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S³Grid RTD 2014

FNSNF

A Real-Time Smart Building Management Platform

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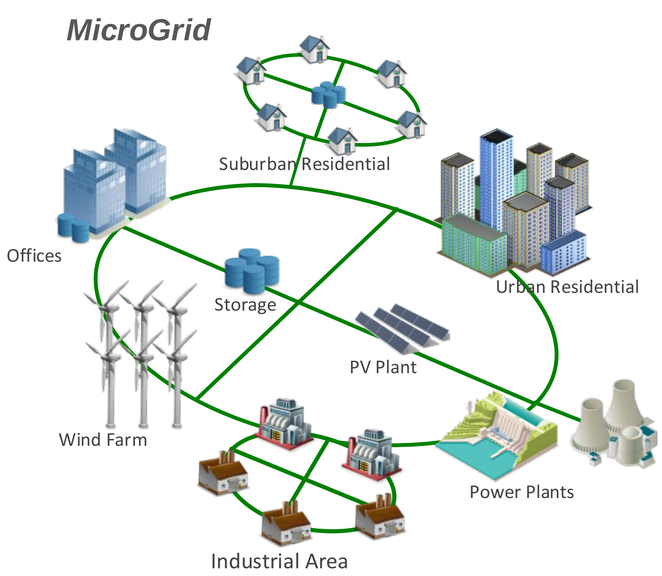
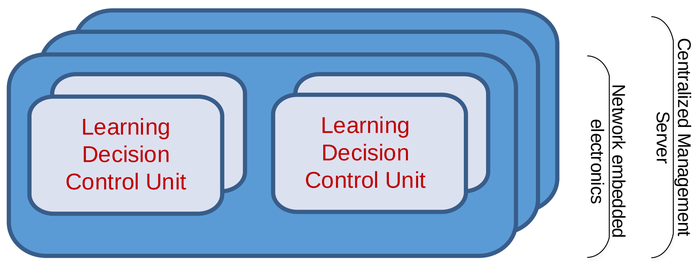
Demand side management



Demand Response



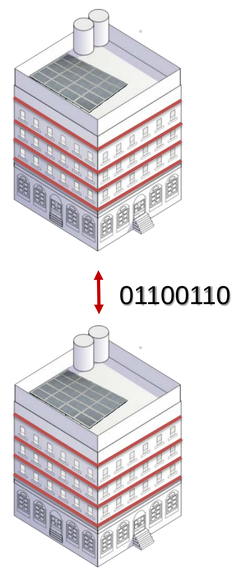
Learning Decision Control Unit

- Data mining algorithms on stored building data
- Fuzzy logic decision
- Predictive control

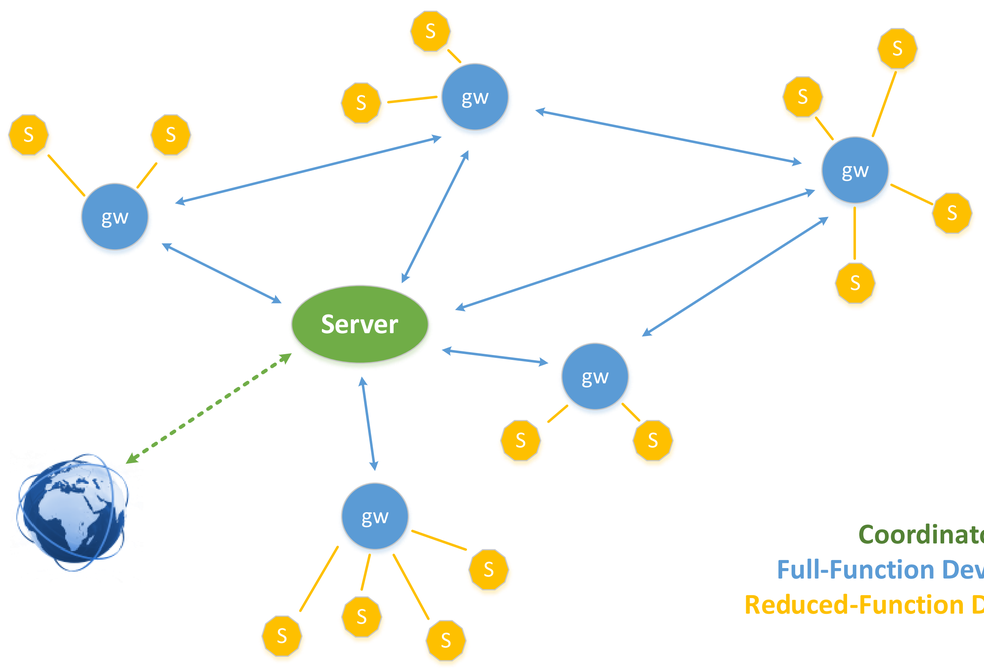
Targets

- Energy Optimization
- Human comfort
- Inter-Building communication

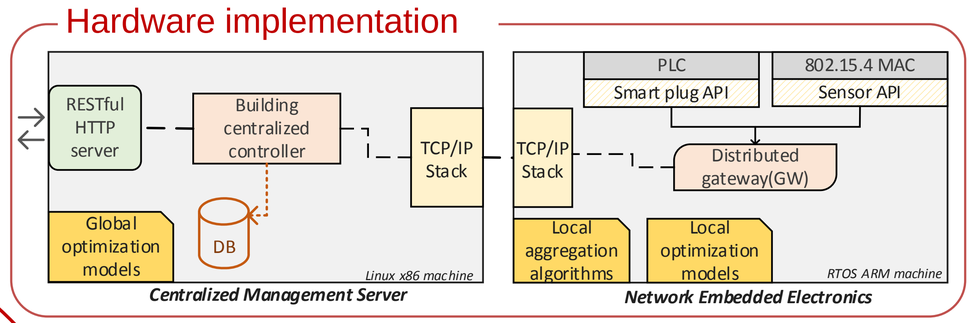
Inter-Building

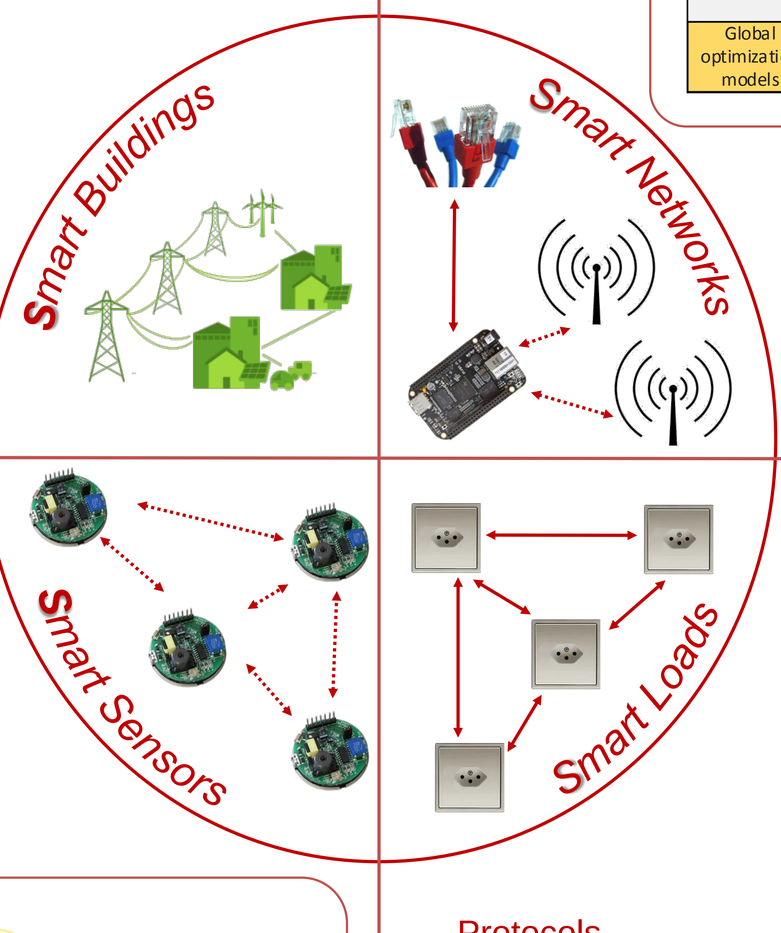


Hybrid Topology: Mesh - Star



Hardware implementation





Management

- Dynamic server
- Front-end of building to smart grid
- Specialized DBs

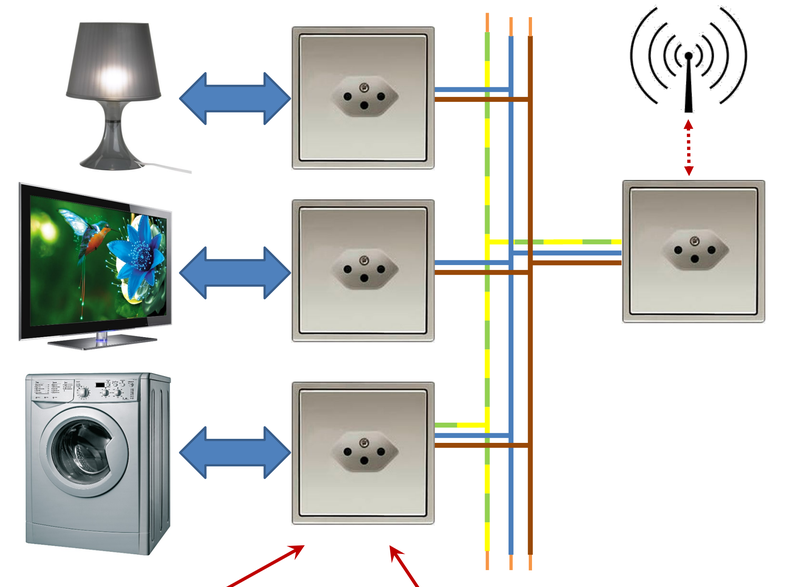
Networking

- Data collection
- Real time control

Zero power sensors

- High performance PV cell
- High efficiency battery charger at low voltage
- Low power consumptions
- **Smart wireless transmission**
  - **Low power, high reliability**

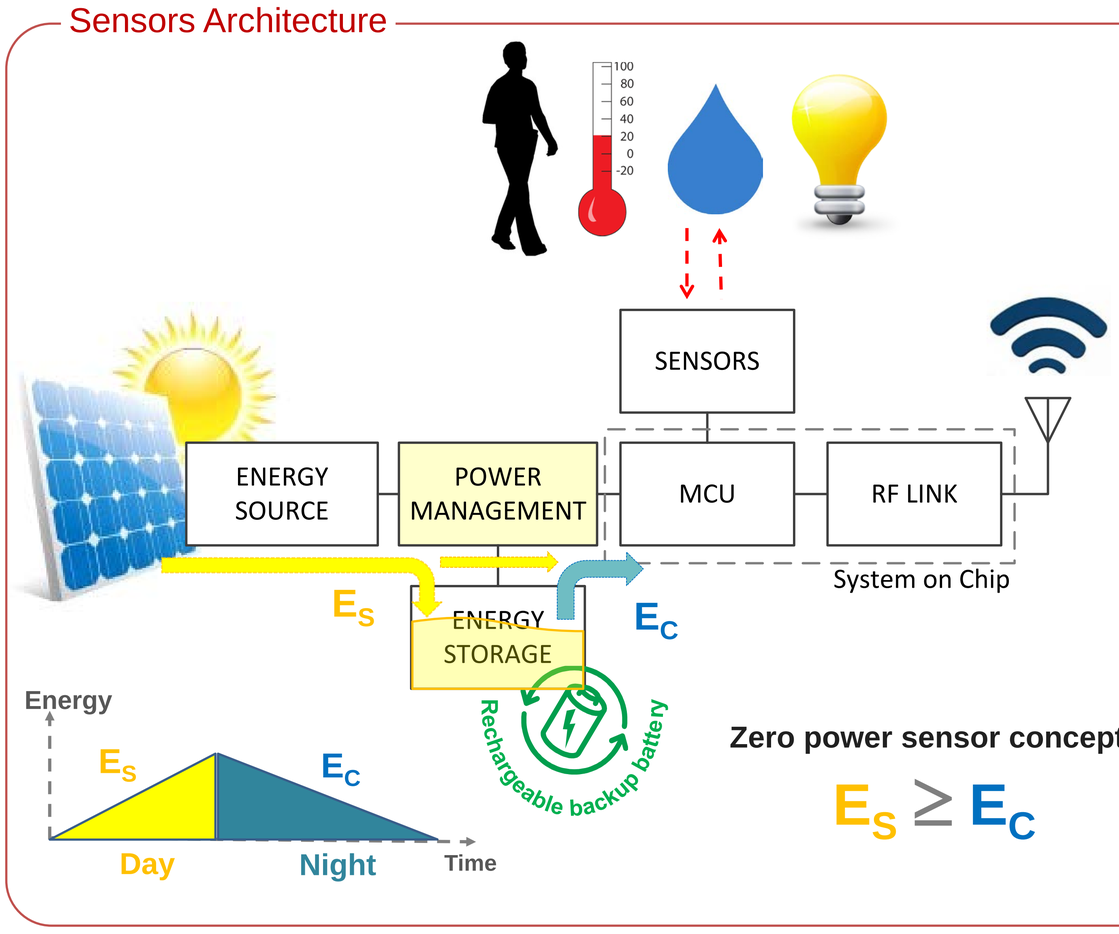
Smart loads control



Protocols

- PLC wide-band
- Bluetooth
- 802.15.4 featuring:
  - Zig Bee
  - 6LowPAN

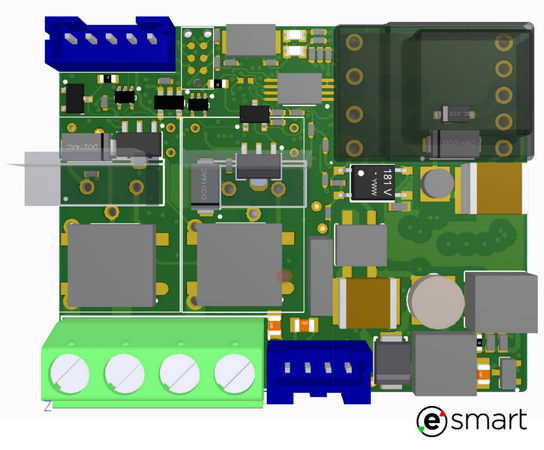
Sensors Architecture



Zero power sensor concept:

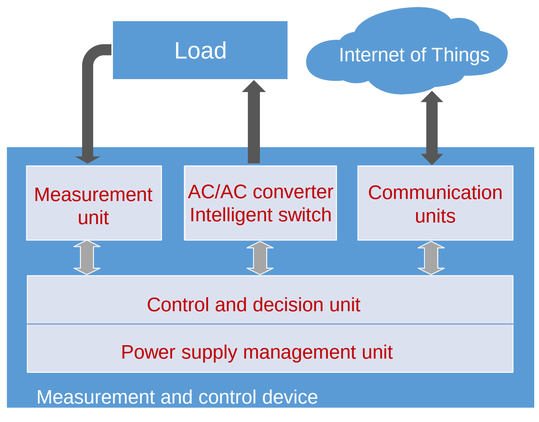
$E_S \geq E_C$

From eSmart Solution



Demonstrator technology

Toward Intelligent Plug



Toward Low-cost/high-efficient IC