

IN A NUTSHELL

ODYSSEV shapes the next generation of high-voltage powertrains (1200V and above) for battery electric vehicles. In this direction, ODYSSEV develops advanced automotive power converters, optimised powertrain elements and novel electronic topologies. These outcomes emerge from the integration of innovative features, configurations and prototyping at every single element of the powertrain (on-board charger, battery pack, inverter, motor and thermal management system).

ODYSSEV tests the powertrain under real driving conditions, paving the way for the deployment of next generation of C segment in the market of electric vehicles.

LOCATIONS OF RESEARCH, DEVELOPMENT AND TESTING



PROJECT PARTNERS



CIRCE – CENTRO TECNOLÓGICO
<https://www.fcirce.es/en>
 Spain



FACHHOCHSCHULE DORTMUND
<https://www.fh-dortmund.de/?loc=en-US>
 Germany



UNIVERSITY COLLEGE LONDON
<https://www.ucl.ac.uk/engineering/research/centres-institutes-and-labs/advanced-propulsion-laboratory>
 United Kingdom



UNIVERSITY OF TWENTE
<https://www.utwente.nl/en/eemcs/pe/>
 Netherlands



UNIVERSITY OF BREMEN
<https://www.uni-bremen.de/en/>
 Germany



KTH ROYAL INSTITUTE OF TECHNOLOGY
<https://www.kth.se/en>
 Sweden



CENTRE FOR RESEARCH AND TECHNOLOGY HELLAS (CERTH)
<https://www.certh.gr/root.en.aspx>
 Greece



MITSUBISHI ELECTRIC EUROPE B.V.
<https://www.meu-semiconductor.eu>
 Germany



EFESTO
<https://efesto.fr/>
 France



INETIC LIMITED
<https://inetic.co.uk/>
 United Kingdom



ZF FRIEDRICHSHAFEN AG
<https://www.zf.com>
 Germany



Q-PLAN INTERNATIONAL ADVISORS PC
www.qplan-intl.gr
 Greece



MTAL GMBH
<https://www.mtal.ch/>
 Switzerland



FACHHOCHSCHULE NORDWESTSCHWEIZ
<https://www.fhnw.ch/en>
 Switzerland

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OPTIMISED DYNAMICS OF
 HIGH VOLTAGE POWERTRAINS
 DEVELOPING SUSTAINABLE SYSTEMS
 FOR ELECTRIC VEHICLES



www.odyssevprojecteu.eu

WHY TO FOLLOW ODYSSEV

-  **Get access to new research and application findings** on very fast charging, ultra-efficient electric vehicles encompassing compact powertrains of lower cost and lower lifecycle impact.
-  **Follow our events** to stay up-to-date with advances towards the next generation of high-voltage powertrains and directly engage with our top industrial and research partners.
-  **Contribute in key policy recommendations for standardisation and regulatory bodies** for co-shaping the future of regulations about high-voltage powertrains.
-  **Keep up-to-date with new technical practices** on the integration of electric powertrain elements and our hybrid inverter approach.

MAKING AN IMPACT FOR



TIER 1 and 2 companies



Automotive providers



Researchers on electric vehicle powertrains

KEY FIGURES THAT ODYSSEV AIMS

Electric powertrain of 1200 V or above, to be developed tested under real driving conditions

Ultra-fast charging in 10 minutes (from 20% until 80% state-of-charge), compatible with 350kW chargers

Autonomy (driving range) increase up to 20% due to improved control algorithms and powertrain optimisation

Up to 30% time reduction for integration tests and development cycles

Increase in inverter efficiency by 25% compared to the current state-of-art








Reduction in development costs by 25% at prototype level

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Receive all the latest innovations of high-voltage electric powertrains!



OUR APPROACH FROM LAB TO ROAD

-  Holistic methodology for more sustainable powertrain design.
-  Reconfigurable battery pack: Modular 400 V batteries delivering 1.2 kV and above for ultra-fast charging and high-power driving.
-  Hybrid inverter concept, combining Si-IGBT and SiC-MOSFET, able to benefit from each device characteristic in the different load conditions.
-  Modular 22 kW on board charger with increased power density.
-  Shape and topology optimised electric motor with over 95% of wide-speed operation efficiency.
-  Cloud-based virtual powertrain development to model and validate thermal design and wiring harness, including optimized thermal management assisted by machine learning
-  Physical integration of ODYSSEV electric powertrain within a vehicle, to test on the track.

PROJECT IDENTITY

Project Title: Optimised Dynamics of high voltage powertrains:

developing Sustainable Systems for Electric Vehicles

Grant Agreement No: 101192612

Start: 1 January 2026

Duration: 42 months

Budget: € 5,999,810.00

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