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Conference Abstract

Development of an integrated external and internal location system with activity monitoring

Bernard Leo Wignall

Correspondence to: **Bernard Leo Wignall**, E-mail: bernard.wignall@hallidayjames.com

Abstract

Although the potential of using location information to support people with dementia has been recognised, the uptake of location technology in this area has been limited compared with the uptake of standard Telecare techniques. The paper examines the reasons for this and describes a project, EASE (Extended Active Support Environment) which was commissioned by NHS South as part of their SBRI for Dementia programme, to develop a system which would address these issues and make location technologies a practical tool to support people with more advanced dementia.

To identify the requirements of a location system which would address the different needs of the target service users, the Dementia Services Development Centre at the University of Stirling held a series of focus groups which included people with dementia, their formal and informal carers, care providers and commissioners. We also conducted a survey of existing location devices and services.

The outcome of the research was that a constantly worn device was needed as the times of highest risk for the target group were when there was no carer present to make sure the locator was with the user. It was also felt that the aesthetics of the device were important. Another key point was that a battery life of more than a week was required as opposed to the day or two of existing devices, as a major point of failure was ensuring that care staff charged devices every day.

It was also identified that location could be used for more than emergency situations as activity patterns could indicate changes in routine. Internal activity has now been widely used as part of an assessment process but less so for long term monitoring. By integrating internal and external activity monitoring a more complete picture of how an individual was coping could be built up.

The result of the early research has led to the development of the EASE system which is now commercially available, the core of which is a small, attractive bracelet which includes GPS location. It is fully waterproof and has a battery life of about two weeks in normal use.

To encourage carers to take the service user out and improve social contact the System includes a "Travel Companion" which, when in proximity to the Bracelet, suppresses any geofence alerts. If the service user wanders away from the carer, the Travel Companion will alert the carer and if they are not reunited within a few minutes the Bracelet will send out an alert with its GPS location.

The third element is a range of sensors which allow the service user to be located within their home. This data is usually uploaded periodically and displayed on a web site along with any external location data so that a carer can see if there are any worrying changes in behaviour.

By combining external and internal location and activity monitoring in the same package, EASE provides an innovative approach to maintaining independence for people with dementia and other cognitive impairments.

Keywords:

gps, location, activity, dementia

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