



Turning a car into a hybrid-solar vehicle



The project, created at the University of Salerno, has passed the first selection of Horizon 2020

The project to transform a normal vehicle into a hybrid-solar one, saving energy, money and cutting emissions is Italian and comes from Salerno. A working group of the University of Salerno, led by Gianfranco Rizzo, coordinator of the in mechanical and management engineering courses, has built the HySolarKit project: this will enable a Euro 3 vehicle to become a Euro 4, thus gaining access to the limited traffic zones. For those normally driving in cities, the savings can reach 20%, with an estimated cost of the kit of approximately three thousand euro. After some years of work, and thanks to a first financing by the Ministry of Education, a hybridization system for front wheel drive cars has been patented and implemented: it involves the insertion of electric motors on the rear wheels and an additional Lithium battery, which turns the car into a 4x4 hybrid. A cable plugged into the diagnostics port (Obd) is connected to the control system which controls the electric wheels. “The system – explains Rizzo - does not require any additional sensors, has no impact on the driving style and does not touch the original control unit, which could result in the loss of the guarantee”. The integration with the photovoltaic happens via high-performance, flexible panels covering the hood and the roof; these are produced by the Italian brand Enecom. This way, the vehicle can operate in either electric or hybrid mode, preserving in this case the autonomy and performance of the original vehicle: indeed, with a plus in acceleration provided by the elec-

tric motors, and with an advanced control of the vehicle thanks to the four-wheel drive. The auxiliary battery can be recharged both by the rear wheels (regenerative braking) and by the solar panels, which can provide more than 1 kWh per day. The realization of the first prototype, mounted on a Fiat Punto, showed no special criticality of operation. The spin-off eProInn Srl was founded to successfully present this project to the phase 1 of the Horizon 2020 program (Sme Instrument). The proposal enjoys the advice of CiaoTech, the collaboration of Actua, a spin-off of the Politecnico di Torino holding a patent for integrating the engine to the electric disc

brake, by Landi Renzo, a leading manufacturer of Cng and Lpg systems, working to a hybridization project (Hers) complementary with HySolarKit, and the interest of Chinese and Maltese investors. Preliminary market research showed a good attitude of the potential users to purchase the kit and the integration with the photovoltaic. The Salerno researchers presented their studies in numerous international forums and received several awards. Rizzo is also one of the promoters of the “Mobicid - Digital Mobility Center” project, an initiative for the establishment of a high-technology industrial center on sustainable mobility in Campania. **-G.R.-**

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Solar-hybrid Fiat Punto car