

EU awards €4,9 million grant for new project on lightweight components for electric vehicles

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On February 2, 2021, the first phase of the three-year EU-funded innovation project LEVIS began with a digital kick-off event. LEVIS aims to develop lightweight components for electric vehicles using eco-design and circular approaches. The consortium - built by industrial and research partners from seven countries - envisages then to demonstrate the technical and economic feasibility of producing these components in three real-case demonstrators at a large scale.

As electrical cars are powered by heavy-weight batteries, car manufacturers and suppliers must search for new light-weighting technologies to compensate this excess weight in other car components. These technologies can directly contribute to improve vehicle efficiency in terms of kWh consumed per km and vehicle range (kms with a full battery cycle), and to reduce the environmental impact.

Weight saving without compromising on component performance

To tackle this challenge, thirteen industrial and research partners from seven countries have joined forces to develop cost-effective lightweight components for electric vehicles using eco-design and circular approaches. The technical and economic feasibility, as well as their environmental impact will be showcased through three real-case demonstrators: a suspension control arm, a battery holding set and a cross car beam.

“We will use for this multi-material solutions based on carbon fibre thermoplastic composites optimally integrated with metals, which will be produced using cost-effective and scalable manufacturing technologies” said José Ramón Valdés, Project Coordinator from ITAINNOVA (Instituto Tecnológico de Aragón). Thanks to their outstanding specific mechanical properties, these composites properly combined with metals are ideally suited for lightweight applications. In this sense, LEVIS aims to develop solutions for these multi-material components based on specific environmentally friendly resins and reinforcement systems, cost-effective manufacturing processes, optimized joints, advanced simulation methodologies and structural health monitoring technologies. The combination of these developments will allow us to obtain lightweight, cost-effective and eco-friendly components without compromising their mechanical performance, structural integrity and reliability, even improving their service life.

The next big thing in design is circular

“The lightweight components will be developed using a circular approach. This means, we will pay special attention on using recyclable materials and designing the components in a way that after the components’ end-of-life nothing will become waste and every part can be recycled or reused for the same or for other applications” stated Theodora Skordili, Business Development Manager at Cenex Nederland. Thus, only recyclable resins, bio-resourced and recycled carbon fibres will be used for building the target components. Moreover, the components’ service-life will be maximized, and all structural parts will be designed to enable a simple and effective dismantling and reuse of the components.

Introducing light-weight components into the market

The consortium's goal is to introduce these innovative electric vehicle components into the market by the end of the project. For this, LEVIS will follow a structured exploitation strategy, covering multi-actor stakeholder consultation, intellectual property protection, business modelling and an advanced commercialization plan.

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 4. Privé Srl (PRI), Italy
 5. Yeşilova Holding A.Ş. (YOVA), Turkey
 6. Tofaş Türk Otomobil Fabrikası A.Ş. (TOFAS), Turkey
 7. Asociación de Investigación Metalúrgica del Noroeste (AIMEN), Spain
 8. Centre Technologique Nouvelle-Aquitaine Composites & Matériaux Avancés (CANOE), France
 9. Leartiker S. Coop (LEAR), Spain
 10. Rise Sicomp AB (RISE), Sweden
 11. Commissariat à l'Énergie Atomique et aux Énergies Alternatives (CEA), France
 12. Stichting Cenex Nederland (CENEX NL), Netherlands
 13. Steinbeis-Europa-Zentrum der Steinbeis Innovation gGmbH (SEZ), Germany
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