



STREP Research Project HOBNET (FP7-ICT-257466, 2010-2013)



HOListic Platform Design for Smart Buildings of the Future InterNET (www.hobnet-project.eu)

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EU-Africa Future Internet/IPv6 Expert Working Group
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Main Aim/Key Objectives

“FIRE platforms on **automation and energy efficiency for smart/green buildings**”.

- a) an **all IPv6/6LoWPAN infrastructure of buildings** integrating heterogeneous technology (sensors, actuators, mobile devices etc)
- b) **6lowApp standardization** for building automation
- c) novel **algorithmic models and scalable solutions** for energy- and radiation-awareness, data dissemination, localization and mobility
- d) rapid development of **building management applications**, and their deployment and monitoring **on FIRE test beds**

Methodological Approach

We take a **holistic approach** addressing critical aspects at **different layers**:

- At the low level, **network protocols and architectures, mainly based on IPv6**, with emphasis on **heterogeneity** and **interoperability**.
- At a second layer, **algorithmic models and solutions** for smart buildings, with a special care for **scalability**.
- An interface layer for the rapid development and evaluation of **building management applications**.
- Even higher, derived research solutions and key innovations are organically evaluated at the **platform integration**.

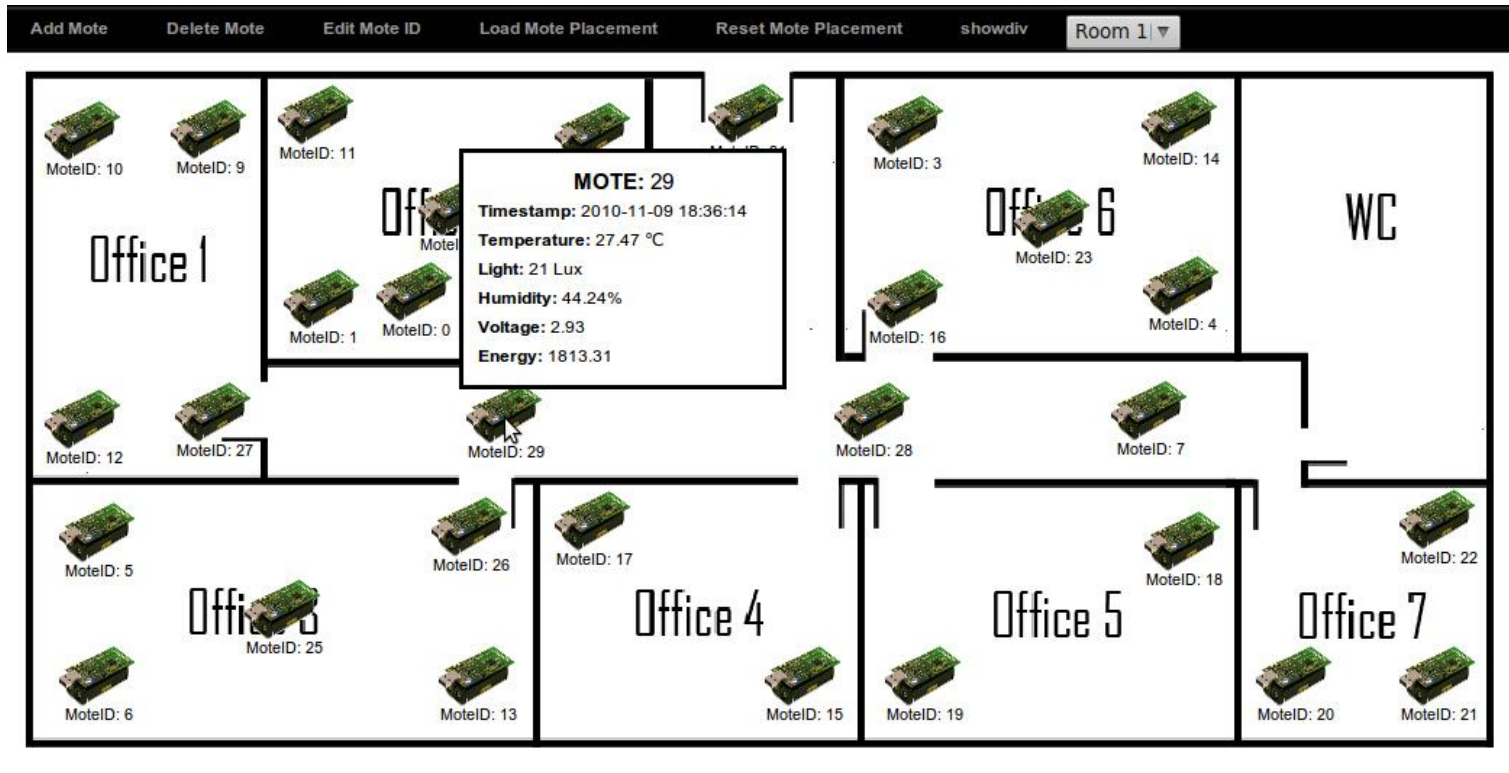
Characteristic HOBNET smart/green services

- local adaptation to presence
- electric device monitoring
- emergency management
- watering
- CO2 monitoring
- people and resource tracking

FIRE validation via test-beds and trials

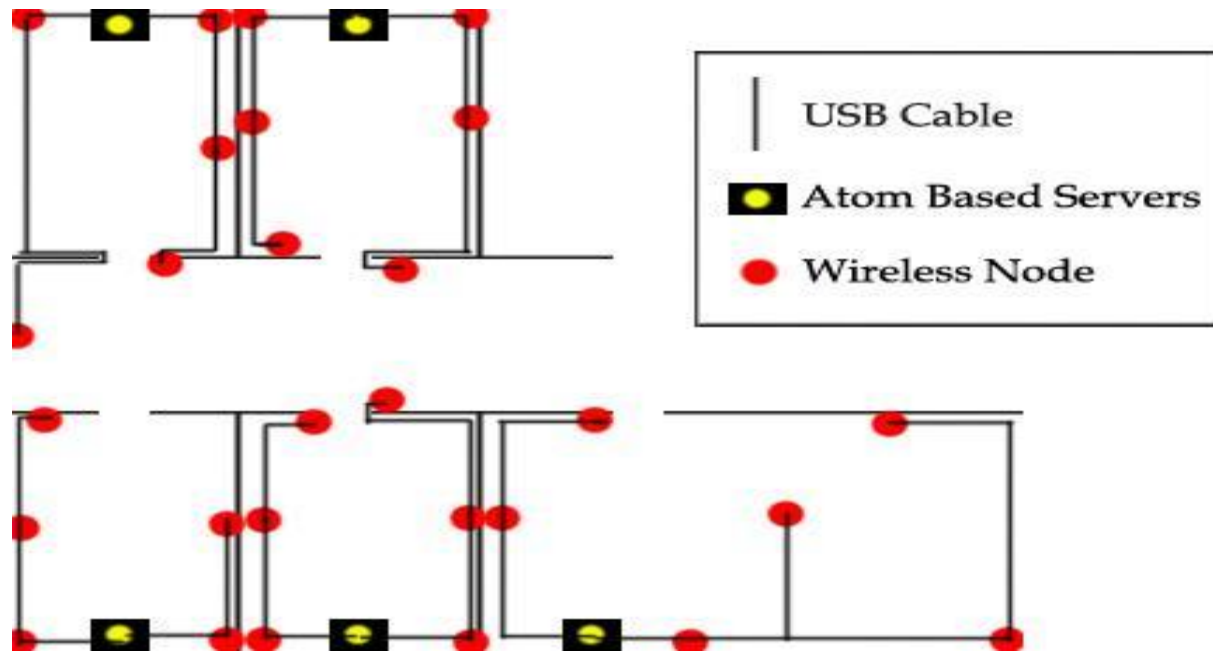
- Key innovations are experimentally validated in a large scale proof of concept application **in a UN related building in Geneva and FIRE test-beds** at the U. of Patras and the U. of Geneva.
- Developed algorithms are tested via **deploying large numbers of diverse smart devices at the building and FIRE test-beds.**
- These tests provide **real data traces towards accurate models.**
- A **repository of implemented algorithms** and multipurpose **building automation demonstrations** for connecting with external activities will be provided.

Our FIRE test-bed in Greece



- 140 sensors (TELOS B, IRIS, ENOCEAN, SUNSPOT)
- robots (moway, surveyor)
- energy meters
- web interfaces

Our FIRE test-bed in Geneva



- 60 iSense motes with various sensing capabilities
- 30 TelosB nodes
- 5 Surveyor SRV-1 Robots.
- a wired infrastructure with 5 Dual Core Atom based small servers to take care of massive flashing

Potential themes of EU-Africa cooperation

A. - wireless networks (sensors, mobile, vehicular)

- IPv6 (new protocols, standardization)

- Robotics (distributed cooperation)

- Impact of electromagnetic radiation to humans and nano-medical devices

B. Use cases: environmental monitoring, smart cities, energy efficiency. disaster management (fires, seismic etc)

C. Trust/security in the WEB/sensor networking security

- Social networking/social signaling/web analytics

- Algorithms/Foundations of modern networking