DVN-I
Automotive Interior

Wed, 23 September 2020 Weekly Newsletter **NEWSLETTER #37**

Editorial

DVN Interior Workshop Starts TOMORROW!

Since last year's launch, DVN-I members have received a Newsletter every two weeks and a Report every quarter. Now comes the inaugural DVN-I Workshop—an all-online event, the first of its kind, and it starts *tomorrow*, 24 September. So if you haven't yet, hurry; there's still time to **register**. See the conference program **here** and, if you're on LinkedIn, there's an introduction **video** for the event.

We've built a fantastic roster of presenters and lecturers, exhibitions and opportunities, and we're very excited at the opportunity to try out a bunch of new technology and techniques for virtual gathering. We think it's going to be just as big a success as every previous in-person DVN Workshop. 200 attendees are already registered, including representatives from Audi, BMW, Ford, Geely, Honda, Mercedes, Mitsubishi,Nissan PSA, Renault, Toyota, Hyundai Motors, Faurecia, Marelli, and Valeo, with more still signing on. Presentations and Videos will remain accessible on the website, even if you register later during the following week.

As soon as you're registered, you can enjoy your newsletter where we report about another great car with a great interior. After the Mercedes S Class in our last edition, we cover here the Lucid Air in The Design Lounge, which is becoming right away a benchmark of car interior architecture and performance.

Happy reading, and don’t miss tomorrow’s conference!

Sincerely yours,

Philippe Aumont
General Editor, DVN-Interior

In Depth Interior Technology

Parade of New Interior Features

IMAGE: VALEO

Covid-19 will influence car interior features at two different levels: directly, through greater importance of health and cleaniess in the car (as everywhere else); and indirectly by affecting mobility behaviors: maybe less car sharing, more longer trips because of wanting to avoid the hazards and hassles of planes and trains, acceleration of driver monitoring systems because of multiple activities, and so on.

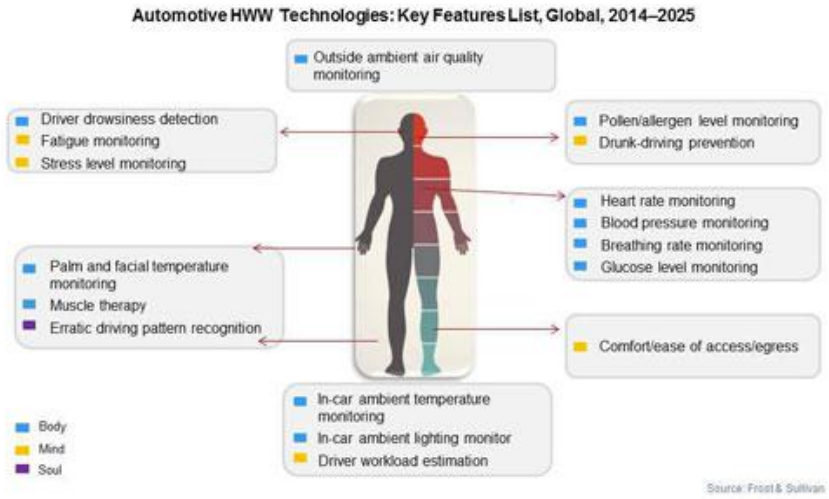
In the next DVN-I Newsletter, we'll be reporting on the many innovations and novel concepts to be presented tomorrow—24 September—at the DVN Interior e-Workshop. For the time being, let’s take a look at what effects the pandemic could well have on this field.

The pandemic has created momentum for automotive manufacturers to push forward on their health, wellness, and wellbeing features like disinfection of in-car air and surfaces. The target is to measure and purify.

"Going green" (or blue, more recently) has long been color-coded shorthand for increased sensitivity and compatibility to ecological and environmental matters. We expect there’ll be similar color-coded signification for increased automotive attention to health, wellness, wellbeing, hygiene, and sanitation. What'll it be? Pink, perhaps? We'll have to seen.

Health goes beyond air and surfaces. Just as healthcare is progressing beyond hospitals, going into smart connected homes and smart wearables, so too will it most likely extend into smart cars, integrating medical-like technologies.

Smart cars, being progressively more autonomous, will become much more than a mobility tool. While cars are taking over (some) driving responsibility, drivers are gaining more and more free time, giving them time for self-care. Peter Wouda, Design Director at the Volkswagen Group Future Center Europe, says tomorrow's car interiors will be "an experience for all the senses". Here's an illustration of a list of potential features along that line, according to a health, wellness, and wellbeing survey by market researchers Frost & Sullivan:



The traditional automotive business model is to introduce features starting from the premium level, then they filter down and out to the different car segments along the volume/cost curve.

Now let’s look at some of these feature ideas more closely:

Seating comfort will continue to be upgraded as it is an obvious ingredient of occupant wellbeing, with smart seats with heating and massage capabilities, and extending front seat capabilities to rear seats. For most of the features, sensor and software technology allows for closed-loop optimization via measurement and correction. That idea, in turn, raises the question of seat self-adjustment for results perhaps better than can be achieved by guess-and-try operation of manual controls. This remains an open topic, as comfort is a moving target—a complex, multicriterial feeling, and the human body must move from time to time, even if we’re seated comfortably—we aren't meant to be sedentary!

Prevention of drink/drug-impaired driving has been promoted by government authorities for years all around the planet. Now technology allows cars to automatically lock out the controls when intoxication is detected. Of course, this raises interesting, complicated new legal questions.

GPS and air quality monitoring systems will allow for the likes of location-based allergen and pollution warnings. These could influence travel plans and routes, just like we currently plan routes to avoid traffic congestion and road work.

IAQ (interior air quality) management continues to grow increasingly relevant in the automotive world. Growing consumer demand suggests it is becoming a new area for innovation, and probably regulations.

Driver monitoring systems are a large family of potential features keeping track of vehicle occupants' body position (like head relative to head restraint), eye gaze, and physiological criteria such as heart rate, respiration rate, blood pressure, and glucose levels. This will open opportunities for safety alerts (drowsiness, vigilance, driver workload); health (air quality, stress); and wellness (position, massage, heat/cool).

We covered IAQ in depth in the 27 August DVN-I Newsletter. Filtration technologies will continue to progress and remove upwards of 99% of fine particulate matter and gaseous pollutants, as well as bacteria, pollen, and mold spores. Viruses will remain problematic because of their very small size, as described in this **SAE article**.

Clean, virus-free surfaces could be managed either through self-cleaning surfaces like textiles with stain-repellant thread (see Guilford's TeXstyle Defense - DVN-I 10 September) or through UV disinfection (see Seoul Viosys' Violeds Technology Adopted - DVN-I 23 April). And also see our report on a Marelli solution, later in this week's Newsletter.

LINCOLN INTERIOR LIGHTING

Wellness includes monitoring of all kinds of mood-related factors. Interior lighting is one of the key technologies to influence or to adapt to the occupants' moods. Combination with audio is providing millions of options. It could be occupant-controlled, or it could be part of a measure/respond closed loop, where mood is assessed by a face recognition system, assessed with machine learning capabilities to adapt to any specific individual.

Screens are getting more and more popular, and as buttons and switches are getting less and less popular, haptic feedback is almost mandatory to be able to locate and trigger features by touch, without being too much distracted by eye accommodation on the screen—a HUD can't cover them all.

BMW AUGMENTED REALITY HEAD-UP DISPLAYS CONCEPT

Therefore, one concept under development is augmented-reality (AR) HUD systems. An AR HUD supplements the exterior view of traffic conditions in front of the vehicle with information for the driver. It could overlay blind spot or crossroad information, speed limits and other traffic signs, traffic lights, lane watch…3D imaging allows overlay of critical information in front, and less critical information in the background.

MERCEDES A CLASS WIRELESS CHARGING

Another family of features integrates smart phones and wearable devices to mirror them into the car screen, by dint of protocols like Apple CarPlay and Android Auto. And high smart phone usage requires wireless charging, of course, so that will also proliferate.

And personal assistants like Apple's Siri and Amazon's Alexa are growing into the auto interior space as well.

Amazon plans to expand its Alexa-enabled offerings, with the idea being that drivers could control everything a traditional voice command system could do, including placing phone calls and tuning the radio, along with controlling all smart devices at home and at the office.

Amazon, alongside their substantial investment in EV startup Rivian, has signed agreements with automakers including Audi, BMW, Lamborghini, and others.

A lot of these features are nowadays existing as Apps on smart phones. With occupant having more time available in their car, it becomes a value capture challenge for

automakers and suppliers to get it in the car, either during vehicle build or afterward through OTA.

Now, as soon as a feature is based on a physiological assessment and correction, we enter progressively into a world of devices where medical specifications and regulations apply (such as FDA) which could become a big hurdle for automotive development, including testing and validation.

Then, bringing in features like alcohol/drug detection and drowsiness/vigilance detection, we end up with complex development obstacle courses and liability issues even more complicated than in the existing car safety world, with products such as belts and airbags.

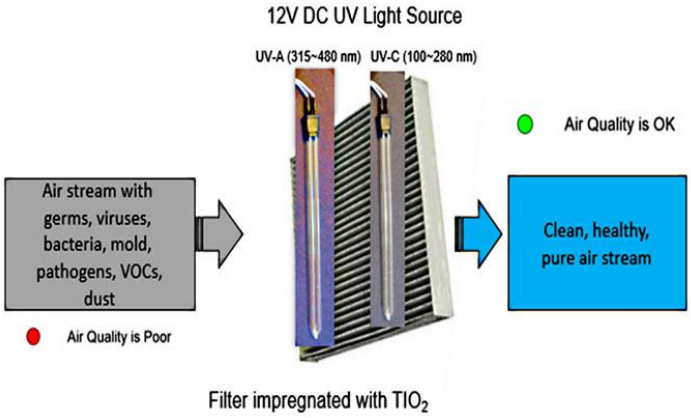
During the pandemic's first phase, many automakers and suppliers were involved in emergency production of respiratory machines and face masks. These automotive companies can leverage this new medical-grade experience to develop appropriate HVAC systems able to stop bacteria and viruses.

For these features a new ecosystem has to be developed including healthcare, electronics, software, wearables, telecom, insurance companies, and academic research.

Interior News

Marelli's COVID-Killing Cabin Purifier

INTERIOR NEWS



Marelli North America says their upgraded HVAC setup purifies passenger car cabin air, even destroying the COVID-19 virus. Offered for taxis, ambulances, and other shared-use vehicles, including autonomous-driving models, the system also has retrofit potential. The design originated at Calsonic-Kansei North America, whose parent company merged with Magneti Marelli in 2019 and now goes by Marelli. The supplier is calling the system a solution to the problem of interior air quality in shared-use/autonomous vehicles.

The photocatalytic HVAC shows rapid, >99% performance using a titanium dioxide impregnated filter and dual UV lighting to clear cabin air of COVID-19 within a 1.0 m^3 (35 ft^3) chamber in 15 minutes. The system also kills other viruses and eliminates HVAC odor, according to the company.

Radical formation

Titanium dioxide (TiO_2), a naturally-occurring oxide of titanium, is a common ingredient in toothpaste and sunscreen. It forms a semi-conductive film on the filter surface. When UV light shines on the filter, electrons on the TiO_2 surface are released. They interact with water molecules in the air, and the combination forms hydroxyl radicals, a highly reactive pairing of a single hydrogen atom and single oxygen atom, often referred to as a natural air purifier. These small, aggressive hydroxyl radicals then attack and kill bigger organic (carbon-based, including virus) pollutant molecules, breaking apart their chemical bonds and turning them into harmless substances, such as CO_2 and water.

The Marelli system incorporates two fluorescent ultraviolet lights, one (UV-C) with a wavelength of 100-280 nm that instantly kills viruses and bacteria. A second (UV-A) has a wavelength of 315-400 nm and it attacks complex VOCs (volatile organic compounds), to eliminate odors commonly formed from fungus grown on airborne particles in the evaporator housing, including cigarette smoke. To demonstrate concept feasibility, UV-C and UV-A lights were supplied with 120V AC, stepped down to 29 V AC, with power outputs of 5-12W. The dual-UV-light design is key to Marelli's patents.

Sensors capable of detecting viruses are very expensive and primarily used in hospitals, says Marelli's Dr. Gursaran D. Mathur, senior manager for Climate Control Design & Development. To reduce cost—currently 40-80% above the cost of the HVAC itself—the Marelli system has a simple on-off control, with timing based on empirical data derived from test chamber results. Other parameters that contribute to overall cost are the number of UV bulbs and attendant circuitry, and TiO_2 filter loading. The filter presently is made only in China, so although the materials are commodities, US President Donald Trump's ongoing trade war with China means sourcing costs could become an issue.

All laboratory tests necessary to prove the system concept's efficacy are complete. The Marelli evaluation procedure used MS2, the virus commonly employed as a safe substitute for COVID-19, because it is structurally similar, does not cause disease in humans, and is a suitable size for testing—0.027 microns, slightly smaller than the 0.125 of COVID-19.The TiO_2 filter eventually will become restricted by particulate debris, then a pressure differential sensor on the filter triggers a change-filter alert. A variant design may incorporate a particulate filter ahead of the TiO_2 to increase operating life. A removable panel provides service access to the TiO_2 filter and UV lights.

Ineffective alternatives

The photocatalytic system's price premium led Mathur's research group to consider alternative methods to remove or kill viruses and other pollutants (airborne dust particles, pollen, bacteria, mold, spores, dust mites, and fungus). HEPA filters can remove most of these pollutants and also some larger viruses, but cannot remove the small COVID-19 (among others), so that approach was rejected.

Also rejected was an ionizer, which produces negative ions that collide with dust and some virus particles, causing them to adhere to surfaces within the HVAC ductwork or even fall on passengers. The ionizer's primary flaw, Mathur said, was its inability to eliminate airborne viruses.

Photocatalysis produces ozone, which can cause throat irritation and other respiratory issues. In particular, ozone is created by UV wavelengths in the 100-240 nm range. So the Marelli system was tested for this, Mathur said, but only trace amounts were found. Testing was done in a chamber of 1.0 m^3 (35 ft^3), which is one-third the volume of a typical passenger car cabin, so the >99.97% virus destruction rate measured at 15 minutes would be slightly longer for a full-volume cabin. Marelli calculated the COVID19 virus kill rate for a 3-m^3 (106-ft^3) volume would still be >95% for 15 minutes.

A charcoal-coated conventional filter also would be far less expensive than the dual UV design, and would trap pollen and some other allergens. However, such filters are ineffective against COVID-19 and other viruses. For AV operation, Marelli recommends running the system for 15~20 minutes prior to entry of passengers. There are vehicle-use conditions in which the system could be turned off after about 15 minutes, such as when carrying one passenger, or two passengers side-by-side in a single seat. However, Marelli advises continuous use if occupants are facing one another.

Marelli is continuing research to reduce weight, improve durability, and cut power consumption, to be reflected in a third-generation HVAC unit now in development with LED UV bulbs operating at 5 and 12 volts DC. The system also is being proposed for ambulances, among many possible retrofit applications.

Seven Screens Has the Jeep Grand Wagoneer Concept

INTERIOR NEWS

Pictures of a next-generation Jeep Grand Wagoner concept have recently floated, and they show that interior content is very rich and luxurious. The 4×4 concept has a plug-in hybrid drivetrain, seven display screens, and loads of sustainable materials.

A production model will not be revealed until later, and a Spring 2021 launch is planned. The vehicle will compete in North America with the Cadillac Escalade and Ford Expedition.

There's a very spacious interior in the GW, a showcase for premium materials and advanced technology. There are four display screens in the front row: a 12.3” driver information display behind the steering wheel, a 12.1” horizontal touchscreen atop the center console, a 10.25” horizontal comfort display touchscreen below, and another a 10.25” screen in front of the passenger.

Second-row passengers have access to a 10.25”. comfort display screen at the base of the center console, while each second-row passenger also has a 10.1” entertainment touchscreen.

The infotainment system is powered by FCA’s all-new Uconnect 5 system, which delivers operating speeds five times faster than the previous system. Its Android operating system brings access to a broad catalog of applications intended to improve the user experience.

The audio system is powered by McIntosh, an American luxury brand known for their home audio systems, and features 23 custom-designed speakers connected to a 24-channel amplifier for immersive audio.

Sustainable materials are emphasized in the Grand Wagoneer concept, including a polymer-based recyclable Dinamica microsuede headliner that resembles suede leather, and premium Thrive fiber carpets made from recycled pre- and post-consumer materials. PUR material was chosen to upholster all of the seating, console, door and instrument panel surfaces.

Nio’s Nomi Mate AI with Humanlike Interaction

INTERIOR NEWS

Chinese EV manufacturer Nio offers all their cars with the optional feature of an in-car personality called Nomi Mate, an AI-driven HMI for Nio’s operating system. The interface is presented to the driver via a dashtop device that represents the vehicle’s personality in the form of a head and face.

Nomi Mate 1.5 is an innovative AI system for electric cars that brings together music, services, software and hardware. The appearance of the product is determined by its round AMOLED display with a friendly face. Nomi Mate 1.5 supports numerous usage scenarios in daily automotive routines through uncomplicated voice control.It enables direct interaction and emotional bonding between the vehicle and its drivers and passengers through sensors, voice output, and moving graphics. It is seeking to imitate the subtleties of human interaction. It moves around a horizontal axe and a vertical one.

The software that enables the system is called the emotion engine. It's an in-house-developed software stack with active speech recognition, which is kind of the front end, then in the middle they put natural language understanding. Some of that is processed on the car, but most is done in the cloud. That part of the system is updated and improved almost daily. The final part is how the system speaks, the natural language generation.

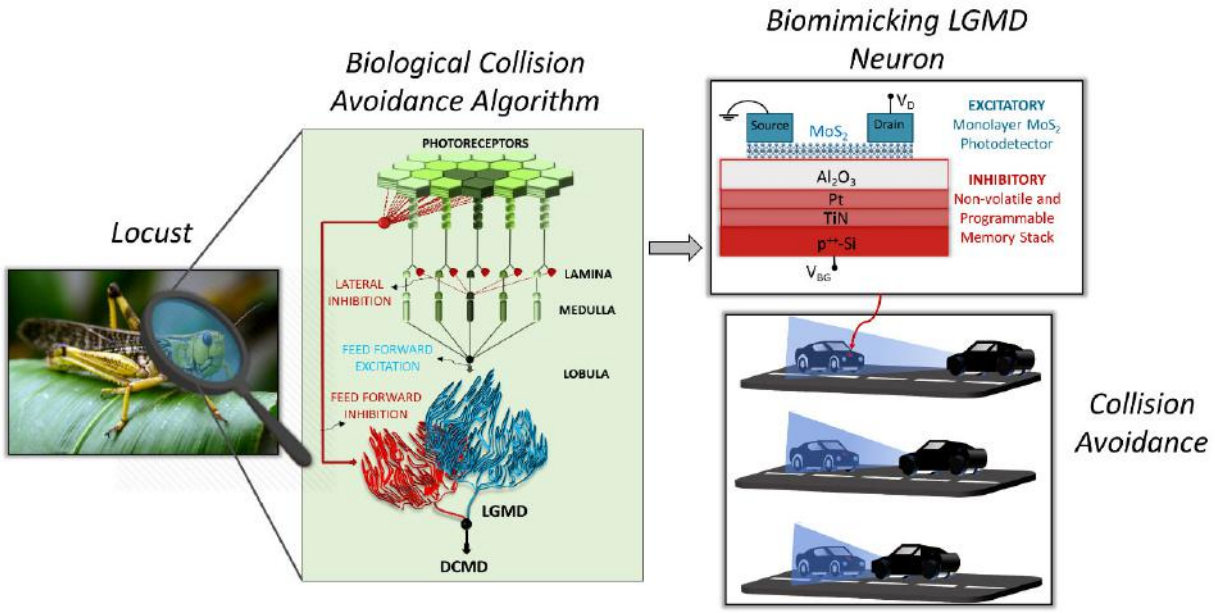
Nomi AI is functional, and this anthropomorphic interface is creating a companionship with the idea of building an emotional connection and emotional attachment to the vehicle, and beyond to the brand.

Nomi's domain of use doesn’t include driving-related and safety-critical tasks. For example, that boundary has been set to prevent the system changing the drive mode; you don’t want a child or a friend in the car to say, “Change drive mode" (or "give me a break!"). The driving mode alters the pedal force and changes the steering wheel, so might interfere with the driver.

This AI system was awarded as RedDot winner 2020 with jury comment “it sparks enthusiasm with an intuitive way of interacting and has a high emotional component thanks to the likeable and expressive animated face”.

Low-Power Biomimetic Collision Detector

INTERIOR NEWS



Biomimicry is the design and production of materials, structures, and systems modelled on biological entities and processes. The automotive world had already seen structural development using plankton-like structure to maximize strength/weight ratio of mechanical parts. As sensors are becoming of more and more importance, solutions are popping up in this domain.

Interestingly, energy and package efficient solutions for timely collision detection can be found in biological eyes, specifically in insect vision systems which have evolved in resource-constrained environments to allow escape from predators and capture of prey.

Take the locust. It provides a fascinating solution to task-specific visual computation. Millions of locusts move inside dense swarms without colliding. Digging into the literature on the neural architecture in the visual pathway of locusts, a research team—their work on this subject is **published** in *Nature Electronics*—found that the collision avoidance warning is generated by a single neuron called the Lobula Giant Movement Detector (LGMD). This single neuronal cell performs multiplicative operation on two high-level features of the visual stimuli, i.e. angular velocity that generates an excitatory response, and angular projection that generates inhibitory response, to elicit a non-monotonic firing response that peaks before the impending collision allowing sufficient time for the insect to escape the collision.

They mimicked the functionality of LGMD neuron using a nanoscale collision detector. The detector is made from a monolayer molybdenum disulfide (MoS_2) photodetector stacked on top of a non-volatile, programmable floating gate memory architecture. Under no programming stimulus, the MoS_2 photodetector identifies a looming object through a monotonic increase in the device current (photoexcitation). On the contrary, under no visual stimulus, the device shows a monotonic decrease in the current subjected to programming voltage pulse trains (programming inhibition). When both stimuli are present simultaneously, the visual excitation and programming inhibition compete against each other and invoke a non-monotonic trend in the output current that mimics the LGMD escape response.

While VLSI implementations of insect inspired vision can be found in the literature, the researchers' approach is radically different. Instead of a layer by layer imitation of the entire neurobiological architecture inside the insect brain, they mimicked the task specific functionality of a single neuron using a single solid-state device that exploits in-memory computing and sensing at the same time. This minimizes hardware resources and energy overhead. The biomimetic collision detector consumes little energy (in the range of nano-Joules) and occupies a small area (around 1 × 5 μm). The researchers believe their demonstration could advance the development of task-specific, energy efficient, miniaturized collision avoidance systems.

The Design Lounge

Lucid Air

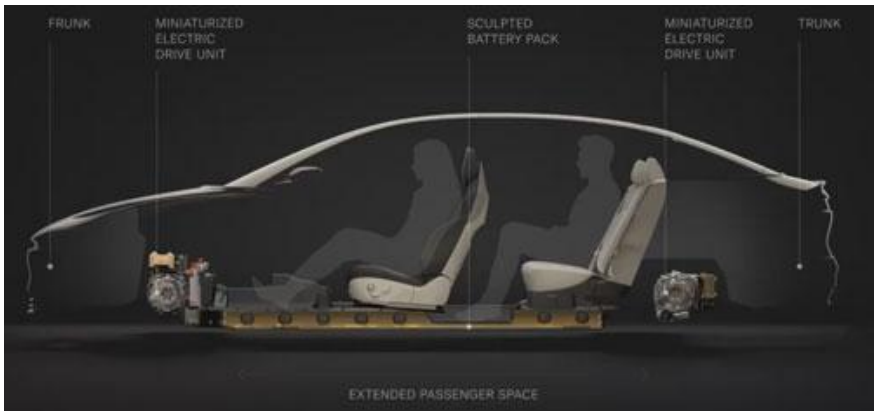
THE DESIGN LOUNGE

With the introduction of the production version of Lucid's Air model, we can now take a look at how this compares not only to the premium luxury competitors but also how Lucid evolved the design from concept car to production. Lucid's own virtual presentation is **available online**.

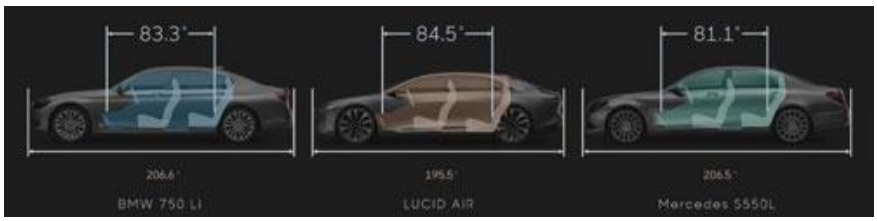
The design for both the interior and exterior is quite refined and well executed with top quality materials and fit and finish—craftsmanship that is required to enter this market—but the key differentiator (other than performance, range, etc.) is in packaging and layout instead of detailed feature elements.

Let us look how Lucid enabled this overall design theme by "miniaturizing" (Lucid's terminology) the electric powertrain and associated systems like the HVAC.

2021 LUCID AIR EXTERIOR



The overall packaging of the powertrain and batteries allow for a very open cabin space. Lucid also packaged the battery pack in such a way that allowed for more interior legroom by not executing a pure skateboard design that other automakers are using for their battery packaging.



This miniaturization of the drivetrain packaging allowed for an extended cabin space, shorter overall length and superior luggage capability compared to the traditional ICE powered vehicles in this segment.

Lucid also repackaged the HVAC system. It's no longer within the instrument panel, as in ICE cars, but now outside the cabin and into the front trunk ("frunk") space.

This "miniaturization" and attention to packaging has allowed Lucid to bring a uniquely functional premium/luxury vehicle to the market.

LUCID AIR OVERALL PACKAGING

Lucid claims that the front "frunk", combined with a two-tiered storage space, is even larger than all the competitive BEVs.

For the rear trunk, a unique wrap around decklid was developed that creates a very large storage opening.

LUCID AIR CONCEPT

LUCID AIR PRODUCTION

You can plainly see above the production version of the Lucid Air has been further refined by addding a full width horizontal trim element that includes partially-hidden HVAC vents in the IP and separated floating sunvisors that create a more open and inviting space.

LUCID AIR CONCEPT

LUCID AIR PRODUCTION

The seating design also evolved into a more traditional head restraint shape instead of the dominant wraparound form used in the concept version.

LUCID AIR PRODUCTION

The overall cockpit uses these floating elements (even the OLED cluster) to create an air atmosphere while simultaneously being driver oriented.

The rear seating environment has two varients, as usual in this vehicle class. A four-seat lounge type arrangment with reclining seats that will be available at a later date, and…

LUCID AIR LOUNGE SEAT CONCEPT

LUCID AIR LOUNGE SEAT CONCEPT

LUCID AIR LOUNGE SEAT PRODUCTION

…there's a three-across version for now.

LUCID AIR BENCH SEAT CONCEPT

LUCID AIR BENCH SEAT PRODUCTION

LUCID AIR BENCH SEAT PRODUCTION

While very similar to the concept, you can see that the production version has a more traditionally executed head restraint and seat form/trim style. Also note the depth of the seat squabs and the addtion of rear console storage.

Lucid has integrated the central display/UX/HMI into the floor console as an articulting element that acts as a storage tray lid.

Closed, it is a high definition UX/HMI unit…

…that opens into a hidden storage compartment that integrates into the floor console storage area for both front and rear passengers

REAR SEAT CONTROLS USED IN THE 4-SEATER LOUNGE CONCEPT

With this level of design execution, Lucid has not only leapfrogged Tesla in the higher segment vehicle category, but also has created an alluringly competitive vehicle against all of the traditional ICE vehicles in the market today.

Knowing the they are also developing an SUV type vehicle; we eagerly await the results.

News Mobility

_Trajectories, our mobile signature

NEWS MOBILITY

(a designer's look at our mobility-centric culture)

7. Proportions_

As a result of rapidly growing urban dynamics, at the beginning of this millennium, advanced vehicle architecture studies emerged, sharing often newly invented proportions. With the shortest ever wheelbase, contrary to all classic car-body design codes, and without any front or rear overhangs, automobile elegance was questioned. Compact, tall and often narrow 4wheelers—Smart, Renault Twizy, etc—as well as leaning 3-wheelers like the Toyota i-Road that followed asymmetric trajectories, were the best practices of a new driving posture for concise trails and tortured town corridors. Journey was not anymore alluding to horsepower and top speed linear performance but rather skateboard-like, surfing trajectories to close proximity of our precious social surroundings. The upcoming challenge was the invention of a machine that could draw new types of uninterrupted, flawless trajectories on urban ground, taking in consideration its infinite complexity, density of overlapping paths in motion and the serendipitous way of piloting such vehicles.

The appearance of the first wireless electric skateboard, literally a motorized interpretation of urban gesture, brought about curiosity, experimentation and many more peculiar mobile devices. Progression of electric batteries and torque gave birth to the Segway(2002) and following the evolution of vertical posture trends, electric kickboards and self-balancing unicycles (2010): the most compact, tallest and narrowest yet mobile posture!

Increase of speed in such upright position implicates an exponential growth of falling parameters that, due to optimization, were not being dialed in the wide mobile culture. The consideration was and still is that we are transported, without seeing all other physical factors. There is a feeling that in some cases a mechanical/tech application took over the notion of mobility and rapidly conquered the market. Tall postures in low speed tend to better control proximity; low f1-like postures, not so glamourous in urban

congestion, were conceived to go fast, far and often straight until the next quarter mile turn, and proximity was a derivate. Proportionally, low objects are directional by length; tall objects, often slower, are leaning in order to indicate or ‘gain’ direction. After all, mobility is mainly a horizontal act on our human planet. The paradox of our vertical posture moving horizontally, may pronounce a different type of mobile authenticity, depicting dynamics and degrees of gesture we have not yet exploited. It is not just about an advanced vehicle shape but something considerably more intense and participative: an environment, an ecosystem of mobile objects.

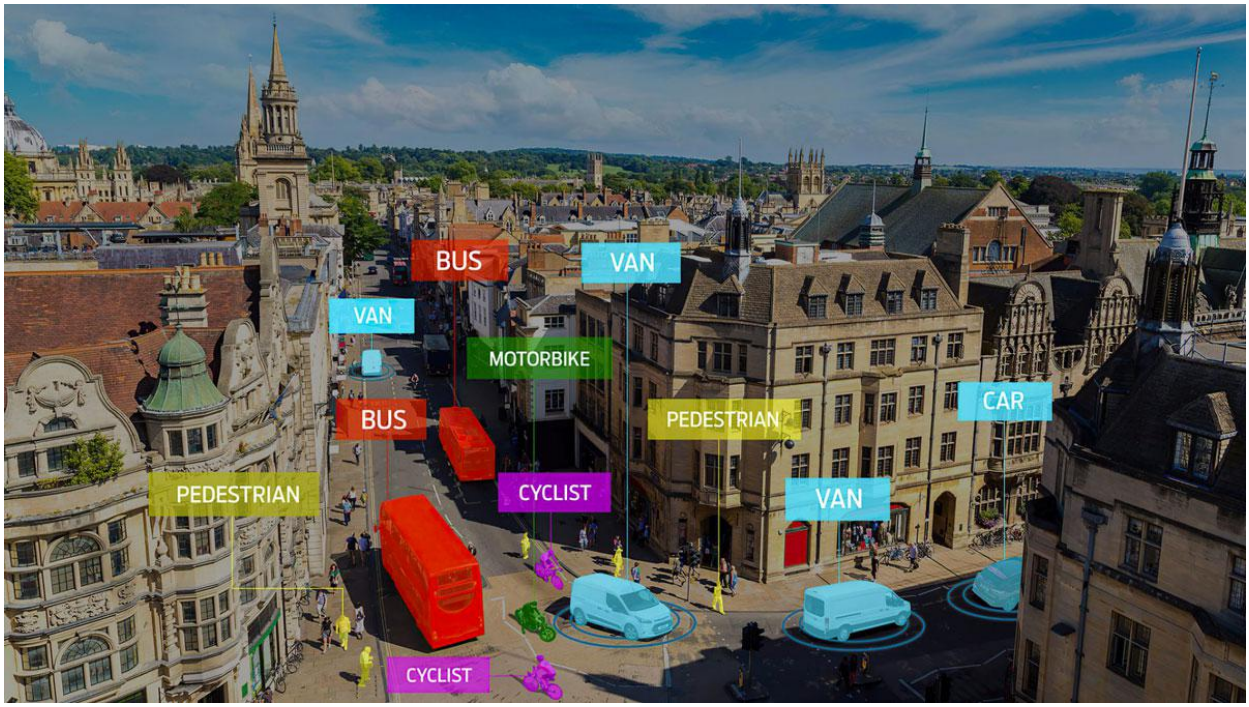
It might be that we are about to witness a new shift, a new definition and a new separation of our transport/commuting modes. So, the answer to the question, what type of vehicle proportions will mature through such a complex mobility web, is rather depending on the types of trajectories we should envisage in order to design the urban republic of the 21st century.

_to be continued

*INDUSTRIOUS*_____

Ford Connects Cars, Sensors to Improve Road Safety

NEWS MOBILITY



A consortium led by Ford is developing an innovative predictive road safety tool which, using data from connected vehicles and intelligent roadside sensors, could help to make travel in towns and cities safer and easier. It will help cities to proactively address roads and junctions that pose the highest risks to road users.

Ford Mobility is working within ecosystem partners including Oxfordshire County Council, AI sensor specialists Vivacity Labs, and academics from Loughborough University's Transport Safety Research Centre, with support from Transport for London. The initiative is funded from Innovate UK, the government-backed innovation fund.

Up to 700 passenger and commercial vehicles will be voluntarily connected across Oxfordshire and London as part of the 18-month project starting this summer

Detailed telematics data from the fleet of vehicles – such as brake or accelerator pedal usage and steering wheel angle – will be analyzed alongside information from additional smart sensors installed on the roads by Vivacity.

Sensors employ machine learning algorithms to detect near-miss incidents and are able to analyze movement patterns of vulnerable road-users such as cyclists and pedestrians, as well as non-connected vehicles. All data shared by the sensors is anonymized with video feeds discarded at source, enabling safer roads without intruding on privacy.

The insights and analysis will be used to further develop digital road safety algorithm and to recommend infrastructure improvements, incl.: cameras to avoid running red lights, cutting back vegetation to ensure road signage was clearly visible, double-height signage and signals, resurfacing carriageways and raising service covers.

Ford Mobility is also working with authorities in Cologne, Germany, and Valencia, Spain (where Ford is industrially present!), to identify further ways in which analysis of information connected vehicles and infrastructure can benefit urban mobility.

Cooperative Crash-Avoidance System is World's First

NEWS MOBILITY

MUCCA VEHICLES COMMUNICATING AND COORDINATE THEIR MANEUVERS ON THE TEST TRACK

A UK government-backed consortium has achieved what they're calling a a world first by demonstrating a collision-avoidance system in which two vehicles cooperate by radio link to steer around a stationary car without human assistance. This successful live demo at Bruntingthorpe Proving Ground in Leicestershire is said to be a significant milestone in developing a driver aid to avoid multi-vehicle collisions, particularly motorway pileups.

That’s the result of a 32-month project called MuCCA (Multi-Car Collision Avoidance), led by Applus IDIADA, an engineering service provider based in Barcelona, Spain, and involving five other automotive industry, technology and research partners. This £4.6m project was jointly funded by the Centre for Connected and Autonomous Vehicles (CCAV) and delivered through Innovate UK.

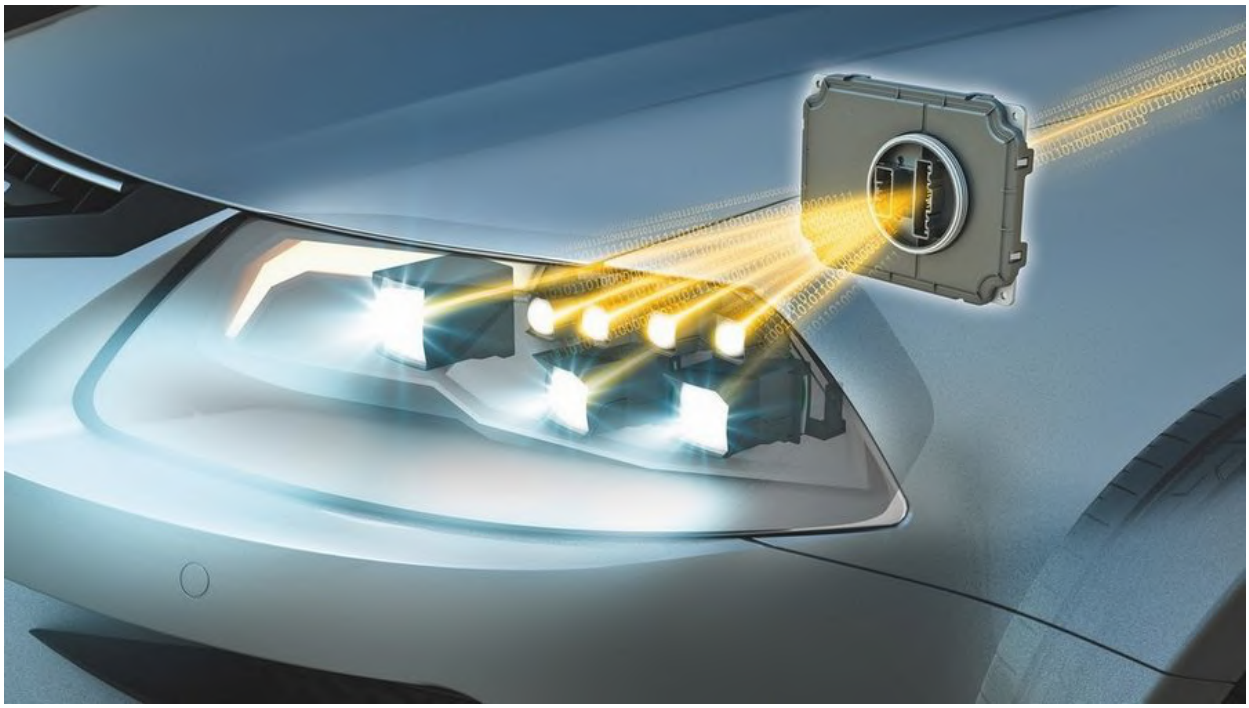
Acting autonomously, vehicles equipped with MuCCA technology figure out between them what to do when confronted with an obstacle or a likely collision. If an accident is unavoidable, the MuCCA system will intervene to minimize injuries and damage.

MuCCA incorporates three key elements: sensing of the immediate environment around the vehicle, automatic steering and braking, and live vehicle-to-vehicle radio messaging, communicating 50 times a second. The autonomous vehicles cooperate in real time, and can maneuver to give another car the space to avoid an obstacle. With sophisticated machine learning algorithms developed at Cranfield University, MuCCA can also predict how non-autonomous vehicles with human drivers are likely to react.

General News

Continental and Osram Terminate JV

GENERAL NEWS



from Automobilwoche

The automotive suppliers Continental and Osram end their cooperation on lighting technology after the takeover of the Osram Group by AMS.
The joint-venture, which was founded in 2018 and specializes in headlights and other automotive lighting systems, is to be dissolved, Continental announced in Eschborn last week. Talks would be held on this and should be concluded by the end of the year. Conti and Osram each hold half in the joint-venture. The introduced areas with a total of 1500 employees at 14 locations are to be returned to the company.

With this step, Conti and Osram reacted to the difficult market situation that had arisen due to weak global car production and the Corona crisis, it was said to justify. The former common expectations of cooperation could no longer be realized in this way. At the beginning of July, Conti announced that the companies were talking about the future of the joint company.

Magna Take Majority in Honglizhixin Seat

GENERAL NEWS

Magna has signed an agreement to acquire majority ownership of Honglizhixin (HLZX), a seat supplier to Chinese automakers. The acquisition will expand Magna's seating capabilities across China. At the same time Magna will acquire a majority stake in its existing seating joint venture with HLZX

The two companies already operate a 50/50 joint venture formed in 2015. After five years, the partners have learned to work together, and now Magna has signed a Shareholder Agreement and Share Purchase Agreement to acquire majority ownership of Honglizhixin (HLZX), and intends to finalize the deals by the beginning of 2021. Terms of the purchase were not disclosed.

Magna also announced they will acquire a majority stake in their existing seating joint venture with HLZX. The two companies currently operate a 50/50 venture formed in 2015. The current Magna-HLZX JV includes two manufacturing plants. Under the new ownership agreement, 10 plants will be added to Magna's manufacturing footprint, adding what the supplier calls "critical mass and scale" to their seating operations in China.

HLZX's plants offer just-in-time seat assembly and delivery, structures, foam, and trim capabilities, and a competitive engineering team.

Magna ranks # 3 on the Automotive News list of Top 100 Global Suppliers with USD $39.43bn in sales to automakers in 2019.

Nikola-GM Pact for Badger Electric Pickup Truck

GENERAL NEWS

Nikola and General Motors have announced a partnership under which GM will acquire an 11% stake in Nikola (valued at approximately USD $2bn at the time of the announcement). GM will also earn the right to nominate one member to Nikola's board. In return, GM has agreed to use their manufacturing facilities to begin production of the Nikola Badger pickup truck, as well as supply Nikola's hydrogen fuel cells globally.

The electric pickup will be sold and marketed by Nikola. GM announced this year they will sell their own fully electric pickup, the GMC Hummer, but it's unclear if both will be based on same platform or be made in the same facilities. The Nikola Badger will be unveiled later this year, and GM will begin production of that truck in 2022, according to the companies. Nikola began taking reservations for the pickup this past June.

Nikola says using GM's battery and hydrogen technology could save the company billions of dollars in development costs. Nikola will also have access to certain common

components and safety systems already engineered by GM, which could further cut development costs.

Nikola is under pressure at the moment, as a short-selling investment outfit has accused them of fake communication, specifically a 2017 video showing a Nikola prototype driving on the road; in fact the prototype was not operable.