# Master-Thesis

Cloud based platform for household energy management

Context:

This thesis is about cloud-based implementation of Energy Management System by using use case compatible FIWARE enablers.

To implement a cloud-based Smart Energy platform, ASC used FIWARE (https://www.fiware.org/) in some projects such as FINESCE and FISMEP. FIWARE is an **open source initiative** defining a universal set of standards for **context data management** which facilitate the development of Smart Solutions for different domains such as Smart Cities, Smart Industry, Smart Agrifood, and Smart Energy. Using FIWARE provides opportunities of testing new services and components at different levels, ranging from pure software testing to hardware and Power-Hardware-in the-Loop.

Within research project *InFiS* connection of several test benches of RWTH will be implemented to simulate all of devices in real time. Each test bench has specific devices that will be used and interacting with the platform.
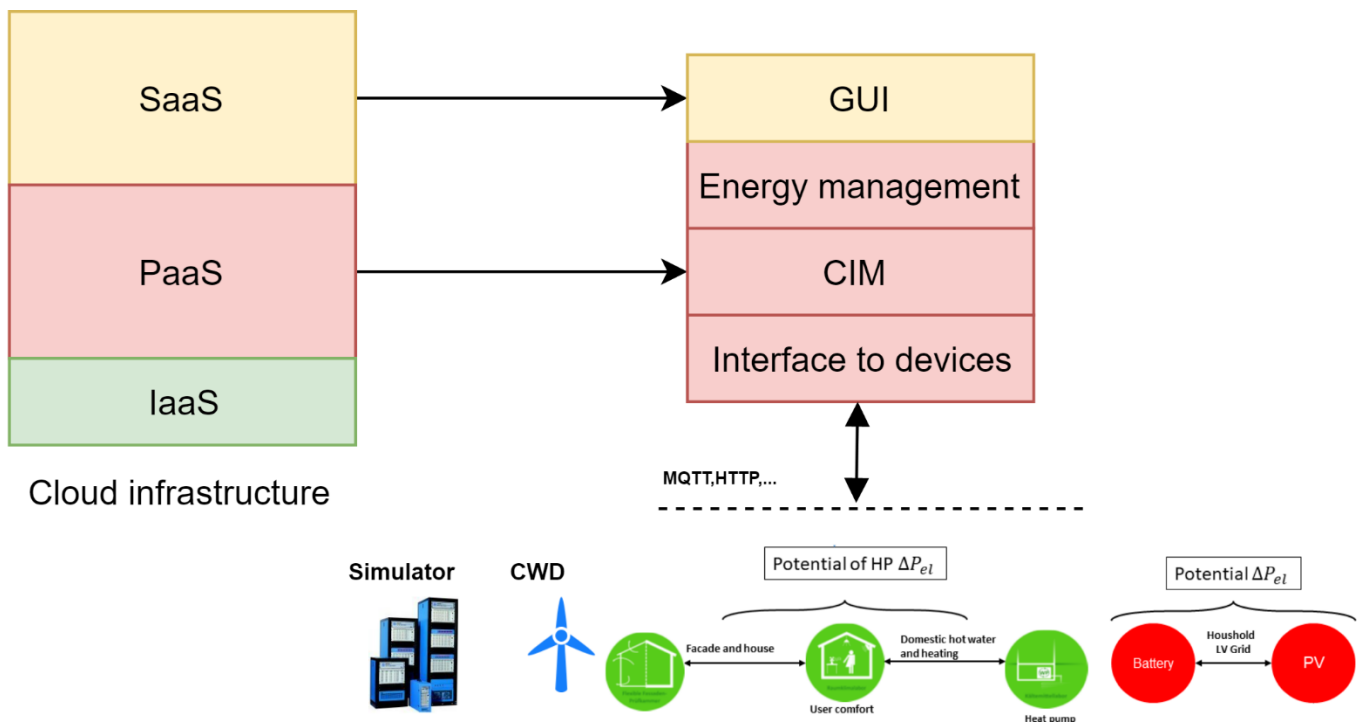
Task:

Main task and goal of the thesis is to implement household energy management on the existing cloud infrastructure.

- Literature review of household energy management algorithms suitable for current infrastructure
- Implementation of the energy management service
- Evaluation of results and improvement

Your profile:

- Have a knowledge of cloud infrastructure, Docker, ICT , networking and communication protocols
- Good knowledge of programming languages like about Python, C++
- Knowledge of some optimization algorithms is an advantage

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