FlexHousing: Flexoffer concept applied to house energy automation

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<th>Co-financed by CISTER Research Unit - CEC/04234</th>
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Objectives

- Creation of a pilot application for the application of the flexoffer concept to smart housing
- Integration of external technologies within the Arrowhead Framework.

Arrowhead Framework

- A Service Oriented framework for IoT automation applications
- Core system:
  - Authorization: authenticates and authorizes connections between consumers and producers
  - Orchestration: defines connections according to a specific criteria
  - Registry: allows to discover producers

FlexHousing Concept

- Manage devices
  - Register, edit and delete
  - Turn off and on any device. Every plug has the capability to cut the flow of electricity
- Monitors energy consumptions from devices
  - Stores energy consumption from devices
  - Displays energy consumption graphs
- View and manage Flexoffers
  - Create flexoffers for his appliances
  - Compare received flexoffers with actual consumption from devices
- Manage the house
  - Create new rooms
  - Create devices
  - Check the relationship between the rooms and devices

Flexoffer

A flexoffer specifies an amount of energy, a duration, an earliest begin time, a latest finish time, and a price, e.g., "I want 50 KWh over 3 hours between 5 PM and 12 PM, for a value of 0.25 €/kWh".

System Overview

References