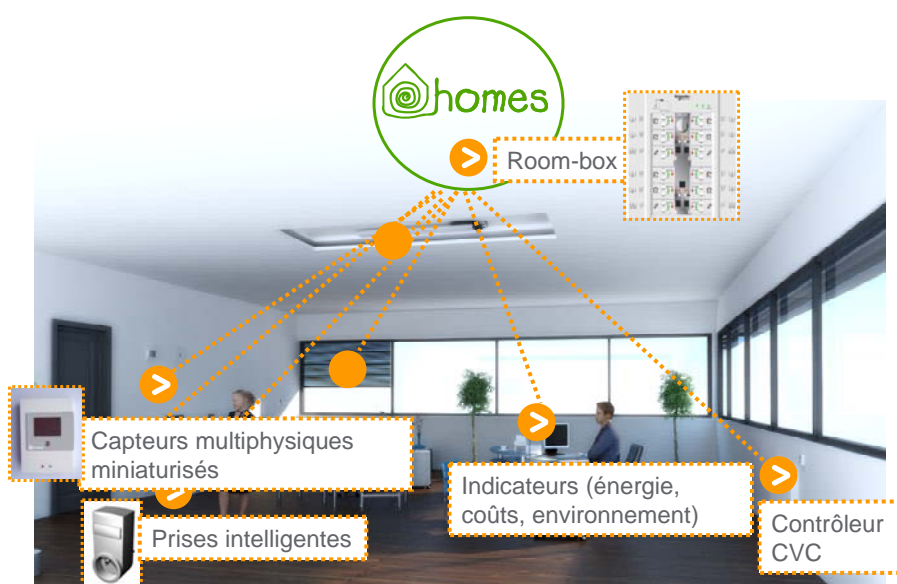




Half way through the programme
HOMES unveils its first results and prototypes

Press Kit
September 21, 2010



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Paris (France), September 21, 2010 – HOMES, a collaborative innovation programme, presented its first results and prototypes at the Intelligent Building Systems exhibition held on Tuesday, 21 September in Paris.

Five HOMES first prototypes were unveiled, they demonstrate how to save every possible drop of energy, by the means of an optimized room by room or area by area management system, and of high-tech environmental sensors...but also by collaboration and simulation tools, enabling building management players to design and implement the most energy efficient schemes.

"By displaying its first functional prototypes half way through the project, HOMES once again demonstrates the importance of active collaboration between different players in building management," Didier Pellegrin, HOMES programme manager, explained. *"We are convinced that the innovative solutions generated by HOMES will revolutionise the way energy is used in buildings, while improving comfort for occupants."*

Each prototype was presented by the programme partners:

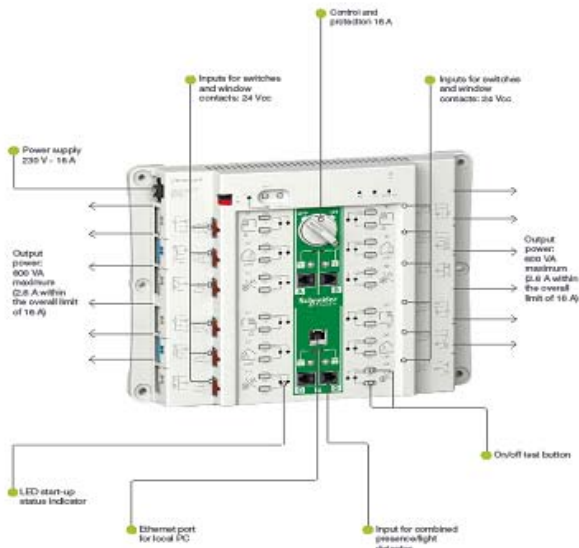
- ◆ the Roombox solution, a decentralised and cross-application electric command and control architecture, from Schneider Electric;
- ◆ the HVAC (Heating, Ventilation and Air Condition) emissions controller, for more accurate ventilation management and improved transmission of information, from CIAT
- ◆ the wireless and autonomous sensor, integrating all environmental parameters into a same device, from Schneider Electric and CEA;
- ◆ the eveBIM collaborative software, designed to integrate ideas on energy efficiency at every stage in the construction and management of a building, from SCTB;
- ◆ the ZigBee and carrier current equipment, to make available to the living environment an integrated group of products to manage electrical load on one hand and measure consumption on the other, from Schneider Electric and Watteco.

These first HOMES prototypes have benefited from tests on pilot sites, a major stage in the project, launched in February 2010 in partnership with the Fédération Française des Installateurs Electriciens (FFIE¹).

HOMES, a cutting-edge research project which includes technological, marketing, communication and standardization studies, is working to create a coherent and integrated set of solutions for better energy management in buildings without jeopardising the wellbeing and comfort of occupants. These solutions are tested and validated at the pilot sites, but also on validation platforms and through simulation tools in order to guarantee their energy efficiency potential.

¹ French Electrical Contractors Association

Presenting the first prototypes



> Roombox

Project leader: Schneider Electric

The Roombox solution is a prospective product involving a decentralized and cross-application control and command electrical architecture. The Roombox powers, protects and controls lighting, shutters and blinds, heating, ventilation and air conditioning (HVAC) all at once.

It also carries out four other essential functions: electrical distribution, measuring consumption, controlling each electric circuit and offering individual protection for electric circuits.

Installing a Roombox reduces the use of cables by 30 to 60% and the time needed to install and reconfigure offices is divided by 2.

The main assets for this first version of cross-application architecture delivered by the project are

easy wiring and programming, as well as a more reliable electrical distribution system. The energy efficiency algorithms will soon be integrated.

> HVAC emissions controller

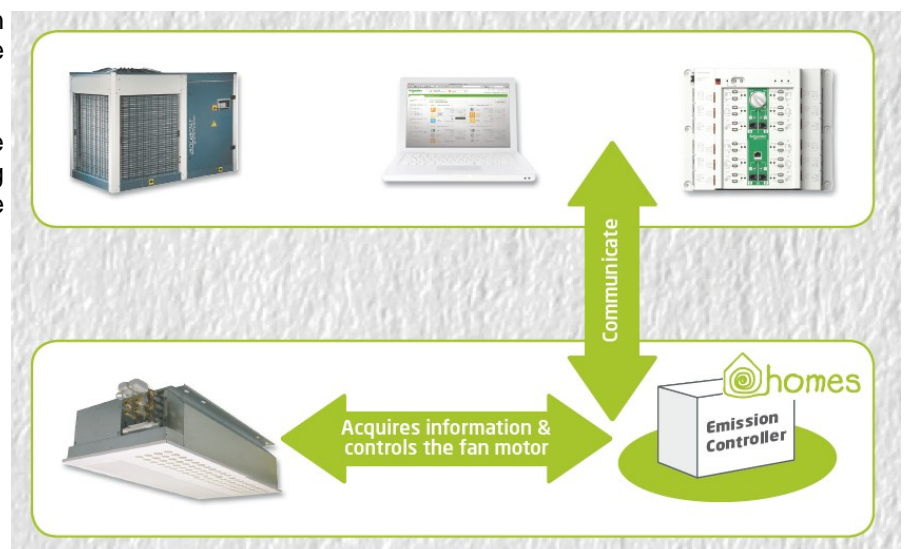
Project leader: CIAT

The main objectives of the high energy efficiency HVAC emissions controller are:

- ◆ To increase environmental comfort, by tailoring ventilation to a precise need at a point in time and minimising noise during speed changes in ventilation;
- ◆ To achieve the highest possible levels of energy efficiency by using heavy duty motors and finding a way of limiting the production of heat or cold to what is actually needed;
- ◆ To raise awareness of energy consumption by making real-time consumption indicators available to those managing and maintaining the system

The HVAC emissions controller controls the ventilation motor speed and its water supply. It receives information from local sensors and assesses thermal and electrical consumption in real time. It communicates with the Building Management System (BMS) and/or the Roombox as well as the thermal production unit (e.g. Chiller or Heat Pump): this enables taking into account instructions requested on a global building level, and adjusting production to local need. The emissions controller also provides detailed consumption information broken down by area, using the communication functions.

The controller functions have been defined. The following stages in the project will be integration and validation tests.



Presenting the first prototypes

> Autonomous and wireless environmental sensor

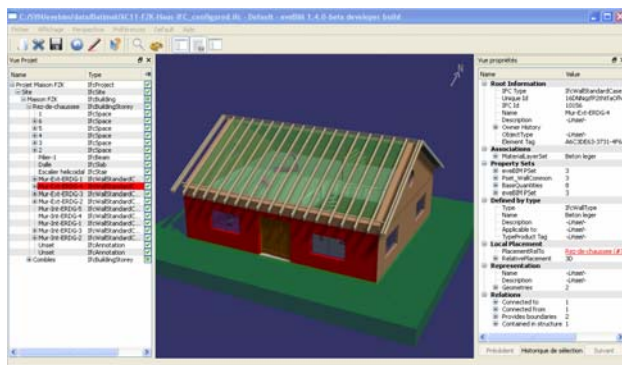
Project leaders: CEA - Schneider Electric

The autonomous and wireless environmental sensor aims:

- ◆ To acquire data which plays a part in perceptions of environmental comfort in real time;
- ◆ To integrate this data into a single device to reduce costs;
- ◆ To be simple to install and not require life-long maintenance, and therefore be compatible with all types of building, in particular those being renovated.

The environmental sensor is self-powered: it is powered by a solar cell and communicates the information it has gathered over a wireless network, using the ZigBee protocol. It has low energy consumption (5µ watts), which guarantees that it remains functional even in very low levels of light: it will function for two months in an unlit room.

A first test version is already available. A second, optimised version is planned for the fourth quarter of 2010. It will be 4 times smaller!



> eveBIM

Project leader: CSTB

eveBIM is a software tool designed to facilitate collaboration between different building management players. It is a means of sharing building data and thus leads to greater efficiency in everyone's work: reducing deadlines and errors, encouraging collaboration. It integrates an energy efficiency dimension into each stage of a building's development and management by simplifying interfacing with simulation and assessment tools, as well as monitoring energy efficiency.

The project aims to develop an integrated group of IFC compliant software. A first prototype to visualise IFC files (3D views and objects) has been developed. An interface with energy and environment simulation tools (including SIMBAD) is being developed:

- ◆ Preparing data for simulation (pre-processing);
- ◆ Visualizing results (post-processing).

> ZigBee equipment and carrier current for in-house energy efficiency

Project leaders: Schneider Electric - Watteco

The idea is to equip the space with an integrated group of products to manage electrical load on one hand and measure consumption on the other. They meet the "smart grid" requirement in making the energy consumed visible and executing energy efficiency algorithms. A first series of prototypes was completed using ZigBee radio communication and a WPC* carrier current:

- ◆ ZigBee CIS (Customer Information Systems) to read information relayed by the electronic meter;
- ◆ Reception module for digital photo frame to display cost and energy consumption information;
- ◆ A controllable communicating plug to control electrical load depending, for example, on energy prices.

A directional radio remote control, the "radio pointer" has also been developed to easily link equipment and simplify its installation. New functions will be studied in the rest of the project: advanced control algorithms, monitoring and consumption tendencies functions, optimized electric vehicle charging devices, etc.

* WPC : Watt Pulse Communication

Biographies



Didier Pellegrin
HOMES Programme director

Didier Pellegrin graduated from the Université Joseph Fourier in Grenoble in 1984 where he was awarded a DESS in Computer Science. In 1996, he turned into a Doctor of Applied Mathematics in Neural Networks, at the same university. He published several articles on neural networks: « On learning abilities of random boolean networks » (Cognitiva 1985), « Dynamics of random boolean networks » (Springer Verlag 1986), « Specific roles of the different boolean mappings in random network » (Bull Math Biology 1986), « Emergence of classification procedures in automata networks as a model for functional self organization » (1986), « Calcul de constantes par un logiciel multi-précision (1985) et Algorithmique discrète et réseaux d'automates » (1986). Didier Pellegrin joined the Merlin Gerin Research Department in 1986 where he was Director of the Artificial Intelligence Service in Grenoble. He then became the Director of Schneider Electric's Advanced Computer Science Research Department, and subsequently led Technology Projects. He was then put in charge of the Schneider Electric Collaborative Programme Portfolio. Didier Pellegrin was appointed HOMES Programme Director in 2006.

Olivier Cottet
HOMES Programme Marketing and Job Lines Director

Olivier Cottet is a chartered engineer, a graduate of the Institut National Polytechnique in Grenoble, with a diploma from the Ecole Supérieure des Affaires. He joined Schneider Electric in 1980. He has been the HOMES Programme Marketing and Job Lines Director since July 2008. The start of his career at Schneider Electric led him into various operational functions in PLC activities, low tension electric distribution and high tension network management. Initially an R&D engineer, he soon specialised in industrial marketing. He joined the Schneider Electric France division in 1995 and became its marketing director for the buildings and residential markets. As such, he held various positions for the collective development of intelligent building markets in the KNX, ADDI and Europtibat organisations and the Gimelec or Domergie professional bodies, holding the position of vice-President until 2009. He managed business development strategy for the ISC business since 2007.



Bertrand Lack
Innovation and Change Management Project Manager, Schneider Electric

Bertrand Lack started his career at Schneider Electric in Japan in 1990, developing the Group's Low Tension activities there. Back in France in 1992, he took part in several Low Tension offer launches aimed at the Asian market. In 1997, as the marketing director in the BT table (Prisma boxes) systems offers management team, he initiated the range's renewal. In 2004, he was given responsibility for a project to devise breakthrough solutions in the final and controlled electrical distribution areas. This mission led him to run marketing and strategy analysis for the target market sectors, putting in place investigation and architectural definition processes, implementing a procedure for innovative research in parallel to the architectural processes, running the product research and programme and preparing their distribution.

Biographies

Marc Altazin

Research and Innovation Director for the CIAT Group

Marc Altazin graduated as an engineer from the Ecole Centrale de Paris and has been, since 2006, the Research and Innovation Director for the CIAT Group (Culoz 01) and a member of the executive committee. He is in charge of Group research and innovation strategy. He manages three laboratories (35 people, 3 doctors, 13 engineers) covering Energy (thermal transfers, thermodynamic systems, aerualics), Quality of Indoor Environments (comfort, acoustics, air purification, health) and Electronics (regulation, supervision). He is also in charge of the test laboratory including ten test cycles as compliant with EN and ISO standards. He is responsible for defining and managing R&D programmes as well as setting up a network of special partners (universities, technical centres, professional bodies).



Pierre Colle

Expert Projet Efficient Home



Pierre Colle holds an Electronic Engineering degree from ISEN and an MSC in telecommunications from King's College London in 1993. Before joining Schneider Electric, he managed the engineering department of a start-up designing software tools for board manufacturing and FPGA debugging. He also worked for the Nortel Telecommunications Company for several years as designer, then a software architect for projects such as Voice over IP and UMTS. Pierre is currently project technical leader within the Technology and Innovation department of Schneider Electric He is in charge of communication architecture studies for the residential environments within the HOMES innovation collaborative programme. Pierre's main areas of expertise are: software development, communication protocols and, more broadly, architecture.

Gilles Chabanis

Sensor Project Manager, Homes Programme

Gilles Chabanis obtained his PhD in Physical Chemistry in 1997 from the University of Montpellier before working as a Post Doctoral Research Fellow at the Chemistry Department of University College London on a European Research project aimed at developing semiconducting oxide gas sensors. He acquired many years experience of sensor development as innovation project leader for the development of Aircraft Fire Detection Systems at Siemens. Thereafter, he worked as product manager for Aerospace fire detection for Siemens before joining the Schneider Electric Innovation Department in 2007. He is currently project leader of the sensors project dedicated to the development of self-powered wireless multisensors for Buildings within the frame of the HOMES Programme.



Florent Coudret

Project Leader for Digital Models, CSTB



Florent Coudret joined CSTB in 1996 for a thesis on developing a virtual reality platform for the construction sector. In 2000, he became a research and development engineer working on urban virtual environments. Florent took part in several European projects, such as Divercity (developing a cross-disciplinary digital model) or Vi-man (inserting virtual characters into the digital models). He developed several digital models, fleshed out with results from scientific simulations (temperature, lighting, acoustics) in the construction sector. Florent is currently managing the development of eveBIM, a cross-disciplinary platform which allows different building management players to work, collaborate and share around a digital model.

Press Contact

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Focus on HOMES, the only research programme which extends from marketing studies to the deployment of solutions

- ◆ Framing studies allow identifying energy efficiency factors, specifying environmental needs and user values, understanding regulation and standards in development and conception and optimization of systems architecture.
- ◆ The analysis of emerging or existing technology is carried out to design prototypes
- ◆ Pilot sites, which are subject of the cooperation agreement between HOMES and the FFIE, are ground to test and validate prototypes.
- ◆ Communications strategies pave the way for deploying solutions.



About HOMES

Homes and buildings for Optimized Management of Energy and Services

The HOMES collaborative innovation programme is designed to create solutions for achieving optimal energy performance in all buildings. The four-year (2008-2012) programme is supported by the French Agency for Innovation (OSEO) and led by Schneider Electric. Its thirteen members are manufacturers and researchers with synergistic expertise in building management: CEA, CIAT, CSTB, Delta Dore, EDF, Idea, Philips Lighting, Radiall, Schneider Electric, Somfy, STMicroelectronics, Watteco and Wieland Electric. Together, they are designing solutions to optimize energy use, diversify energy sources, sustain energy performance and facilitate the deployment of energy management systems in new and existing commercial and residential buildings in Europe.

www.homesprogramme.com