

Press Release:

Erstes Circular-Economy-Fahrzeug

Aachen 11.05.2023: The RWTH Aachen is presenting an Internet of Sustainable Production concept (IOSP) for value-adding and life-extending circular economy at the Aachen Machine Tool Colloquium (AWK). Numerous demonstrators will be showcased. The WZL of RWTH Aachen, together with the spin-off e.Volution have developed a circular economy vehicle that should last 50 years. For the first time, a part of an upgrade re-assembly factory will be presented, where the vehicles can be industrially renewed and updated every five years. Professor Günther Schuh, who has already founded StreetScooter and e.GO, aims to show that this next-generation vehicle production concept can make e-vehicles significantly cheaper and more sustainable to manufacture and operate.

The next-generation vehicle production concept requires a new modularity of cars, in which the self-supporting body is replaced by a durable chassis and replaceable exterior and interior components. The electric powertrain makes this possible since it lasts 4-5 times longer than an internal combustion engine. Further standards are required for the upgrade capability of the vehicles. A kind of LINUX for cars, called OSCAR Open Source Car Architecture Research, was established on the RWTH Aachen campus to bring together manufacturers, suppliers, and technology partners to set the rolling standards. At the AWK, the first generic aluminium profile chassis for various vehicle categories will be shown. The development and homologation effort for a new e-vehicle is thus drastically reduced while the standard interfaces increase the economies of scale for the components. Up to 80% of today's tool costs for the body can be saved through the aluminium profile chassis and thermoplastic exterior. Electric cars and vehicles in smaller production volumes can thus be produced much more cost-effectively. Almost all innovation-carrying and design-relevant components such as displays, sensors, vehicle computers, batteries, headlights, exterior, seats, and interior can be replaced in a re-assembly factory. Niche vehicles and additional customization by special vehicle builders and third-party providers become economically viable, opening up new market segments for exceptional and emotional electric cars.

At the AWK, e.Volution presents its first two vehicles based on the OSCAR chassis, the META as a corporate shuttle (6-7 seater) with multimedia office workstations for commuters and the SPACE with a short and long wheelbase (5 and 7 seater) as a long-distance driver's car or family shuttle. The height of the SPACE creates space for hydrogen tanks and fuel cells. To achieve real ranges of 750 km or more, the SPACE will receive a fuel cell range extender in five years, for which a similarly designed low-cost electrolyser for home usage is currently being developed. As an interim solution, a prototype of the SPACE with a two-cylinder range extender with an LPG tank will be available at the AWK, as green hydrogen is not yet available in sufficient quantities. Even though the long-distance driver will be able to manage without the range extender 85% of the time, the refuelling time of less than 5 minutes gives them the feeling of infinite range.

In order to enable users to drive ecological and cost-effectively, e.Volution also offers the vehicle battery modules as a home power storage for photovoltaic systems. In their second life cycle, the vehicle battery modules are used to expand home storage capacity. With this approach of a holistic ecosystem and the concept of circular economy vehicles, e.Volution is making an important contribution to consistently sustainable mobility.

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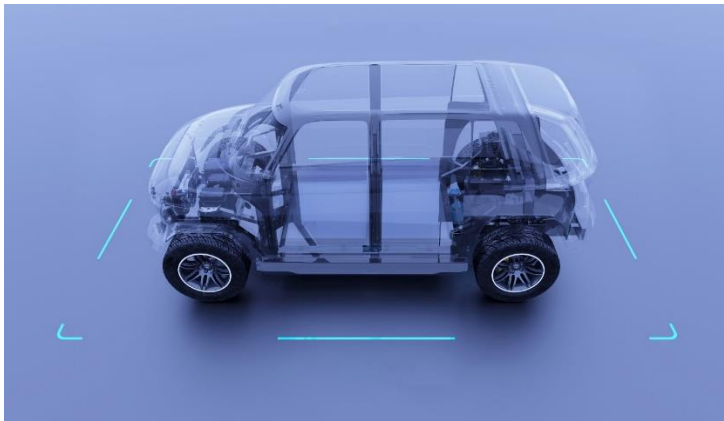
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e.Volution GmbH

The e.Volution GmbH, based on RWTH Aachen Campus, is a provider of holistic mobility solutions and a developer and manufacturer of purpose-dedicated electric vehicles. Currently, the company designs and develops the Shuttle META, which incorporates new digital mobility experiences. For the production concept of the shuttle, e.Volution GmbH possesses strong expertise in MicroFactories, Re-Assembly Factories and vehicle homologation. e.Volution was founded in 2021 by Prof. Günther Schuh (CEO). www.evolution-mobility.com

Press pictures



Caption 1: Aluminium Chassis as a basis for open source vehicle development



Caption 2: e.Volution SPACE in the short version

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