PETAL

PErsonalizable assisTive
Ambient monitoring and Lighting

Project Information

The project PETAL is cofunded by the European Active and Assisted Living Programme (AAL-2016) and the following National Authorities and R&D programs in Italy, Spain, Austria and Romania.

Who We Are
PETAL Partners

ANA ASLAN INTERNATIONAL
Fundaţia Ana Aslan International, Romania
End-User Organisation
anaaslanacademy.ro

APOLLIS
Institute for Social Research and Opinion Polling, Italy
Enterprise
apollis.it

BARTENBACH
Bartenbach GmbH, Austria
Enterprise
bartenbach.com

CNR - ISTI HIIS Lab
Human Interfaces in Information Systems Laboratory, Italy
Scientific Research Institute
hiis.isti.cnr.it

IDEABLE
Ideable Solutions, Spain
Enterprise
ideable.net

SANTA LUCIA
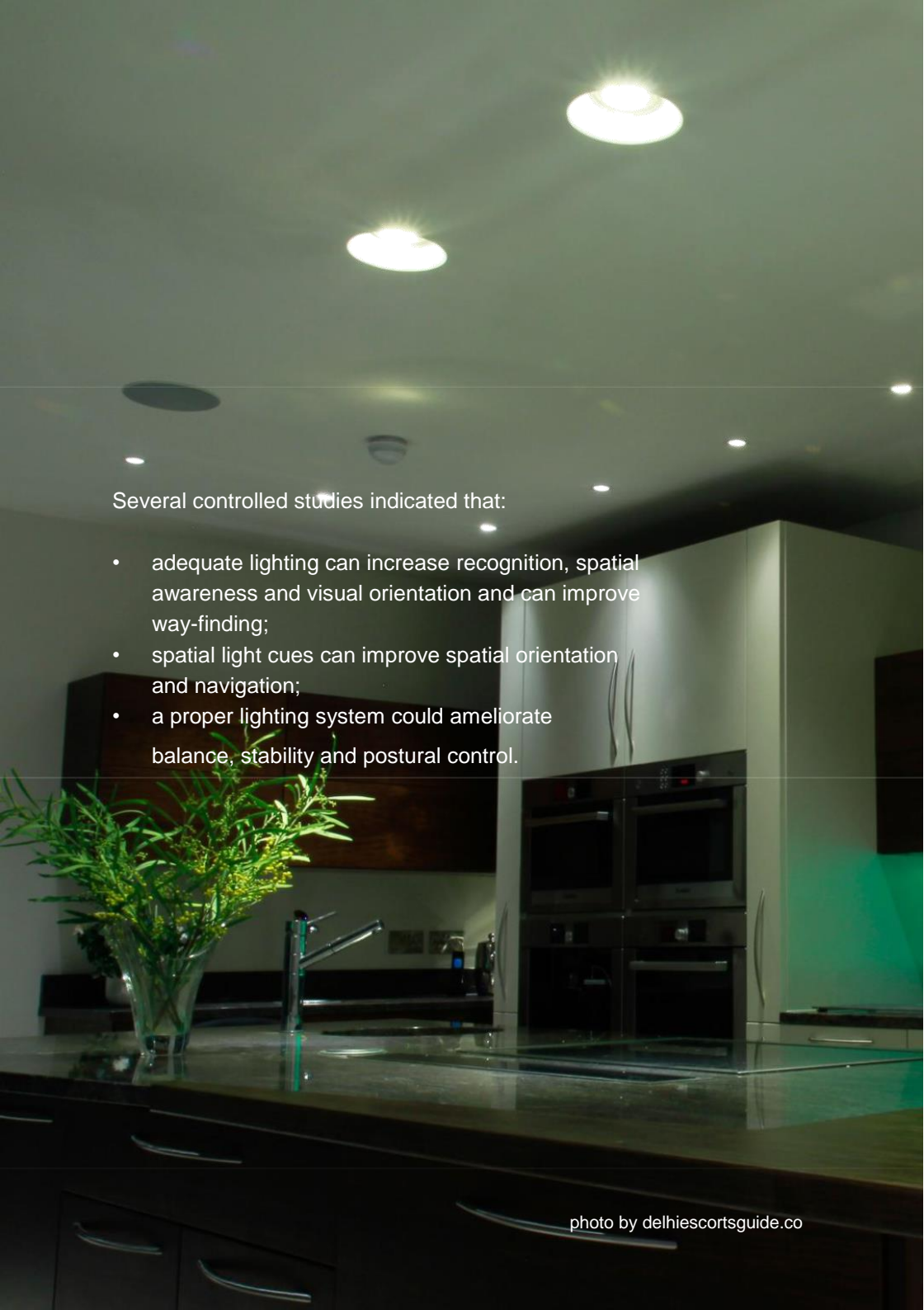Fondazione Santa Lucia IRCCS, Italy
Scientific Research Institute, End-User Organisation

hsantalucia.it

Motivations and Goals

The aim of this Project is to extend the time older people can live in their home environment by increasing their autonomy and assisting them in carrying out activities of daily living.

The older adults with Mild Cognitive Impairment (MCI) have to face the increased risk of dementia onset in association with physical and cognitive issues (e.g., reduced sight, balance disorder, irregular sleep-wake rhythm, memory loss). Consequently, MCI people are more prone to develop social withdrawal, apathy and depression.

Several controlled studies indicated that:

- adequate lighting can increase recognition, spatial awareness and visual orientation and can improve way-finding;
- spatial light cues can improve spatial orientation and navigation;
- a proper lighting system could ameliorate balance, stability and postural control.

What We Do

The project will provide caregivers with tools to fine tune the behaviour of the home and its connected services in guiding the elderly in their activities:

- Adaptively reacting to the older adults behaviour changing the environment and available device characteristics
- Flexibly driving attention and behaviour in reaching the older adults goals

The users can set the functionalities of the technical support to control lights and other digital devices when relevant events occur.
In order to be effective for the wide diversity of users, applications should have flexible and highly personalized context-dependent behaviour.

Remote Control of the Appliances

Sensors and Smart Devices
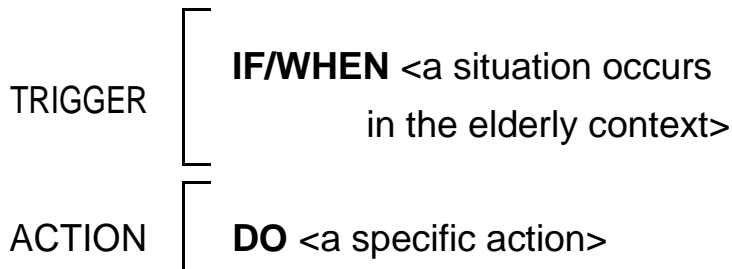
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meethue.com

Personalization Rule Editor

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How We Provide a Personalized Context-Dependent Behaviour
Personalization Rule Editor

The technological platform will be based on Trigger-Action Rules.

TRIGGER   **IF/WHEN** <a situation occurs
                  in the elderly context>

ACTION   **DO** <a specific action>

The platform provides:
- Personalized control of lights and digital appliances
- Personalized warning messages issued in risky situations
- Persuasive messages to stimulate the elderly in more healthy habits (e.g., do more physical activity)

photo by trustedreviews.com

Integrated Serious Game for Cognitive Stimulation

The PETAL platform has been integrated with the Kwido Mementia Serious Game Application, which provides several exercises to work on skills such as memory, calculus, executive functions, language, orientation and attention.

The platform allows caregivers and older adults to create personalization rules triggered by information generated by the application such as emotional and cognitive state, training results and time.

An example of serious game
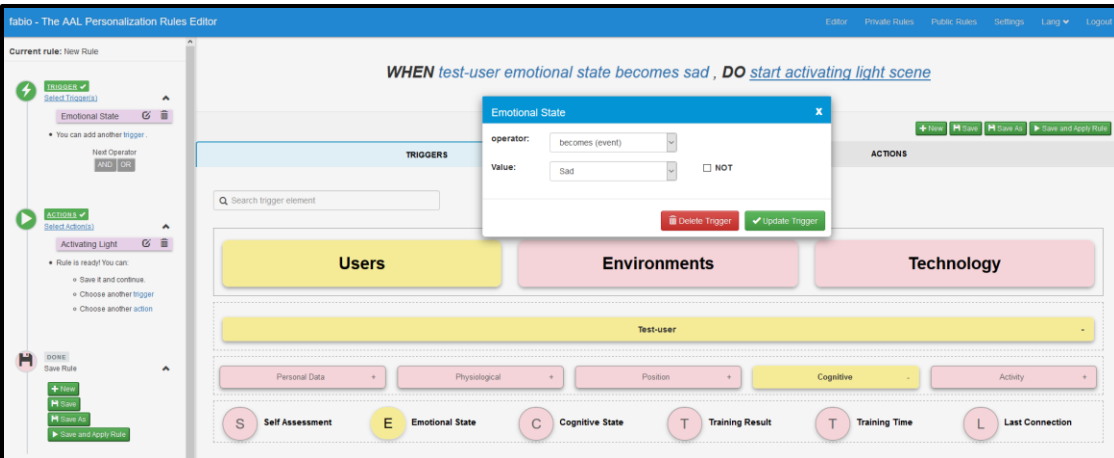
Personalization rule editor with game-related triggers

Field Trials

Field trials have been performed in Rome, Bucharest, Bolzano and Austria. In the field trials the platform and some applications have been deployed and used, with the objective to understand the impact of the system in real-life settings.

The houses of MCI older adults have been equipped with a platform consisting of sensors, appliances including various types of lights, and devices, which could be personalised for their specific needs and remotely monitored.
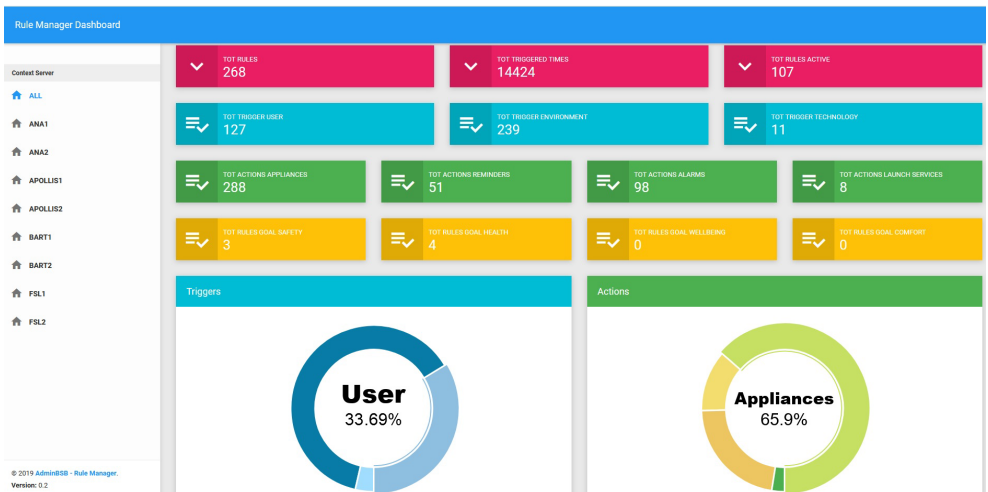

Example of a house equipped with sensors and a lighting solution.

Sensors and Objects installed in the Trials

- The platform has shown to be able to be customised for people living in different contexts and different abilities and preferences

- The platform is able to remotely monitor the personalization choices and their performance

- The platform allows users to take inspirations from a predefined set of rules, and also to adapt existing rules taken from public repositories

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For further information on PETAL Project,
please visit our website: www.aal-petal.eu

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