Press release

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ACROSSING: University of Passau researchers develop smart-home technology

A Passau team of researchers led by Professor Oliver Amft are working on a new technology that will allow senior citizens to live in their own homes independently for longer. This research is conducted as part of the multinational ACROSSING research project.

'How to create a domestic environment that notices when something is amiss?' This and other questions are what the University's researchers around Oliver Amft are trying to answer in the recently-launched ACROSSING project. 'First and foremost, the idea is to ensure people are safe in their homes', said Oliver Amft, Principal Investigator for the German research group. 'Safe' in this context means that the technology should not only sense when an accident has happened but should detect changes in people's behaviour which might be problematic if left unchecked. Citing an example, Oliver Amft said: 'Just think of people with dementia: the illness gradually changes their behaviour, and one day the patient might, for instance, forget to eat.'

The ACROSSING project is backed by a multinational consortium of ten research institutions as well as numerous industrial partners and user organisations who work on smart homes or carry out studies directly with patients. The project is financed by the European Union's Horizon 2020 Framework under the Marie Sklodowska Curie programme, with a funding period until 2019.

The Passau group's focus in ACROSSING is on the high-precision measurement of specific activities using innovative sensor technology. When does the occupant of the smart home get up, what time does he leave the house, when does he eat, how does he move? Over the medium to long term, these routines establish a behavioural pattern which allows a system to discern typical routine and unusual behaviour. To do this, the system requires special sensor technology, which Professor Amft's team — the sole German partner in the project — are working to develop. 'The demands on this new technology are high: The sensors are not only to collect, prepare and analyse data but should also be easily integrated into the homes and nearly invisible', said Oliver Amft.

Apart from the technical aspects there are important questions to be answered concerning the observed persons' privacy. A special working group established within the project will develop approaches allowing users to control and choose which data are shared; at the same time, they will develop concepts for situations in which a user cannot take these decisions due to an illness.

The findings from the ACROSSING project will have great relevance for clinical and home care. Using behavioural analysis, carers will be able to find and classify gradual and sudden changes in occupants' behaviour: 'Such objective measurement is essential if the aim is to quickly and reliably decide whether or not an intervention is necessary', said Professor Amft. If suitably controlled, technology-driven data aggregation leads to good information quality. 'This can help to facilitate and speed up diagnosis and effective intervention — which is essential to support the growing number of persons in need of help and to address the increasing costs in the care sector.'

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