

PROJECT

OPENER

Optimal Energy Consumption and Recovery based on system network

Funding: European (7th RTD Framework Programme)

Duration: May 2011 - Jul 2014

Status: Complete

Total project cost: €7,686,658

EU contribution: €4,400,000



Call for proposal: FP7-2011-ICT-GC

[CORDIS RCN : 99281](#)

Background & policy context:

A new European Research Project was launched in May 2011. OpEneR, which stands for "Optimal Energy consumption and Recovery based on a system network," will develop new driving strategies and driver assistance systems that significantly increase the efficiency, driving range, and safety of electric vehicles. This is to be achieved by merging data from on-board and off-board sources. A particular focus will lie on an optimal cooperation between the electric drivetrain and the regenerative braking system, supported by data from radar, video, satellite navigation, car-to-infrastructure and car-to-car systems.

Objectives:

Today's Fully Electric Vehicles (FEV) have limited driving ranges. Customer surveys prove an adequately long and dependable driving range is more important than the cost of ownership. Therefore considerable efforts are being made to meet this challenge, e.g. higher capacity batteries and powertrain efficiencies.

The OpEneR project (Optimal Energy consumption and Recovery) addresses this fundamental FEV weakness. OpEneR aims to unlock the FEV market by increasing the driving range, not by enhancing battery technologies, but by the development of an intelligent energy management and recovery system, integrating existing subsystems with on-board and off-board sensors. The objective is a new energy manager coordinating control strategies to maximise real world energy saving. The system provides advanced driver support based on a networked architecture comprising battery management, e-machines, regenerative braking, satellite navigation, dashboard displays, all whilst integration of the vehicle stability controller and the environmental sensing take care of safety issues.

OpEneR considers the dynamic boundary conditions for electric braking, i.e. traction limits, system temperatures, battery charge. The driver is assisted to maximise energy recovery, avoiding unnecessary disc braking. Driver support includes estimated braking distance, recuperation capability visualization and braking tips based on traffic flow or navigation data, and predictive cooperative information, car-to-car (c2c) and car-to-infrastructure (c2i). This requires a new integrated approach where all available information is used to generate safe and efficient predictions.

Currently little data is exchanged between the diverse subsystems and no overall HMI concept exists. OpEneR addresses these issues to maximise efficiency and recuperation to significantly extend FEV range.

The final project goal is to demonstrate the benefits of OpEneR strategies with 2 fully operational FEV tested in real world conditions.

Parent Programmes:

[FP7-ICT - Information and Communication Technologies](#)

Institute type: Public institution

Institute name: European Commission

Funding type: Public (EU)

Lead Organisation:

Robert Bosch Gmbh**Address:**

Robert-Bosch Platz
70839 Gerlingen-Schillerhoehe
Germany

Organisation Website:

<http://www.bosch.com>

EU Contribution: €1,231,446

Partner Organisations:**Stiftung Fzi Forschungszentrum Informatik Am Karlsruher Institut Fur Technologie****Address:**

Haid Und Neu Strasse 10-14
76131 Karlsruhe
Germany

EU Contribution: €727,314

Fundacion Para La Promocion De La Innovacion, Investigacion Y Desarrollo Tecnologico En La Industria De La Automocion De Galicia**Address:**

Poligono Industrial A Granxa 249
36400 PORRINO PONTEVEDRA
Spain

Organisation Website:

<http://www.ctag.com>

EU Contribution: €537,293

Robert Bosch Car Multimedia Gmbh**Address:**

Robert Bosch Str 200
31139 Hildesheim
Germany

EU Contribution: €435,792

Psa Automobiles Sa**Address:**

2/10 BOULEVARD DE L'EUROPE
78300 POISSY
France

Organisation Website:

<http://www.psa-peugeot-citroen.com>

EU Contribution: €658,736

Avl List Gmbh**Address:**

Hans-List-Platz
8020 Graz
Austria

Organisation Website:

<http://www.avl.com>

EU Contribution: €809,419

Technologies:

Electric vehicle batteries (and energy management)

Battery energy management and sensors

Development phase: Research/Invention

Documents:

 [Deliverable 1.1 \(Other relevant documents\)](#)

Transport

STRIA Roadmaps: electrification

Transport mode: Road transport

Transport sectors: Passenger transport, Freight transport

Transport policies:

Decarbonisation, Deployment planning/Financing/Market roll-out, Environmental/Emissions aspects

Geo-spatial type: Other