Stignergy

Using artificial intelligence to achieve energy efficiency

The Yverdon-based start-up offers an energy management system based on an artificial intelligence technology inspired by the natural world.

How can organisations reduce their electricity costs and also the load that a site places on the grid? Stignergy has developed a system for managing electricity consumption, known as SEMS (for Smart Energy Management System). This technology controls consumption and distributes electricity dynamically within a single entity, such as a factory, to avoid peaks in the load and eliminate unnecessary consumption, thus reducing electricity costs.

OPTIMISING ENERGY DEMAND

The solution, which has received support from the Swiss Federal Office of Energy, relies on a collective intelligence technology inspired by the natural world. It proved its worth at the end of 2015, at the Usines Métallurgiques de Vallorbe (UMV) site, as part of a partnership that also included Romande Energie. This full-scale test went on for six months.

Practically, this meant that each energy-consuming device in the factory was fitted with a SEMS module, known as a “SEMS terminal”, which analysed the energy consumption of the device in real time, and shared the information with all the modules installed at the same site. Working out all the requirements in this way, the SEMS modules can optimise overall demand by distributing energy requirements dynamically throughout the day, without disrupting the output of the devices concerned. This limits peaks in electricity consumption, which adversely affect the grid. At the end of the test period at UMV, "the reduction in energy costs attributable to installation of the system was 15%," points out Sami Najjar, the founder and CEO of Stignergy. What's more, electricity distributor Romande Energie now includes the SEMS modules in its offer to major consumers.

EMBEDDED INTELLIGENCE

Sami Najjar sees in these successes the practical implementation of an idea that he had in 2009. At the time, this entrepreneur was an R&D engineer in machine-to-machine systems at the School of Engineering and Management Vaud (HEIG-VD). In 2012, he formed Stignergy SA, which was involved in the industrial production of the SEMS system. “Smart meters didn't have any embedded intelligence,” he recalls. “They measured energy consumption, but they weren't sufficiently intelligent to take decisions aimed at reducing it.” So Stignergy developed terminals that can communicate with other terminals. The SEMS project obtained CHF 1.8 million in development funding from research funds and from the Commission for Technology and Innovation, as part of the support given to a CTI project. Stignergy also received support from the Foundation for Technological Innovation (FIT), in the form of a loan of CHF 100,000. The start-up now has a recorded turnover of CHF 400,000 and is making preparations for its first funding campaign in summer 2017 (CHF 1.5 million). The SEMS modules have already been successfully installed at industrial sites and in hotels, and Stignergy is also fitting them in schools, universities and hospitals.

> THE SEMS MODULES CAN OPTIMISE OVERALL DEMAND BY DISTRIBUTING ENERGY REQUIREMENTS DYNAMICALLY THROUGHOUT THE DAY, WITHOUT DISRUPTING THE OUTPUT OF THE DEVICES CONCERNED.

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