

An FP7 funded project to develop a Low Voltage Full Series Hybrid or Pure Electric Drivetrain for use by members of AVERE (The European Association for Battery, Hybrid and Fuel Cell Vehicles)

SAFEDRIVE is a project funded under the European Union Framework Programme 7 (FP7) with the aim of providing the members of the European Association for Battery, Hybrid and Fuel Cell Vehicles, AVERE, with a Full Series Hybrid Vehicle Drivetrain, which may also be used in a Pure EV. This drivetrain is modular and scalable, and can be adapted to suit a wide range of vehicles, from small cars to heavy goods and utility vehicles. The project will also deliver to members a 'design toolbox' that allows computer configuration and simulation of a particular vehicle and drivetrain implementation, and a standard vehicle controller electronics package that is configured by the toolbox. Details of the project and consortium can be found at <http://www.safedrive-fp7.eu/>.



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The SAFEDRIVE consortium brings together technology providers, vehicle builders, the academic sector and AVERE, The European Association for Battery, Hybrid and Fuel Cell Vehicles) as both the pan-European association, and two national associations (AVERE France and E'Mobile Switzerland). AVERE is the beneficiary of this project, on behalf of its members. Other partners of the project consortium can be found on the project website <http://www.safedrive-fp7.eu/>

The SAFEDRIVE project is now a little over half way through its 36 month duration, and we are entering the testing and evaluation phase. So far progress has been very good, parameters that were uncertain at the start are now known, and there has been excellent correspondence between theory and measurement so far. We hope that that trend will continue.

### Core technologies being developed

- Split-Pi DC-DC converters
- Mutually Coupled (MC) motors
- Dynamic Vehicle Controller
- Vehicle configuration toolbox

### Benefit of the technology

- Low cost direct drive motor with switching electronics
- Reduction in battery size is significant giving cost and weight savings
- Lower voltages than other hybrid drive systems in current use,
- European SME manufacturers of Electric and Hybrid vehicles.

### Markets:

- Specialist vehicles
- City utility vehicles
- Sports cars
- Large commercial vehicles
- Results and Discussion

Whilst this is a large project for AVERE and some of the smaller partners, in reality, it is only a small, but hopefully a significant, contribution to the field. We hope to be able to demonstrate both the viability of low voltage drivetrains at power levels of several tens of kiloWatts, and the functionality of a Full Series Hybrid Drivetrain (which of course can be used directly in pure electric vehicles if so desired) in a vehicle which is fully comparable to its IC engined sisters, and at a cost base that AVERE member companies can use commercially in the near future.

The consortium will be working actively to find further partners for the full commercialization phase, and we hope that this technology will become an important part of the automotive scene within a very short period.

### Acknowledgements

To all members of the SAFEDRIVE consortium.



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[www.safedrive-fp7.eu](http://www.safedrive-fp7.eu)

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