Lab Course (Fachpraktikum)

Electricity Demand-Response Management

Summer 2019

Description

In the context of the smart grid, demand-response is related to changing the patterns of electricity consumption of end-users in response to incentives or price signals given by electricity providers usually when using distributed electricity generation. The goal of this course is to build a simulation platform to manage demand-response of a microgrid (a group of distributed generation sources). The platform will represent a realistic microgrid implementation consisting of two renewable distributed generation sources (PV and wind turbine), and two end-users (a low and a medium load) that are connected to each other and to the main power grid. The management of demand-response will be performed by a decision-making component using either a centralised or distributed method. The user will be able to visually observe the demand-response and switch between the two decision-making methods.

The course is targeted at students of Computer Science (Informatik) and Software Engineering (Softwaretechnik), M.Sc. or Diplom. The number of participants is limited to 12. Please note that this course is held in English.

Topics

- Demand-response models and principles
- Demand-response platform design
- Building a realistic model for demand
- Creating a tool for simulating response signals
- Visualisation
- Decision making

Prerequisites

- Service-Oriented Architecture
- Object-oriented programming (e.g., Java, Scala, Python)
- Web development (e.g., Angular)
- Containerization (e.g., Docker)
- JSON
Contact

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