# Technology for the Search of Common Objects in the House

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**Country**

France

**Title of project or programme**

Technology for the Search of Common Objects in the House

**Source of funding information**

ANR

**Total sum awarded (Euro)**

€ 780,234

**Start date of award**

01/02/2013

**Total duration of award in years**

3.0

**The project/programme is most relevant to:**

Alzheimer's disease & other dementias

**Keywords**
**Research Abstract**

The recurring loss of everyday objects is a problem which, when secondary to a cognitive impairment, constitutes a disability. In Alzheimer’s Disease (AD), over 70% of the patients frequently loose valuable and/or essential everyday objects (glasses, wallet, dentures…). But this phenomenon, often mentioned as a precocious sign of dementia, remains largely unstudied and not considered. However, when asked about which aids would help them most, patients

and carers ask for a system to find lost items. Indeed, this topic is important because of the disability and the feeling of failure generated by recurring losses. These episodes of misplacement cause frustration, anxiety and even conflicts when losses are interpreted as theft and patients accuse their carers. Whatever the context, carers are repeatedly mobilized to find lost objects and comfort patients. This causes suffering and loss of autonomy for patients, and exhaustion for their carers.
Thus, we want to study this phenomenon of misplacement in order to create an assistive technology for the search of everyday objects. It will ressemble a divining rod, allowing patients to independently search for their belongings. Using a specifically developped, active, multi-frequency RFID localization antenna offering unrivaled precision in unequipped environments, important objects will be tagged and traced by the patients themselves.
To make the independent use of the system as simple and comforting as it can be, and rely as much as possible on preserved capacities in AD (procedural and musical memory), our multimodal interface (voice, sound, light, vibration…) will adapt to the user's needs and preferences. The creation of a «customized sound design« environment usable by healthcare professionals and of new, robust methods for sound spatialization will enable us to study and exploit sound and music as tools to enhance the comprehension of localization information (spatialization, perception of distance), compensate for executive and memory deficits (association of musical sequences and sequences of actions) and comfort the user (anxiety-reducing effects of music).
Development will be carried out using the «Action Design« methodology, which relies on an incremental approach with constant implication of end-users throughout the entire project and strong valorization of their participation, recreating ties with the research community. This method will guarantee that the system is acceptable, minimize the risks for design errors, and overall improve the impact of TROUVE on patients' autonomy.
This project, which exactly corresponds to axis 3 «Compensation of disability and loss of autonomy«, will be carried out by a very high level team of researchers, clinicians and industrial firms. The National Expertise Center in Cognitive Stimulation, an expert in cognitive compensation and a central pivot in the field, will coordinate the actions of ELA Innovation, French leader in the field of active RFID, AudioGaming, expert in high quality sound design and synthesis, and Broca Hospital, an organization with world-class expertise regarding the design and evaluation of gerontechnologies.
Thanks to their user-centric approach and highly complementary skills, within the next 5 years, the partners of the TROUVE project will use their expertise to provide the 550,000 French suffering from mild to moderate dementia, with an object localization system that truly fulfills their needs.

**Lay Summary**
**Further information available at:**

**Types:**
Investments > €500k

**Member States:**
France

**Diseases:**
Alzheimer's disease & other dementias

**Years:**

2016

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