguing and inspiring part of it, was this magic aspect of being at a precise moment in time, in a specific place along the journey. Mobility at any era has showed an unquestioned obedience to its technical self, it is the element of randomness however, that brought about the shift of progress.

Industrious_

VW, Greece Create Island for Sustainable Mobility

NEWS MOBILITY

The Volkswagen Group and the Greek island Astypalea are going to create an innovative mobility system within the closed perimeter of a small island. The plan is to transform Astypalea into a model island for climate-neutral mobility. The project will run electric vehicles and renewable energy generation, starting in the first half of 2021 and running for a period of six years.

Astypalaia is a Greek island with 1,334 residents. It belongs to the Dodecanese, an archipelago of twelve major islands in the southeastern Aegean Sea. The island is 18 km long, 13 km wide at the most, and covers an area of 97 km². More than 70,000 tourists visit the island every year.

VW Group CEO Herbert Diess says the project "will show us how we can already realize this vision today. E-mobility and smart mobility will improve our quality of life and at the same time contribute to a carbon-neutral future".

Today 1,500 ICE cars are circulating there. They will be replaced by 1,000 EVs. All public vehicles—police, emergency, etc.—and commercial vehicles will be EVs. Car rental will be transformed into service for shared e-cars, e-scooters, and e-bikes. This setup will replace the old bus system as well. VW will provide the cars (new ID.3, ID.4 and e-Up), and about 230 of their Elli charging points spread over the island.

Currently Astypalea gets its electricity almost entirely from diesel generators. In the future, a large part of the electricity demand for households, companies and traffic will be covered by wind and solar power systems, which the Greek government will install on the island. The electric fleet will be powered entirely by green renewable electricity.

This island pilot project aims to prove that a purely electric transport system is already possible today, without crimping the mobility of its inhabitants.

Swarco's Safety for Vulnerable Road Users

NEWS MOBILITY

Traffic technology group Swarco's headquarters is near Innsbruck, Austria. Together the thermal-imaging IR camera experts at FLIR, they have developed a solution for increased safety and efficiency at intersections and crossings.

The idea is to equip signal heads with appropriate cameras with heat sensors to detect the presence of pedestrians or cyclists in a predefined area at the side of the road when crossing a road or intersection. Not only the mere presence of persons can be registered, but also the number of people as well as their approaching speed. The data from the sensor system are forwarded to a control unit which controls the signaling devices for all road users as required.

Swarco is a traffic light provider with over 3,800 traffic experts and deep experience in modern traffic management and traffic signal systems for cities. As more and more people are taking public transport, walking or cycling to reach their destination, there are more and more vulnerable road users, particularly at risk in urban traffic: around 30% of all accident-related fatalities affect pedestrians or cyclists.

Pedestrian detection and dynamic control of traffic infrastructure enables a safe traffic environment for pedestrians and cyclists while optimizing the flow of vehicle traffic.

A further advantage of such a solution for the protection of vulnerable road users is demonstrated in the case of Dachau, a city near Munich, Germany, where Swarco installed intelligent traffic lights in certain streets. Controlling flow of pedestrians and cyclists provides assistance in the current situation of the pandemic and as a protective step to limit the spread of viruses and germs.

Privacy concerns? None; this is a heat-based recognition system based on body temperature. The cameras capture only outlines, not faces—identification is not possible.

EV Autonomous Delivery Pods Now Available Worldwide

NEWS MOBILITY

A key pillar of sustainable urban mobility is the first/last/only mile modes (F/L/O in short), according to a 2019 EEA report (European Environment Agency).

In that direction, Einride, a Swedish autonomous trucking startup, unveiled their autonomous electric pod on a commercial and global level.

In 2019 Einride became the first company to create a completely autonomous and electric heavy transport vehicle for public roads. Created in 2017, this pod now has remote monitoring and operation capability: operators can oversee and control the pod on-demand, with no need for a human driver onboard. Prototypes have been tested in full scale with German logistics firm DB Schenker, and Oatly, the Swedish food producer.

Their AET (Autonomous Electric Transport) system has five levels, four of which are already available for pre-order now.

Fenced - AET 1: Closed facilities with predetermined routes and a controlled environment.

Nearby - AET 2: Short shipments on routes that utilize public roads as well as fenced areas.

Rural - AET 3: Deliveries between destinations on established back road routes with limited traffic, max speed 45 km/h.

Highway - AET 4: High-speed operation on major roads and highways between shipping destinations, max speed 85 km/h.

Einride is managing the whole development process, with testing, validation, and regulatory approval for its electric driverless vehicles, including electric drivetrain, proprietary telematics

hardware that interfaces with the freight mobility platform, and autonomous drive hardware such as lidar, cameras, and sensors on each pod.

General News

New CEO for IAC Group

GENERAL NEWS

IAC Group announced recently that its finance chief, David Prystash, will succeed Manfred Gingl as CEO at the start of next year. Gingl will remain CEO through the end of the year and will continue as executive chairman of the board of directors after the transition. Prystash joined IAC in 2018 after holding several leadership positions at General Motors, including vice president and CFO of global product development, purchasing and supply chain and CFO of global manufacturing and labor relations.

International Automotive Components (IAC) Group is a tier-1 supplier of instrument panels and cockpit systems, consoles, door panels, overhead systems, flooring and acoustic systems, bumpers, and exterior parts. Headquartered in Luxembourg, IAC counts over 22,000 employees in 19 countries. Founded in 2005 by investor Wilbur Ross—US Secretary of State for Commerce under President Trump—it was built from the former global interiors divisions of Lear with integration over time of Collins & Aikman, Stankiewicz, United Technologies, Automotive Industries, and Masland Industries. With $4.1 billion global sales in 2018, IAC is ranked 56st in the 2019 Automotive News Top Global Suppliers list.

Foxconn Accelerates EV Drive

GENERAL NEWS

Foxconn has launched a technology platform aimed at helping EV makers cut costs and launch new models more quickly, as the Taiwanese group pursues a central position in a fast-growing market.

The world's biggest contract electronics manufacturer—apple's main ODM—aims for their system to become "the Android of EVs", also assessing a diversification move as smartphone profit shrinks.

To that end, they've unveiled their new "EV Open Platform" which will be shared with other companies for what Foxconn calls the "common good."

Foxconn says this open platform will allow sharing of important software and hardware designs, including solid-state batteries and data management tools, across an ecosystem of developers and manufacturers to help shorten the time and reduce funding needed to launch new vehicles.

Analysts say Foxconn is seeking to replicate its long-established dominance and competitiveness in the global manufacturing of electronic components for personal computers and smartphones, the largest electronics category by shipments over the past 30 years, in the production of EVs.

Foxconn, which trades as Hon Hai Precision, does not intend to produce entire cars or create its own brand. They are in talks with a number of automakers, and are on track to announce several joint ventures for EV production soon.

Like platforms from traditional automakers, the Foxconn architecture is flexible and can support a variety of vehicles with wheelbases ranging from 275 to 310 cm. The architecture can also support various tracks and ride heights. Foxconn's chairman Young Liu says they're aiming for "a 10 per cent market share by 2025 to 2027, when the global EV market is expected to have a size of about 30 million cars globally".