

Bachelor / Master Thesis:

Evaluation of a cloud-controlled heating, ventilation and air conditioning unit

In times of climate change, research on scalable and flexible technologies to run energy systems is of big importance. The building sector in Germany causes approx. 30% of the end energy consumption. Hence, the Institute for Energy Efficient Buildings and Indoor Climate (EBC) does research in the field of monitoring and intelligent control of energy systems and large-scale districts. The Internet of Things (IoT) and the concept of cloud control are promising key technologies.

In the past, the automation system of a heating, ventilation and air conditioning (HVAC) unit at the EBC was transformed from its conventional control to a prototypical IoT gateway. This gateway sends the gathered data into a cloud platform where the data can be monitored on the one side and control algorithms run on the other side. In this thesis, you will develop key performance indicators (KPI) to properly evaluate the IoT system. Furthermore, you will create test procedures and run them on the HVAC unit to determine the developed KPIs and elaborate the advantages and disadvantages over the conventional system.

Your tasks:

- ▷ Developing performance criteria
- ▷ Creating test procedures
- ▷ Running the tests
- ▷ Analysing the results with the developed criteria

Our profile:

The E.ON Energy Research Center at RWTH Aachen University deals with sustainable energy supply concepts that take account of technical feasibility as well as social and economic aspects. The reduction of primary energy consumption in buildings and an increase of indoor comfort are among the research tasks of the institute.

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