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Reminders From Intelligent System Increase The Independence Of Those With Special Needs

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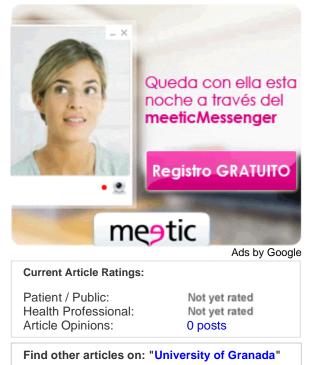Also Included In: Compliance; Public Health; Seniors / Aging
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A team of researchers from the University of Granada (UGR) has created a system with Artificial Intelligence techniques which reminds elderly people or people with special needs of certain everyday tasks. This system uses sensors distributed in the environment in order to detect their actions and mobile devices which remind them, for example, to take their keys before they leave home.

An elderly lady is about to go to bed. She goes into her room, sits down on the bed, takes off her slippers and turns off the light. Suddenly, before getting into bed, a small alarm goes off and a mobile device reminds her that she has not taken her tablets.

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This is how the new intelligent system developed by researchers from the Department of Computer Science and Artificial Intelligence of the UGR works. María Ros Izquierdo is from the Higher Technical School of Computer Engineering of the UGR and the co-author of a study which is published this month in *Expert Systems with Applications* magazine. "It is a prototype which, in a non-intrusive manner, facilitates the control of the activity of people with special needs and increases their independence", she explained to SINC.

The system recognizes the everyday actions of the users by means of RFID (Radio Frequency Identification) labels. These labels are discreetly placed on the objects that the individuals touch most often, in such a way that, when they do so, a signal is sent to a computer or mobile device situated in the house itself or at an assistance centre some distance away.

The activities of the people are assessed with Artificial Intelligence techniques (data mining and formal grammar) in order to compile a list of actions such as remembering to take the keys or the mobile phone before leaving home. "It is not necessary to use cameras or microphones, and the devices which are used do not entail any technological complications for users, nor do they modify their daily routines", clarified Ros.

In order to evaluate the system, the scientists have designed a Tagged World, an intelligent space which simulates the rooms of a house, with sensors embedded in the environment which help to recognize the behaviour of its occupants. The researchers monitored each user so as to obtain an individualized database. They later verified with a test the reliability of the system and the degree of intrusion felt by the participants.

"The system does not modify the life of the users, but does positively modify that of the people who look after them", indicated Ros, who recalled that elderly people or those with special needs often reject the aid of others and demand more independence. The new system may help to achieve this objective.

References:
Miguel Delgado, María Ros, M. Amparo Vila. "Correct behavior identification system in a Tagged World". *Expert Systems with Applications* 36 (6): 9899-9906, 2009.

Source:
SINC
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