

Hybrid Fuel Cell, Photovoltaic Autonomous system

C.Grolleau (1), S.Rouxel (2), S.Gasnier (2), P.Brault (1)

(1) GREMI, UMR 7344, CNRS-Université d'Orléans, BP6744, 45067 ORLEANS cedex 2, France

(2) CRESITT, 111 bd Duhamel de Monceau, 45166 OLIVET cedex, France

cedric.grolleau@univ-orleans.fr

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The SAPAC Project, aims to realize different devices coupling a fuel cell to renewable energy sources (for the time being: photovoltaic) offering a competitive alternative to batteries to power different autonomous systems.

The strength of such a storage system is linked to the hydrogen advantages: high autonomy per unit of mass and volume, seasonal storage...

A prototype has been achieved, it can power 250W with a storage of 2.5kWh. As designed, hydrogen tanks can easily be added to reach 17kWh with a weight of 180kg vs. almost 1000kg for lead batteries.

This "Hydrogen battery" can now replace a lead battery in an autonomous system thanks to its integrated energy management which take into account different factors (light energy available, hydrogen storage level...). This energy management is also monitored through a web interface which can give all information needed for maintenance: water level, hydrogen level, pressure, autonomy...

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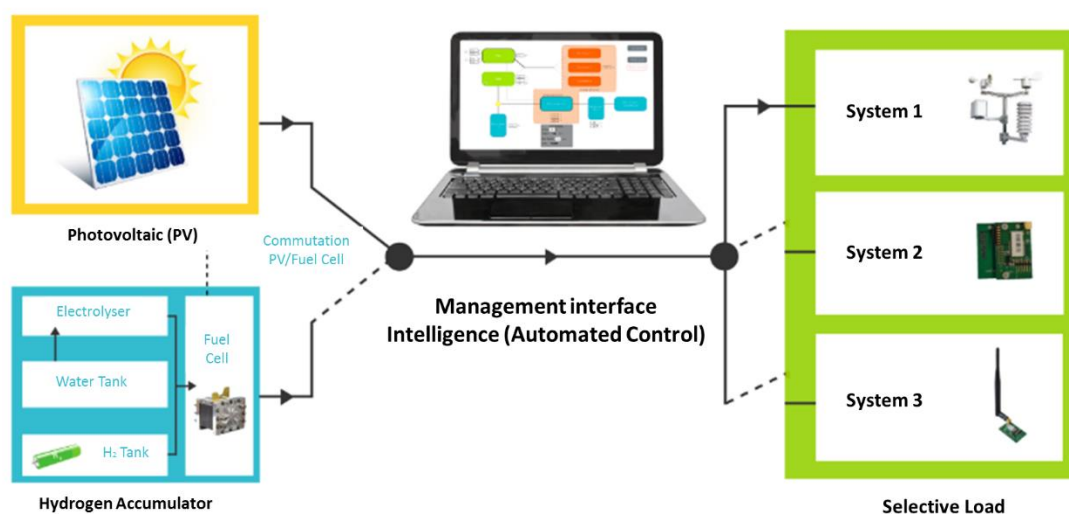


Figure 1: Flowsheet of the system