National project

ECO-COMPATIBLE BUS OPTIMIZED FOR SUSTAINABLE URBAN MOBILITY

Funded under INDUSTRIA 2015 – Sustainable Mobility

DEFCOM – COMpetitiveness in the DEFormation

Funded under INDUSTRIA 2015 – New Technologies for the Made in Italy

INNOVATIVE LOW-EMISSION VEHICLE FOR THE TRANSPORT OF PRODUCT & PEOPLE

Funded by the Ministry of the Environment and Protection of Land and Sea - Energy efficiency measures and use of renewable energy sources in urban areas

MA-TR-ECO – Advanced materials for sustainable transport

Funded under the PON 2007-2013 – Research and Competitiveness

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INNOVAZIONE AUTOMOTIVE E METALMECCANICA
Soc. Cons. a r.l.

INDUSTRIA 2015

ECO-COMPATIBLE BUS OPTIMIZED FOR SUSTAINABLE URBAN MOBILITY

Budget | **~7,5 M€**

The project aims at developing a urban bus with hybrid powertrain with a minimum environmental impact with the following characteristics:

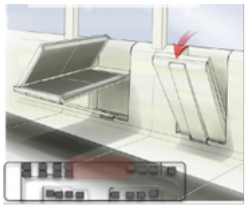
- **Improved weight vs dimensions** ratio thanks to the use of **novel materials**, **enabling technologies** and new manufacturing and design **methodologies**;
- **Improved ergonomic standards** and other aspects related to the use by users with impairments;
- **Modularity**, and increased possibilities of configuration and **customization.**

The proof of concept will be given by the realization of two prototypes:

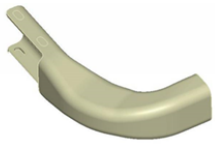
1. **HYBRIDECO**: bus with hybrid powertrain, with a minimum environmental impact, with a vehicle architecture which is able to host both the traditional powertrain and the diesel-electric propulsion system;
2. **HYNNOVECO**: bus with a lightweighted **spaceframe** (weight saving of 1 ton) thanks to the application of methodologies of structural optimization and novel technological solutions

IAM contributed to the following activities:

- Needs analysis of users with impairments/concept definition of ergonomic solutions for innovative seats/concept design for functional interiors re-configuration – with the support of the Associate **Design Innovation**
- Development and prototyping of re-configurable and lightweight interiors suitable also for users with impairments and their installation on the HYNNOVECO bus – with the support of the Associate **Lazzerini**




- Development and prototyping of an hydroformed node of a frame for structural weight saving – with the support of the Associate **Gigant**



Partners

IVECO FRANCE	MAGNETI MARELLI	VIBRA-TION X	AUNDE ITALIA	ARCHIMEDE ENERGIA	JOHNSON CONTROL	GARRONI PROGETTI	EXPANSION ELECTRONIC
IAM	CRF	SKF	UNI ROMA 3	POLIMI	DIGIGROUP	SYDERA	AUTOMOTIVE LIGHTING ITALIA
RE:LAB	MONET	UNI PARMA	UNI CATANIA	ENI SPA	ENECOM	PROPLAST	
UNI TRIESTE	DIMAC	ALTRA	MARANGONI	IRISBUS ITALIA	IN.TE.CO.	WEBASTO THERMO & COMFORT	

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INDUSTRIA 2015

DEFCOM Competitiveness in the deformation

Budget	~1,5 M€

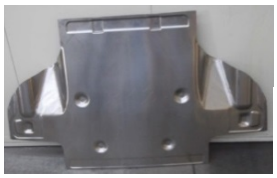
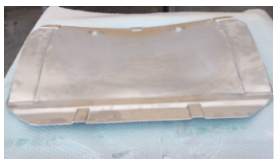
The project promotes the **innovation of *made in Italy* "*machine tool for deformation*"**, to enhance the competitiveness in this sector, particularly by introducing a radical increase of performances in relation to:

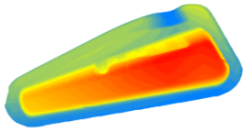
I - productivity – in terms of reduction of production time and waste production.

II - eco sustainability – in terms of reduction of the raw material and energy used per kg of final product, and reduction the spaces occupied by process sub-products.

IAM contributed to the following activities:

- tuning of stamping process, in particular **hot-forming and gas-forming of aluminium alloys**
- study of **hot deformation process and simulation**; manufacture of **low-cost mould and testing** through incremental forming process
- experimental analysis of flow-forming process for tubes with variable thickness
- engineering and development of **quality control cell** with optical vision
- development of **low-cost manufacture process** for realization of automotive components


Partners

IAM	TECHNOLOGY TRANSFER SYSTEM	FICEP	CRF	UNI PADOVA
HARKEN	CORTI F.lli METALMECCANICA	SUPSI-ICIMSI		UNI BOLOGNA
BLM	POLITECNICO DI MILANO	PRIMA INDUSTRIE		GIGANT ITALIA

INNOVAZIONE AUTOMOTIVE E METALMECCANICA Soc. Cons. a r.l.

MINISTERO DELL'AMBIENTE E DELLA TUTELA DEL TERRITORIO E DEL MARE

energy efficiency measures and use of renewable energy sources in urban areas

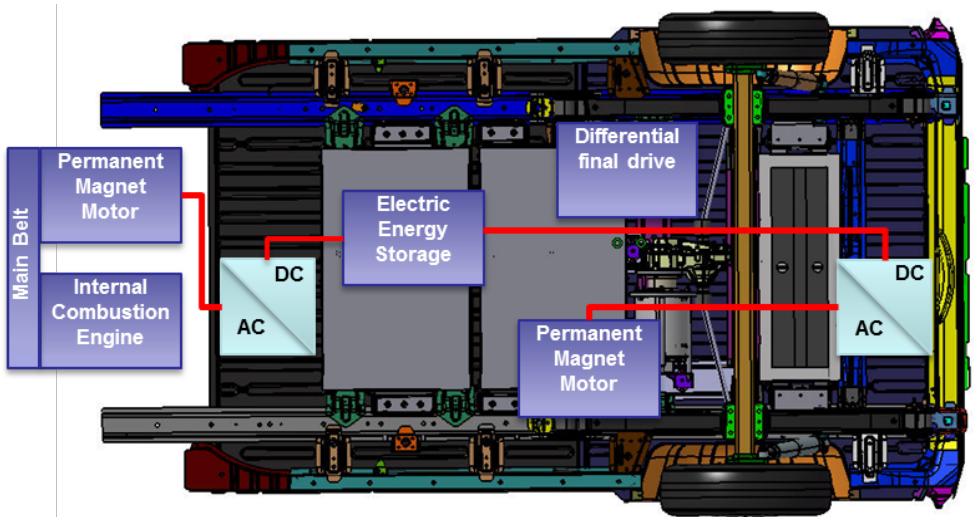
INNOVATIVE LOW-EMISSION VEHICLE FOR THE TRANSPORT OF PRODUCT & PEOPLE

Budget	~1,1 M€

The project aims at developing a flexible **hybrid powertrain** for **vehicles of category M1 and N1** for public transport (with an eye also on users with impairments) and for **last mile transport of goods**.
This solution allows to have a single vehicle with a double propulsion to be used according to requirements.
The proposed solution is a **two-mode HE-4WD hybrid propulsion** with the ability to carry out urban missions in pure electric mode.

Other features of the product are:
- **FLEXIBLE ARCHITECTURE CONVERTIBLE**
- **ERGONOMICS** in the DELIVERY and HANDLING of THE LOAD

IAM has been the Project Coordinator.



HE-4WD (Distributed Hybrid Power Split E-4WD Powertrain)

Partners

IAM · A.L.E.S.A. srl · SYDERA s.r.l. · univaq.it Università degli Studi dell'Aquila · ATA

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PON Ricerca e Competitività 2007-2013

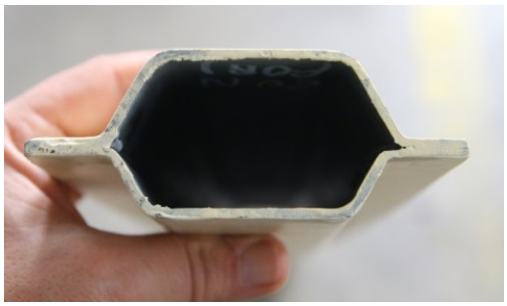
MATRECO - Advanced materials for sustainable transport

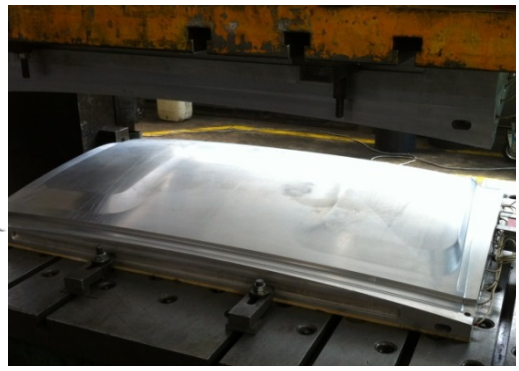
Budget ~1,5 M€

The project aims at researching materials with high technological content and their competitive transformation processes for the production of components and structures, for the customer satisfaction (more value at same price), and characterized by high environmental sustainability (less consumption during life cycle at same level of performance, from raw material extraction to recycling/reuse of the final material).

IAM contributed to the tuning of the thermoforming process of thermoplastic composites, through the realization of two applications for light commercial vehicle, which have different scope:

- crossbeam between cabin and cargo space, which has structural purpose,
- anterior roof with aesthetic purpose.





Partners

IAM	ANSALDO BREDA	CRF	Adler	ENEA
FIART	Uni della Calabria	Uni Napoli	Uni Bari	Ban Vautier