# High Efficiency Access Solution for the Internet of Things

## Informe

Información del proyecto

**HEASIT**

Identificador del acuerdo de subvención: 709841

Sitio web del proyecto

**DOI**
10.3030/709841

Proyecto cerrado

**Fecha de la firma de la CE**
12 Febrero 2016

**Fecha de inicio**
1 Marzo 2016

**Fecha de finalización**
31 Marzo 2018

**Financiado con arreglo a**
INDUSTRIAL LEADERSHIP - Leadership in enabling and industrial technologies - Information and Communication Technologies (ICT)

**Coste total**
€ 1 691 226,25

**Aportación de la UE**
€ 1 183 858,38

**Coordinado por**
GREENWAVES TECHNOLOGIES
France

# Periodic Reporting for period 2 - HEASIT (High Efficiency Access Solution for the Internet of Things)

**Período documentado:** 2016-12-01 hasta 2018-03-31

## Resumen del contexto y de los objetivos generales del proyecto

The Internet of Things (IoT) will profoundly benefit our society by making far more efficient than they are today industrial processes, energy management, cities management, transportation and healthcare through the collection of massive physical data, its analysis and action upon.
This collection will rely on the wireless connection of billions of low cost battery powered sensors. The scale at which this massive collection of data is envisioned is challenged by the limited energy efficiency and spectrum efficiency of today's IoT wireless communication solutions.
HEASIT deals with the development and commercialisation of GreenOFDM, a disruptive innovation that will bring high data rates at a high energy efficiency to wireless Low Power Wide Area Networks (LPWANs) for the IoT.
To commercialize our technology, the project aims at defining, developing and introducing to the market a modem in the form of an integrated circuit, that will be at the heart of those low power high data rate networks as well as all the necessary environment for this to happen: HW platform beyond the integrated circuit, SW, partnerships and promotion.

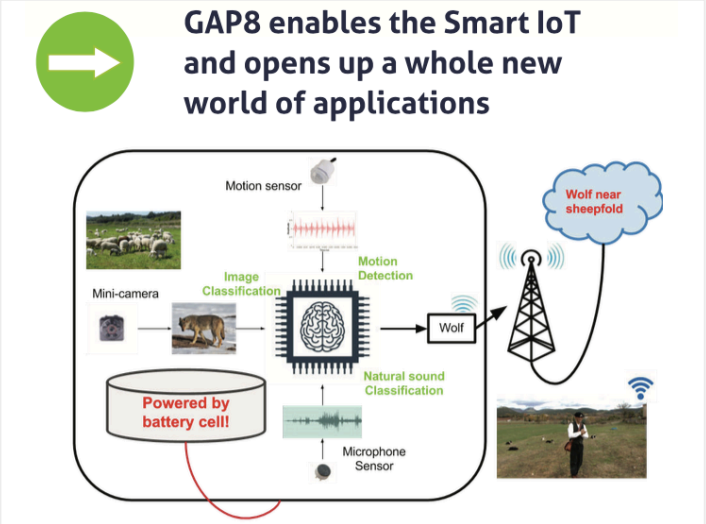
## Trabajo realizado desde el comienzo del proyecto hasta el final del período abarcado por el informe y los principales resultados hasta la fecha

Starting from our GreenOFDM algorithm, we adopted a fully programmable solution in the form of a multi-core processor with a unique energy efficiency. This architecture builds on 2 world class open source projects (Risc-V and PULP), which is a very novel approach in the semi-conductor industry.
We have realized a detailed implementation of our product in a form that is detailed enough to allow the physical design of the integrated circuit. We are currently in the process of realizing this physical design.
In parallel, at system level, we have realized an emulation of GreenOFDM which we have combined with the open source protocol stack LoRaWAN and have successfully realized point to point radio communications with this emulation.
From a business development perspective, we have engaged with a large number of players in the industry globally, all along the value chain.

## Avances que van más allá del estado de la técnica e impacto potencial esperado (incluida la repercusión socioeconómica y las implicaciones sociales más amplias del proyecto hasta la fecha)

"Our technology GreenOFDM represents a one order of magnitude breakthrough in term of combined energy and spectrum efficiency for IoT wireless communication. The architecture that we have developed to realize this solution - a multi-core processor that is entirely programmable - allows also to run any IoT wireless communication standard thank to SW defined modem on one hand, and to classify locally the data that are generated by ""rich"" sensors such as image, sound and motion sensors on the other hand. This enables new use cases that would be otherwise inconceivable, like a camera monitoring system that would have a 10 year battery life. Such solutions which combine flexible, energy and spectrum efficient radio and embedded data classification, will bring huge

productivity benefits to the users of our solution.
Thanks to its architecture, our product is one order of magnitude more energy efficient than the state of the art. And because we leverage open source products, our development costs are far lower than a traditional approach."




description of a use case enabled by GreenOFDM and GAP8

**Última actualización:** 23 Febrero 2017

**Permalink:** https://cordis.europa.eu/project/id/709841/reporting/es