

# Robust Wireless Sensor for Building Usage Technology (ROWBUST)



**Project Acronym:** ROWBUST  
**Project Details:** Robust Wireless Sensor For Building Usage Technology (ROWBUST)  
**Start Date:** May 2013  
**Duration:** 24 Months  
**End Date:** May 2015



## Introduction

Much of the commercial building stock in Europe and the US has been in place for decades. Implementing energy efficient systems in such buildings requires retrofitting of new equipment. Often a key part of that retrofit is the installation of sensors to measure temperature, light, occupancy levels, etc. Increasingly installers use wireless sensors to minimise the disruption (time, effort, and aesthetics) that arises from retrofitting which enables a building to adapt to its functional changes over its life cycle. These systems have no requirement for wires for power and communications. The power can come from solar PV panels and/or long life batteries which communicate wirelessly. These systems are called wireless sensor networks (WSN).

Through the development of modelling tools this project targets two of the most significant technical difficulties associated with the use of such wireless sensor networks. The first challenge is to make the network sufficiently intelligent that installation is straightforward and, upgrade and maintenance of new and existing sensors is highly automated. Minimal expertise will be required to decide on the optimum number and location of the sensors and their seamless integration into the network to optimise energy usage. The second challenge is to ensure that each sensor has enough intelligence to effectively manage the balancing act between its need to minimise its own power consumption with the need for it to communicate reliably with the rest of the system. The project also addresses the challenge of developing business models to prove with confidence to the potential adopter of the technology that sustained energy and cost savings can be made giving a fast return on investment.

## Project Description

The project aims to solve two of the key technical challenges that have hindered the large scale deployment of WSNs – namely auto commissioning and sensor power autonomy by:

1. Developing Quality of Service/ energy harvesting tools to enable power autonomy for wireless sensors such that battery replacements are significantly reduced or eliminated.
2. Developing auto-commissioning tools & design procedures to predict as well as significantly reduce the time & expertise required in commissioning a WSN.
3. Developing business models that when combined with the above tools, show (in advance of deployments) that energy efficiency savings of up to 30% are achievable and there is a fast payback.
4. Demonstrating and validating the technology and energy savings in real world scale deployments.

### Participating Research Organisations

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