

Control system of NEST

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NEST – research platform for future building technologies

NEST is a research and innovation platform for construction and energy solutions of the future. Leading research and industrial partners jointly develop new technologies and systems. The vision is to bring innovative construction and energy technologies in the market as fast as possible to help sustainable buildings make a breakthrough as follows:

- Boast a minimal energy requirement
- Produce a minimum amount of greenhouse gases and reduce the ecological footprint
- Be economical with and partly recycle water

NEST will serve as an academic guesthouse and office environment for researchers from all over the world. The goal is to run the building almost exclusively on renewable energies. NEST is currently under construction and will be ready in January 2016.

NEST – a flexible platform for research and innovation units



NEST is equipped with an Energy Hub

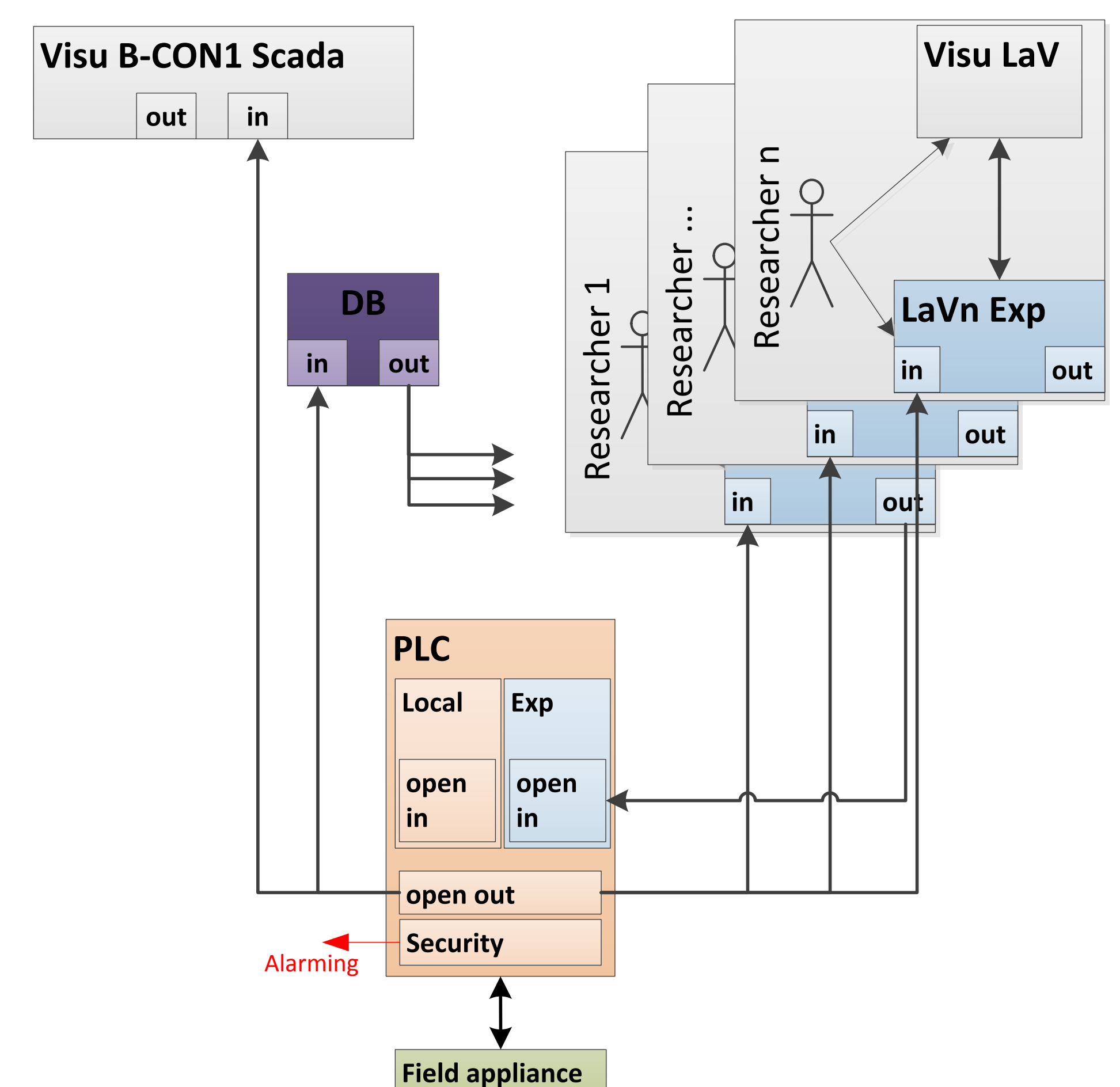
NEST consists of a central structure, the “backbone”, and research and innovation building (called units). The backbone provides the supporting structure and the necessary media (electricity, water etc.) for the units.

The research and innovation units are designed as apartments or offices. One special unit is the Energy Hub, which optimizes the energy management between the units.

NEST – a control system to investigate Smart applications

NEST will be an open platform to test new measurement, control and regulation technology concepts and validate different types of use. As a living lab, the control system has to address many issues:

- Guarantee a minimal comfort as well as emergency functions in case an experiment crashes
- Enable interfaces to different research projects
- Ensure conventional control topics of energy efficiency and safety



Control system in experimental mode

To have free access to any controllable device in NEST, an industrial Programmable Logic Control (PLC) was chosen instead of a building controller. This PLC is compatible with LabView, through which all possible control strategies can be tested.

HeatReserves is the first project to be demonstrated on NEST. The air conditioner of the building backbone and the units will be equipped in order to test the control schemes developed in HeatReserves Workpackages 2 & 3.

