The post-doctoral researcher will propose and evaluate qualities for smart objects in collaboration with members of the pervasive team at Inria.

Recent advances in microelectronics and communications have led to an increasing integration of digital technologies in ordinary everyday objects, providing embedded functions for perception, action, interaction and intelligence. The result has been the emergence of a new class of technologies, sometimes referred to as “smart objects” or “smart things”. The goal of this research is to establish standard qualities for such objects.

In established engineering disciplines, qualities provide a principled approach to define metrics for models that predict performance. Qualities give a normative reference for estimating the value of alternative technologies at design time. They are also used to define specifications for requests for bids for acquisition of systems and services. In short, quality standards for smart objects are essential for a scientific approach to their development and commercial application. Providing a standard definition for qualities is expected to have important impact on the emergence of smart environments and the internet of smart things.

Working with members of the Pervasive team at Inria, the post-doctoral researcher will propose possible qualities for smart things to be evaluated and refined. These will be experimentally evaluated through controlled studies with end-users and designers using newly marketed devices as well as custom designed devices manufactured at the Amiqual4Home innovation platform at Inria. Based on the results of the historical assessment and user studies, we will propose a standard set of qualities for smart things that can serve as the basis for an international standard.

This research project will be performed in cooperation with the Innovation Platform Amiqual4Home: Ambient Intelligence for Quality of Life, funded by the PIA Equipment of Excellence (EquipEx) program.

Assignment
The overall objective is to define, evaluate and validate the set of qualities for smart things as a normative reference that will enable modelling, comparison and prediction of properties.

Main activities
In order to define, evaluate and validate the set of qualities for smart objects, the post-doctoral researcher will address the following specific objectives:

- Propose candidate sets of qualities for smart objects.
- Assess the proposed qualities by applying them to recent and existing smart things and
evaluating their usefulness in predicting value and commercial success.

- Experimentally evaluate the proposed qualities through studies with end users and designers.
- Propose a standard set of qualities for smart things as a normative reference.

If successful, we will work with the young researcher to promote the resulting qualities as a standard through engagement with international organisations such as ISO and IFIP.

Skills
Technical skills and level required: Microelectronics, Mechatronics, Informatics, Ergonomics
Languages: English
Relational skills: Must be able to work within a team.
Other valued appreciated:
- Must be prepared to take personal initiative;
- Must be prepared to explore innovative new ideas and not afraid to fail.

Benefits package
- Subsidised catering service
- Partially-reimbursed public transport
- Social security
- Paid leave
- Flexible working hours
- Sports facilities

Remuneration
Gross salary: 2650 Euros per month