

PROJECT

ID4EV

Intelligent Dynamics for fully electric vehicles

Funding: European (7th RTD Framework Programme)

Duration: Jun 2010 - Oct 2012

Status: Complete with results

Total project cost: €6,717,976

EU contribution: €3,796,522



Call for proposal: FP7-2010-ICT-GC

[CORDIS RCN : 95470](#)

Background & policy context:

The project will concentrate on the topics of energy efficiency, safety and the interaction between the vehicle, the optimized systems and the driver.

To address both possibilities of drive-train concepts of fully electric vehicles, both concepts will take into account and their impact of the adapted systems will be analysed and solutions presented.

To reach a significant breakthrough of fully electric vehicles the adapted systems will be tested on test benches and under real world conditions in demonstrator vehicles to ensure the functionality and to prove the safety.

Objectives:

The objective of the ID4EV project is to develop energy efficient and safe brake and chassis systems for the needs of fully electric vehicles and the improvement of active safety and comfort for a faster introduction of fully electric vehicles (FEV). These systems will be optimized to the requirements for FEV. Beside the development and optimization of the most relevant vehicle sub-systems with regard to active safety and comfort, the brake and the chassis system, optimization on vehicle level will be done with a new approach of a network system as well as new HMI concepts for FEV.

Methodology:

Work package 1: Project Management
Leader: Continental

Project management is responsible for smooth and effective administration, cooperation and coordination, of the project members and the related tasks respectively work packages. Means of quality control have to be implemented for adequate evaluation of the work package outcome. In parallel the project management is also responsible for continuously financial tracking and reporting. It is in charge to regularly inform representatives of the European Commission and the public about the project progress.

Work package 2: Requirements and Specifications
Leader: fka

The central issue of work package two is to define system and safety requirements for fully electric vehicles. System specifications on vehicle level are made on this base and compared to identified user needs especially with upcoming electric vehicles. These system specifications influence development and testing of braking systems, vehicle suspension and the human machine interface and their components.

Work package 3: Intelligent Brakes for fully electric vehicles (IB4EV)
Leader: Continental

The objective of this work package is to develop an intelligent braking concept for fully electric vehicles that supports energy recuperation and improved stability functions. The aim is to achieve superior

behaviour compared to conventional vehicles in terms of comfort and vehicle dynamics.

FEV will only be accepted by the market, if the active safety of the new vehicle concepts is at least the same as offered by conventional cars. Therefore besides the drivetrain, the brake system has to be adapted to these new vehicles by the development of an energy efficient and lightweight electrified brake system. The electrical energy consumption for braking must be considered. Maximum recuperation of energy respectively, is a must as the same time.

The brake force generation has to provide a management between friction and electrical regenerative braking, due to the individual situation (soft stop, emergency braking). Also smooth transfer between friction and regenerative braking without heavy pedal implication must be guaranteed.

Work package 4: Intelligent Chassis for fully electric vehicles (IC4EV)

Leader: ZF AG

A main goal of WP4 is to ensure high comfort levels by optimising the FEV's suspension to compensate for the increased un-sprung mass of in-wheel drives. As active chassis systems are

Parent Programmes:

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

Institute type: Public institution

Institute name: European Commission

Funding type: Public (EU)

Lead Organisation:

Continental Engineering Services Gmbh

Address:

Graf Vollrath Weg
60489 Frankfurt Am Main
Germany

Organisation Website:

<http://www.conti-engineering.com>

EU Contribution: €235,345

Partner Organisations:

Renault Represented By Gie Reginov

Address:

Quai Alphonse Le Gallo 13/15
92100 BOULOGNE-BILLANCOURT
France

Organisation Website:

<http://www.renault.com>

EU Contribution: €482,465

Conti Temic Microelectronic Gmbh

Address:

Sickingenstrasse 42-46
10553 Berlin
Germany

EU Contribution: €167,475

Nederlands Organisation For Applied Scientific Research

Address:

Schoemakerstraat 97
6060 DELFT
Netherlands

Organisation Website:
<http://www.tno.nl>

EU Contribution: €293,745

Consorzio Interuniversitario Per L'ottimizzazione E La Ricerca Operativa

Address:
VIALE RISORGIMENTO 2
40136 BOLOGNA
Italy

Organisation Website:
<http://www.icoor.it>

EU Contribution: €64,800

Continental Teves Ag & Co. Ohg

Address:
GUERICKESTRASSE 7
60488 FRANKFURT AM MAIN
Germany

Organisation Website:
<http://www.continental-corporation.com>

EU Contribution: €554,975

Idiada Automotive Technology Sa

Address:
L Albornar
43710 Santa Oliva
Spain

EU Contribution: €349,020

Zf Friedrichshafen Ag

Address:
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88046 Friedrichshafen
Germany

Organisation Website:
<http://www.zf.com>

EU Contribution: €524,196

Continental Ag

Address:
Vahrenwalder Strasse 9
169 HANNOVER
Germany

Organisation Website:
<http://www.conti-online.de>

EU Contribution: €361,738

Fka Forschungsgesellschaft Kraftfahrwesen Mbh Aachen

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52074 Aachen
Germany

Organisation Website:

<http://www.fka.de>

EU Contribution: €377,503

Universita Degli Studi Di Modena E Reggio Emilia

Address:

VIA UNIVERSITA 4
41121 MODENA
Italy

Organisation Website:

<http://www.unimore.it>

EU Contribution: €179,160

Chalmers Tekniska Hoegskola Ab

Address:

-
41296 GOTHENBURG
Sweden

Organisation Website:

<http://www.chalmers.se>

EU Contribution: €206,100

Technologies:

Road vehicle design and manufacturing
Low environmental impact brake
system

Development phase: Research/Invention

Electric road vehicles
Efficient electric vehicle chassis

Development phase: Research/Invention

Key Results:

ID4EV aimed to develop innovative FEV power train concepts to increase safety and comfort of fully electric vehicles, as well as to promote their market acceptance and thus the global reduction of carbon dioxide (CO₂) emissions.

The project addressed a series of impacts:

- increase in overall power and energy efficiency of FEV through ICT solutions for optimized architectures, integration, controls, systems and components, given current and anticipated constraints in terms of energy storage systems.
- strengthening global competitiveness of the European automobile sector, including the components and system suppliers, and to promote the creation of knowledge-based jobs in a sector of strong economic impact for Europe.
- favouring European leadership in the move towards the electrification of mobility and transport of goods and passengers.

Strategy targets

Innovating for the future: technology and behaviour

- Promoting more sustainable development

Documents:

 [D1.1 Periodic Activity and Management Report \(Other project deliverable\)](#)

Transport electrification, Vehicle design and

STRIA Roadmaps: manufacturing

Transport mode: Road transport

Transport sectors: Passenger transport

Transport policies: Decarbonisation, Environmental/Emissions aspects, Digitalisation

Geo-spatial type: Other