

Next stop: Geneva International Motor Show 2019. Rinspeed presents the further advanced “Snap” ecosystem with the “microSNAP” after the CES in Las Vegas and the NAIAS in Detroit as a European Premiere.

Hankook Tire joins the visionary project as the official tire partner, Borbet as innovative wheel partner.

“Honey, I shrunk the “Snap!”

With the “Snap,” presented at the CES in Las Vegas in early 2018, Swiss powerhouse of ideas Rinspeed for the first time presented a vehicle, where the chassis (“Skateboards”) and bodies (“Pods”) can be swapped out at any time.

“Think mighty micro!” is now the new Rinspeed motto at the GIMS 2019. Company head Frank M. Rinderknecht has shrunk the “Snap” into the “microSNAP” with the dimensions of a Renault Twizy. And for the first time, Rinspeed demonstrates a fully automated robot station that joins and separates chassis and bodies autonomously. Experts refer to this step in car production where the chassis and the body come together as the mating of an automobile, except here it is not for good, but only for the time of the intended purpose.

As far as the Swiss automotive visionary is concerned, the days of large delivery vehicles that serve customers in sequence like pearls on a string over the course of the day are over. Because online business is booming and now includes the fresh food sector as well, the Swiss national believes in small autonomous vehicles that swarm out and bring their goods to the customer without detours and ‘just in time.’ It couldn’t be faster or more simple - even refrigerated or heated. However, his vision also includes two-seater ‘robo units’, which take the shortest route to convey their passengers to their destination efficiently and in comfort. Rinderknecht is certain: “Customers increasingly want prompt deliveries and many passengers are unwilling to use shared taxis, which have to take time-consuming detours by design.”

A startup is now on the drawing boards and talks with investors are underway to put the “Snap” on the road. In fact, the response among automotive experts to the revolutionary “Snap” is tremendous and not without leaving its mark. Even one of the most renowned automakers was inspired by the Swiss and recently presented its own interpretation of the “Snap” systematics. And since imitation is generally considered the sincerest form of flattery, Rinderknecht takes it with a sense of humor and smiles: “Well now, who did invent it?”

Be it the “Snap” or the “microSNAP,” the basic idea is the same: While the bodies last as long as a car does today, the chassis contain all the components that are subject to wear and aging, such as the computer technology for autonomous driving. “Skateboards” (chassis) and “Pods” (bodies) are only temporary companions for brief periods. Various types of bodies use whatever skateboards are currently available. The skateboards are recycled after a few years, because they will have reached the end of their service life. They thus elegantly avoid an expensive and complicated hardware update.

In keeping with an established tradition, the twenty-fifth concept car from Rinspeed was again designed at Swiss company 4erC and constructed at Esoro, which also handled the technical implementation. As always when Rinderknecht is at work, the electric vehicle is chock-full of technical and visual treats contributed by a network of renowned companies from around the world.

The robotics system and the automated loading aid system come from Kuka in Augsburg. Osram supplies the entire lighting technology including the digital license plate and a micro-pixel LED, which makes dazzle-free high beams possible. The exterior lights communicate with other road users. The

interior lights adapt to the driver's personal mood with the help of health-tracking functions. For the headlights of the "microSNAP," Rinspeed relies on state-of-the-art LED technology as well as on the innovative product solutions from Prettl Lighting & Interior in Pfullingen. The propulsion of the "microSNAP" is provided by a 48-volt traction motor from the internationally leading development partner and supplier Mahle, whose integrated systems solutions are putting their stamp on the mobility of today and tomorrow across all types of powertrains. Hankook Tire, a global tire company, will be providing their Ventus premium tires in the sizes of 195/40-17. They are mounted on weight-optimized and stylish 6x17" Borbet alloy wheels of the type 'F2'.

Thanks to high-speed communication and short latency times, the connection to the Harman Ignite Cloud platform via 5G telematics ensures the efficient operation of the autonomously driving "microSNAP." A host of other connected-car technologies of Harman – including sensor fusion, the Harman Shield Automotive Cybersecurity Suite and over-the-air updates (OTA) – makes many more things possible. The "microSNAP" uses multi-stage authentication and instant personalization to welcome every user as if he was sitting in his own vehicle. It is operated during the trip by giving commands in natural speech. The passengers can use whichever virtual assistant they are accustomed to, be it Bixby, Alexa, Cortana or Siri. The intelligent digital cockpit is able to adapt to the particular passenger automatically. In the case of the compact "microSNAP," a curved 49-inch LED screen spanning the entire width of the vehicle provides the visual interaction. Acoustically, the two-seater pod can be divided further into two separate sound zones, so to speak. This Harman technology allows both passengers to listen to different music or entertainment programs at the same time, without either feeling disturbed. Ambisonics Escape, another outstanding Harman sound technology, makes even the smallest space into a rolling open-air stage, concert hall or acoustic copy of the own living room. More individualization and personal comfort is hardly conceivable.

Luxoft contributes its expertise in the development of environment models and software platforms for highly automated driving. As a global software development partner, the company supports Level 2-5 projects with its own development teams and technologies for ground truth, modelling and validation. Bamboo Apps from Tallinn, Estonia, created connected-car apps and the UX/UI design for the futuristic human-machine interface (HMI), enriched with features of Level 5 autonomous driving.

A co-innovation team coordinates the digital services for the "microSNAP": MHP focuses on the intelligent mobility ecosystem for automated intermodal transport solutions, while SAP employs a software platform, which optimizes transportation through data analysis, machine learning and the IoT. Finally, EY Advisory makes automated use-based transaction settling among the ecosystem participants possible with its 'Tesseract' mobility platform based on blockchain technology.

The "microSNAP" is a sensor monster. The US company Gentex, for example, contributes the iris scanner for occupant recognition, the interior cabin monitoring system, and dimmable glass window elements in the doors. The same elements can also be found in the Boeing Dreamliner. The sensors from Ibeo Automotive Systems, the global technology leader for laser scanner sensors in the automotive field, ensure that obstacles and people on the road are detected early and accurately. The intelligent antenna from NXP ensures secure linking to the outside world for software updates, Car-2-X communication and infotainment. The 'BlueBox' is the brain for automated driving; the 'GreenBox' ensures the energy efficiency.

Also not an everyday thing for a concept vehicle: The "microSNAP" is equipped with a 'joysteer' drive-by-wire system from Swiss company Bozzio. Redundant steering and braking systems ensure maximum safety. The security of the transfer of data and information was verified by Dekra, a globally leading expert organization. And who supplies the electricity in light of the numerous consumers? It is fed into the vehicle grid via quick-charging cable with high-voltage technology from the Harting Company based in Espelkamp in East Westphalia. Speaking of energy supply: Esslingen-based thermal management specialist Eberspächer controls the temperature in the "people pods"

with its climate hardware and provides the suitable containers with powerful heating and cooling units for the “cargo pods” - in both cases with integrated connectivity solutions and always with independent energy supply.

Rinspeed attaches great importance to the wellness equipment of the interior. FoamPartner is the perfect address in this regard. The company contributes the expertise for acoustically and thermally efficient foams. For years, the allies have relied on Strähle+Hess with its experts for innovative textile products, and for good reason. The knitted fabric used in the vehicle was made from sustainable PES/alpaca natural yarns supplied by hi-tech cotton mill Schoeller. Dutch chemical company Stahl, the global leader for leather and various synthetic material surfaces in automotive interiors, contributes its surface finishing expertise. South Korean manufacturer Kolon Glotech adds highlights with its traditional Sanggam print for seats and trim panels.

The occupants make themselves comfortable on naturally soft leather from automotive leather specialist Bader in Göppingen, Germany. Lear, a globally leading automotive technology company, developed the ‘ProActive Comfort’ intelligent seat solution, designed for comfort, wellness and adaptability to individual passenger needs; and ‘BioBridge’, a smart, non-intrusive, biosensing technology to detect stress and drowsiness, helping prevent driver distraction and promoting safety. With Lenzing Automotive Interiors fibers in the 2019 “microSNAP” concept vehicle, the company is committed to the co-creation of an innovative future concept of transportation, which combines new ways to pursue sustainability efforts while offering new levels of comfort. Gentherm, the global market leader and developer of innovative thermal management technologies, created an innovative and efficient heating and cooling system for the passenger seating. This personalized system creates an intelligent climate zone for each occupant in the car to ensure perfect levels of passenger comfort.

HFM specializes in functional safety systems, E/E architectures and user-centric design methods by means of virtual prototyping. At the heart of the company’s developments are always the relevant requirements for homologation and type approval for the future of autonomous driving.

Of course, one thing is a must in a vehicle from Switzerland: a chic clock sporting the Swiss cross adorns the screen taking up the entire width of the vehicle.

The European premiere of the “microSNAP” will take place in Geneva on March 5, 2019: The anniversary creation of Swiss automotive visionary Frank M. Rinderknecht will be on display at the GIMS from March 7 thru 17 in the booth 6240 - right on the doorstep of the powerhouse of ideas from near Zurich, so to speak - professionally staged by Kern advertising agency and print shop based in Saarland.

The partners and suppliers in the realization of the „microSNAP“ are:

4erC GmbH - www.4erc.ch

Bader GmbH & Co. KG - www.bader-leather.com

bamboo apps - <https://auto.bambooapps.eu>

Borbet GmbH - www.borbet.de

Dekra - www.dekra.com

Eberspächer Climate Control Systems GmbH & Co. KG - www.eberspaecher.com

Esoo AG - www.esoro.ch

Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft - www.de.ey.com/automotive

FoamPartner - www.foampartner.com

Gentex Corporation - www.gentex.com

Gentherm - www.gentherm.com

Hankook Tire Co., Ltd - www.hankooktire.com

Harman International Industries, Inc. - www.harman.com
Harting Technology Group - www.harting.com
Hanseatische Fahrzeug Manufaktur GmbH - www.hfm-gmbh.de
Ibeo Automotive Systems GmbH - www.ibeo-as.com
joysteer / Bozzio AG - joysteer.ch
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