

PARTNER SEARCH TRA7-EU-SMCP-9

01 dicembre 2017

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Nuova richiesta straniera di partnership per un progetto futuro da presentare nel programma COOPERATION, tematica TRASPORTI- SST.

Per maggiori informazioni sulla Ricerca Partner e per conoscere i contatti del proponente, può consultare il seguente indirizzo web:

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<http://www.apre.it/formaAssist/scheda.asp?id=1239>

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<Reference n.: TRA7-EU-SMCP-9>

<Deadline: 30/09/2009>

<Programme: Trasporti>

<Project Title: E-LIGHT: Advanced Structural Light Weight Integral Chassis for Electric/Hybrid Urban Vehicles>

<Financial Scheme: Progetti in collaborazione - Small or Medium>

<Description: AREA/Topic: Advanced electric vehicle concepts

Subject: Vehicle Integration:

Subsubjects:

1 Safety (Active & Passive),

2 Advanced electric vehicle concepts

3 Smart controls to manage requirements to keep driving performance and comfort

Introduction

Advanced electric vehicle concepts will bring new opportunities to implement new technologies for the

development of the structures of the vehicles.

We must not forget that these new vehicle concepts should be environmentally friendly through low

consumption and low emissions. And the "old" architectures based on constraints dictated by mechanical,

thermal, or safety considerations should be changed to increase efficiency. This project gives the

opportunity to settle all the considerations regarding aerodynamics, comfort, reliability and safety for the

vehicles of the near future.

This proposal opens new opportunities never explored for light weight urban vehicles based on this new

requirements and challenges with the development of an advanced multi-material weight optimized vehicle

chassis specifically designed for electric/hybrid urban vehicles.

Objetives & Scope:

Objective:

The overall objective is the development of an advanced multi-material weight optimized vehicle

chassis specifically designed for electric/hybrid urban vehicle, through:

1 Optimisation of the structure (dynamics, passive safety and noise, vibration and hardness (NVH) for electric and hybrid vehicles.

2 Dynamic vehicular analysis of different electric motor configurations (wheel-hub, central engine, etc.).

3 Manufacturing process analysis, reducing manufacturing time and suitable for large series production.

4 Equivalent mechanical performance to ICE vehicles (crash, fatigue, etc.).

5 Minimize raw material and end-of-vehicle-life recyclability.

In order to be applied into electric/hybrid vehicles the following points will be taken into account and will

be studied during the project:

o Specific advanced chassis design for engine/motorisation characteristics (batteries, central or 'on-wheel-hub' engine, battery located in subframe, etc.).

o Particular vehicle dynamics of future electric vehicles will influence the requirements of the structure and the active safety systems. (Vibration and stiffness optimisation)

o Active safety components (steering, braking and suspension systems) of electric vehicles to fulfil the new requirements and different size/shape, they will also produce different geometrical requirements in the vehicle structure.

o New technological materials not used in ICE vehicles could be used in electric ones due to a more favourable cost-efficiency ratio, those materials will be studied.

o Solar cells integration to increase the energetic efficiency of electric vehicles.

Other Objectives:

1 Cost benefit analysis for new materials, since electric vehicles weight savings have a different cost-benefit ratio than ICE vehicles

2 Development/Adaptation of forming and joining technologies for electric vehicles materials and solar panels

3 New proposals of testing/mechanical requirements for electric/hybrid vehicle structures

4 Development of optimisation simulation tools considering cost, static, crash, fatigue and life cycle analysis

5 ¿Demonstrators/Prototyping?

Scope:

To accomplish these challenges, knowledge and technological capabilities have to be developed in the following main areas:

1. New concepts and designs
2. Tools and enabling technologies (design tools, simulation tools, evaluation tools, optimisation tools & validation)
3. Safety and security requirements for electrical/hybrid vehicles, regarding the new motors and batteries of these vehicles
4. Physical and virtual prototyping for performance assessment and evaluation

Approach/Working plan:

1. WP1 Concepts and Design
2. WP2 Structures Requirements Accomplishment
 - a. Static performance (stiffness optimization)
 - b. Dynamic performance
 - c. Fatigue & NVH performance
 - d. Crash performance
3. WP3 Life cycle and cost-benefit analysis for new materials and manufacturing process
4. WP4 Manufacturability
5. WP5 Enabling Technologies/Tools
6. WP6 Demonstration>

<Organisation Type: Centro di Ricerca>

<Partner Sought: TIER 1 and/or TIER2 suppliers>