

OPTIMAL ENERGY: A DEVICE FOR THE CONTROL OF SOLAR DOMESTIC HOT WATER SYSTEMS

DESCRIPTION OF THE INVENTION

We have developed a micro controlled-based device designed to increase the efficiency of solar thermal energy. It is devoted to the automation of domestic hot water systems. It is based on a low-power consumption microprocessor and robust wireless communication network. The product is able to greatly increase the efficiency of the solar system while reducing the dependency on other energy sources (i.e. electric supply). It can be installed on any type of building and any kind of solar panel configuration.

Solar thermal energy is considered an effective means to increase the use of renewable energy sources in buildings, thus reducing the dependence from other more pollutant sources. It is worth noting that in several European countries (e.g. Spain) the construction directives oblige the installation of solar thermal panels in new buildings for the production of domestic hot water.

To sum up we offer a hardware and software solution oriented to ESCO's that increases the energy efficiency of solar water systems. Currently the presented device outperforms similar products in this field.



OPTIMAL ENERGY: A DEVICE FOR THE CONTROL OF SOLAR DOMESTIC HOT WATER SYSTEMS

BUSINESS FIELDS OF APPLICATION

The device is targeted to Energy Services Companies (ESCO). The European Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 suggests the creation of the so called ESCO's, that aim at the optimal profiting of renewable energies in Europe. The presented product suits totally the services offered by this kind of companies, who exploit clean energies (solar, wind, etc.) while reducing costs and improving the efficiency of such systems.

Sector: TICs

TECHNICAL AND BUSINESS ADVANTAGES

The device is oriented to the monitorization and control of thermal solar panels devoted to the production of domestic hot water. The product can be used to directly commercialize solar energy. The main steps in this application are described next:

- The ESCO takes charge of the solar thermal system.
- The devices are then installed to increase the efficiency of the solar panels and monitor the energy consumption of each end user.
- The ESCO sells the energy to each individual consumer as any electrical distribution company or gas company will do.

We consider that the described application forms a niche market that will surely be exploited across Europe in the forthcoming years. As mentioned before, the European Parliament promotes ESCOs as a way to increase the use of renewable energies in European countries.

The proposed device offers a series of crucial advantages over its main competitors, mainly:

- Allows to store and monitor the energy consumption of each user.
- It is based on the latest wireless technologies, thus avoids time-consuming need to deploy wires.
- It is a low cost device.
- It possesses a low electrical power consumption.
- Can be reprogrammed remotely, thus adapting to changing situations without needing to visit the installation.
- Uses open standards for communications and data storage. Thus can be easily connected to other existing databases.

OPTIMAL ENERGY: A DEVICE FOR THE CONTROL OF SOLAR DOMESTIC HOT WATER SYSTEMS

DEVELOPMENT STAGE OF THE TECHNOLOGY

At the moment we have several working prototypes that have been installed at our experimental facilities. The patent includes the hardware part of the system. Finally, we possess working software that can be run on different platforms (Windows, MAC and Linux). The code is based on Java and has not been released yet.

INDUSTRIAL PROPERTY RIGHTS

Protected by a patent in Spain.

TYPE OF COLLABORATION SEEKED

License Agreement with companies willing to market the technology.

CONTACT

Begoña García
Oficina de Transferencia de Resultados de Investigación
UNIVERSIDAD MIGUEL HERNANDEZ
E-Mail: otri@umh.es