

PROJECT

AVTR

Optimal Electrical Powertrain via Adaptable Voltage and Transmission Ratio

Funding: European (7th RTD Framework Programme)

Duration: May 2012 - Apr 2015

Status: Complete

Total project cost: €5,276,034

EU contribution: €3,489,988



Call for proposal: FP7-2012-ICT-GC

[CORDIS RCN : 104074](#)

Background & policy context:

The AVTR project is part of the European Green Cars Initiative (EGCI) a Public-Private Partnership launched in the context of the economic crisis 2008, for research and development on zero emission, safe and efficient road vehicles and transportation aiming at economic recovery and the fight against climate change. A total of 1 billion Euro was announced to be made available jointly by the European Union and the industry for collaborative research projects mainly in the field of electrification but also for developing novel solutions in long distance freight and logistics.

Objectives:

AVTR addresses the development of a complete Electrical powertrain optimized as a whole of systems, targeting the largest market context (vehicles weighing less than 1000kg) and featuring the following objectives:

- Energy saving in pure urban drive up to 20% with respect to state-of-the-art fixed transmission ratio and avoiding the use of Rare-Earth Permanent Magnet Motors
- Fun-to-drive experience by adaptable transmission ratio allowing highest acceleration in all conditions
- Overall cost reduction per a defined range through a reduced battery capacity
- Reduced cost of ownership and maintenance by a significant reduction of electro-mechanical stresses due to power/energy transients.

Methodology:

The ambitious objectives are obtained by integrating in a single air cooled compact module: high-power electronic and related intelligence performing variable DC-DC converters and motor drive, asynchronous motor, Variable transmission block and differential.

Early demonstration of the technology will be made by preparing specific AVTRs to be installed on a FEV of new concepts for urban mobility and easily adaptable to the majority of electrical vehicles that will be sold before 2020.

Parent Programmes:

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

Institute type: Public institution

Institute name: European Commission

Funding type: Public (EU)

Lead Organisation:

Bitron Spa

Address:

Corso Principe Oddone 18
10122 Torino
Italy

EU Contribution: €699,720

Partner Organisations:**Oerlikon Graziano Spa****Address:**

Cumiana 14
10098 Rivoli
Italy

EU Contribution: €273,000

Cisc Semiconductor Gmbh**Address:**

Lakeside B07
9020 Klagenfurt
Austria

EU Contribution: €366,307

Interactive Fully Electrical Vehicles Srl**Address:**

Via Carle
12048 Sommariva Del Bosco Cn
Italy

Organisation Website:

<http://www.ifevs.com>

EU Contribution: €334,850

Fraunhofer Gesellschaft Zur Foerderung Der Angewandten Forschung E.v.**Address:**

Hansastrasse 27C
80686 MUNCHEN
Germany

Organisation Website:

<http://www.fhg.de>

EU Contribution: €708,558

Politechnika Warszawska**Address:**

Plac Politechniki 1
00 661 Warszawa
Poland

Organisation Website:

<http://www.pw.edu.pl>

EU Contribution: €355,920

Stmicroelectronics Srl**Address:**

VIA C.OLIVETTI 2
20864 AGRATE BRIANZA
Italy

Organisation Website:

<http://www.st.com>

EU Contribution: €305,873

Poli Model Srl**Address:**

Strada Carignano
10024 Moncalieri
Italy

Organisation Website:

<http://www.polimodel.it>

EU Contribution: €445,760

Technologies:

Road vehicle propulsion
Efficient and compact hybrid powertrains

Development phase: Research/Invention

STRIA Roadmaps: Transport electrification, Vehicle design and manufacturing

Transport mode: Road transport

Transport sectors: Passenger transport

Transport policies: Digitalisation, Decarbonisation, Environmental/Emissions aspects

Geo-spatial type: Urban