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DESIGN OF THE SUSTAINABLE URBAN VEHICLES - NEW CONCEPTS FOR PHOTOVOLTAIC INTEGRATED SOLUTIONS IN AUTOMOTIVE

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Abstract

The demand for new and high performance products in the automotive industry is increasing exponentially and this trend imposes innovative concepts for cars. The future solutions for the automotive industry may find their answer in the fabrication technologies and also in alternative propulsion and energy production.
The car design field cannot ignore the global economic crisis, imposing new approaches in terms of materials and cost effective technologies and by the means of environmental protection. Fundamental changes are compulsory by selecting alternative propulsion systems and considering the vehicle recyclability. The large variety of applications of photovoltaics in transportation, (for motive power or as auxiliary power units) can be preclusive for the emissions and noise pollution. The limitations of this technology depend on the available area on the vehicle, speed limit and requested autonomy.
This paper develops a synthesis on a set of novel concepts targeting to identify the possibilities to integrate new and sustainable technologies in the car design. The analysis of different solutions generates a series of conclusions that sustains novel concepts for green cars. Urban needs for fast and fluent locomotion and for efficient parking abilities are also considered.
A set of conclusions supports the idea of developing concepts for small capacity green vehicles.
The paper approaches the product development as a response to the necessity for sustainable solution integration in the bodywork, and is proposing new design concepts for green cars.
The development of the proposed design solutions was based on the principles of the concept development process described in the paper.

Key words: automotive, car design, photovoltaic integrated system, sustainable concept

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