

Trials begin with a new fall detector for the elderly that automatically notifies the emergency services

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Researchers from the Technical Research Centre for Dependency Care and Autonomous Living (CETpD), on the UPC's Vilanova i la Geltrú Campus, have designed a device that detects falls in elderly people without them having to press a button for assistance. It pinpoints their location inside or outside the home and notifies the emergency services if necessary.

The Universitat Politècnica de Catalunya · BarcelonaTech (UPC) leads the consortium behind the European project Fall Detector for the Elderly (FATE), which also includes TicSalut, 061 CatSalut Respon, Hospital Clínic and EAP Sardenya. The fall detector, which is currently being trialled, brings greater safety both inside and outside the home.

The FATE system consists of a small, highly sensitive fall detector fitted into a belt that users wear throughout the day. The device's sensors detect movements consistent with a fall and integrated wireless technology locates the user's position, inside or outside the home.

The system also includes a bed presence sensor that detects prolonged absences during the night and triggers an alarm if the user does not return to bed within a stipulated period. The aim is to minimise the effects of an accident on fragile patients who may not be physically capable of calling for help if they suffer a fall.

The technology for the FATE device was developed by researchers at the Technical Research Centre for Dependency Care and Autonomous Living (CETpD) on the UPC's Vilanova i la Geltrú Campus, under the direction of Joan Cabestany.

Direct contact with emergency services

When the FATE device detects that a user has suffered a fall, it sends an automatic notification to the Catalan ambulance service, 061 CatSalut Respon, which locates the patient and contacts them to establish the details of the accident. The situation can then be assessed by the CatSalut Respon medical team, who provide guidance on how best to deal with the situation and send an SEM ambulance if further [medical assistance](#) is required.

The FATE protocol greatly improves patient safety, primarily for those who live alone, as it provides the security of automatic medical attention in the event of a fall.

FATE trialled in elderly patients

Patients selected for the trial by the project team in Catalonia were taken from the primary care group at EAP Sardenya and Hospital Clínic in Barcelona.

The study is divided into two six-month periods: during the first, half of the patients wear the device and the other half serve as a control group; during the second, the groups are reversed.

Over the course of the study patients are visited on a monthly basis and contacted by telephone each week to evaluate their general state of health and to discuss any problems with the device.

The European project is coordinated by the UPC and carried out by a consortium that also includes partners in Ireland and Italy. The study population for the pilot phase comprises 50 patients in Ireland, 80 in Italy and 75 in Catalonia and was selected according to the relative risk of suffering an accidental fall or a fall caused by an existing medical condition.

Falls are a serious problem in the elderly population, estimated to affect 30% of over-65s and often causing severe physical restrictions. The worst effects are generally observed in those living alone who, in the event of a fall, may be unable to move and can spend considerable periods of time on the ground before they receive medical assistance. The delay in treatment can lead to irreversible health problems.

Immediate detection enables an immediate response from the 061 [emergency services](#), ensuring that the necessary medical assistance is provided as swiftly as possible.

The FATE project began in 2012 and is scheduled to run for 39 months. The pilot phase started at the beginning of 2014 and will continue into 2015.

Provided by Universitat Politècnica de Catalunya (UPC)

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