

PROJECT

DRIVEMODE

Integrated Modular Distributed Drivetrain for Electric/Hybrid Vehicles

Funding: European (Horizon 2020)

Duration: Nov 2017 - Oct 2020

Status: Ongoing

Total project cost: €9,519,068

EU contribution: €9,519,068



[CORDIS RCN : 211597](#)

Objectives:

Within this project, a new compact and efficient high speed 30-50 kW electrical machine will be integrated with an efficient fully SiC drive and a gearbox within a powertrain traction module. The electrical machine will have a dry rotor direct liquid cooling system integrated with the cooling system for the SiC drive. This traction module can be mechanically coupled with an axle of a low performance electric/hybrid vehicle, or several units could be coupled directly with the wheels for a high-performance vehicle or a light-duty vehicle or a bus.

Economic feasibility of mass-manufacturing of different electric machine topologies will be studied to choose the best trade-off between performance, manufacturing cost, and efficiency in the selected performance range. Feasibility of direct drive, single stage, and two-stage switchable high-speed gearboxes will be studied as well. The resultant powertrain traction module will be an optimal trade-off between efficiency, manufacturability, and cost, utilizing newest technologies in electrical machines, power electronics, and high-speed gearboxes. We will demonstrate the scalability of the solution by embedding several powertrain modules on board a test vehicle.

Parent Programmes:

[H2020-EU.3.4. - Horizon 2020: Smart, Green and Integrated Transport](#)

Institute type: Public institution

Institute name: European Commission

Funding type: Public (EU)

Lead Organisation:

Teknologian Tutkimuskeskus Vtt

Address:

TEKNIKANTIE 4 A
02044 VTT ESPOO
Finland

Organisation Website:

<http://www.vtt.fi>

EU Contribution: €1,046,873

Partner Organisations:

Fondazione Icons

Address:

PIAZZA DELLA VITTORIA 1
26900 LODI
Italy

EU Contribution: €345,500

Borgwarner Sweden Ab

Address:

INSTRUMENTGATAN 15
261 51 LANDSKRONA
Sweden

EU Contribution: €678,575

National Electric Vehicle Sweden Ab

Address:

SAABVAGEN 5
461 38 TROLLHATTAN
Sweden

EU Contribution: €2,569,548

Avl Trimerics Gmbh

Address:

ZETTACHRING 4
70567 STUTTGARD
Germany

EU Contribution: €899,625

S.c.i.r.e. Consorzio

Address:

CENTRO DIREZIONALE ISOLA C4 SN FACOLTA DI INGEGNERIA DELL UNIVERSITA DI NAPOLI
PARTHENOPE
80143 NAPOLI
Italy

Organisation Website:

<http://www.consorzioscire.it>

EU Contribution: €193,500

Thien Edrives Gmbh

Address:

Millennium Park 11
6890 Lustenau
Austria

EU Contribution: €553,750

Technische Universitaet Ilmenau

Address:

Ehrenbergstrasse
98693 Ilmenau
Germany

Organisation Website:

<http://www.tu-ilmenau.de>

EU Contribution: €322,510

Semikron Elektronik Gmbh & Co. Kg

Address:

SIGMUNDSTRASSE 200
90431 NURNBERG
Germany

Organisation Website:

<http://www.Semikron.com>

EU Contribution: €903,125

Danfoss Mobile Electrification Oy

Address:

LENTOKENTAENTIE 44
53600 LAPPEENRANTA
Finland

EU Contribution: €1,250,750

Univerza V Ljubljani

Address:

KONGRESNI TRG 12
1000 LJUBLJANA
Slovenia

Organisation Website:

<http://www.uni-lj.si>

EU Contribution: €171,438

Chalmers Tekniska Hoegskola Ab

Address:

-
41296 GOTHENBURG
Sweden

Organisation Website:

<http://www.chalmers.se>

EU Contribution: €583,875

Technologies:

Electric road vehicles
Hybrid EV switchable gearbox

Development phase: Validation

Electric road vehicles
Integration of electric motor with SiC drivetrain

Development phase: Validation

Transport

STRIA Roadmaps: electrification

Transport mode: Road transport

Transport sectors: Passenger transport, Freight transport

Transport policies: Decarbonisation, Deployment planning/Financing/Market roll-out

Geo-spatial type: Other