



NEWSLETTER 08/23

A warm and sunny welcome to another issue of our E-VOLVE newsletter! July brought some events that have taken place and some interesting deliverables that let us look more into the work that is going on in the projects. Be sure to check all the links to the information and the projects to keep up to date.

Also, don't forget to get informed about upcoming events at the end of the newsletter. Enjoy the rest of this 2023 summer and perhaps a well-deserved vacation. We will come back with a fall newsletter at the end of September.

EVENTS & NEWS

SELFIE



SELF-sustained and Smart Battery Thermal Management Solution for Battery Electric Vehicles

SELFIE final event

The results of SELFIE were successfully presented at the Final event on 18th July 2023, online, with 40 participants from different countries, industries as well as universities. The event was structured in 4 sessions, including 2 key notes, 11 presentations. All the presentations and video streaming about the Final Event are available [here](#).

After 5 years of developments, the work of the 10 partners in SELFIE has been concluded with important results on next generation of battery thermal management systems by introducing innovative components and control schemes.

Statement from the SELFIE Coordinator, Theodoros Kalogiannis (VUB):

“SELFIE’s consortium dedication and collaborative work led to significant achievements. Thanks to EU, EVOLVE cluster and all partners contributions, SELFIE will made a strong impact on promoting user-acceptance, sustainability and efficacy of future EVs.”

SELFIE project video:



Follow the project:



2ZERO



“Towards zero emission road transport” (2ZERO) is a co-programmed partnership funded under the Horizon Europe programme and aiming at

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accelerating the transition towards zero tailpipe emission road mobility across Europe.



The 2Zero partnership covers all types of vehicles, from passenger cars, trucks and buses to two-wheelers and new vehicles concepts. Its activities are organised around four strongly interconnected pillars:

- Vehicle technologies and vehicle propulsion solutions for BEV and FCEV
- The integration of BEV into the energy system and related charging infrastructure
- Innovative concepts, solutions, and services for the zero tailpipe
- LCA and circular economy approaches for sustainable and innovative road mobility solutions

The newly joined cluster members are, as are the founding members of the cluster, selected projects of the 2Zero partnership and looking forward to the cooperation in the future.

More information:



PROJECT RESULTS

RHODaS



Reinventing high-performance converters for heavy-duty electric transport

The RHODas project has released a public deliverable and we have the joy to present you an abstract in this newsletter. The full version of the document can be found on the RHODas website, linked at the end of this article.

Report: Materials specifications and requirements for active and passive electronic components

Selection matrix and integration strategies

One of the key innovations in the RHODas project is the design of a 3-level T-type converter, a topology that currently lacks modules with Silicon Carbide (SiC) and Gallium Nitride (GaN)

technology. As a result, the project is exploring alternative options to build the converter using GaN and SiC technologies that will greatly improve efficiency, thermal performance, and increase power density by both reducing the size and weight of the converter.



The new report published by RHODas provides valuable insights into the material specifications, component selection, and integration considerations for the RHODAS project's power converters, and highlights the project's focus on

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SiC and GaN technologies, driver requirements, passive components, and the control system.

The selection of SiC transistors for the converter is preferred due to their high-power density and low on-resistance, and options such as discrete GaN semiconductors are explored. **Several driver options for controlling the high-power hybrid inverter that must meet specific requirements, including crosstalk protection and Miller clamp functionality, are presented for SiC and GaN devices,** taking into account factors such as isolation voltages, safety features, and drive currents.



In addition, passive components, such as capacitors and interfaces, and the importance of minimising the commutation loop and choosing components with resonant frequencies that do not coincide with switching harmonics is discussed. **And the design of the control printed circuit board (PCB) is detailed which will accommodate various sensors and interface inputs for accurate control and monitoring of the power converter system.**

The full report can be accessed [here](#).

Follow the project:



EM-TECH



EM-TECH

Innovative e-motor technologies covering e-axles and e-corners vehicle architectures for high-efficient and sustainable e-mobility

The EM-Tech project has released a public deliverable, presenting you a short introduction here and the full link to the deliverable at the end of this article.

Report on the EM-TECH integrated electric motors, electric drives, and associated controllers

The target of this deliverable is to define the basic sizes (continuous and peak torque and power ratings, mass, expected available packaging envelopes) of the investigated components and systems for case studies. Furthermore, a set of integrated EM-TECH corner modules and on-board electric drive solutions for electric vehicles are defined to cover the widest possible range of vehicle segments.

This deliverable also describes the associated machine control such as the cooling control and the inverter control for the new machines, and the vehicle controls to exploit the benefits to vehicle performance brought by the new machines, including the wheel slip control, the motor regenerative braking and braking blending, and the anti-jerk control.

The full deliverable can be downloaded on the [EM-TECH website](#).

Follow the project:



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COMING UP



.eu Web Awards in Brussels

November 16th 2023



Next Edition of the E-VOLVE Newsletter

September 18th 2023



HighScope project meeting in Torino, IT

January 24th -25th 2024



EM-TECH

EM-TECH project meeting in Torino, IT

January 25th -26th 2024



TRA – 10th Conference in Dublin

April 15th-18th 2024



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