Assisted Living

Tim Hunt
Waikato Institute of Technology
Tristram Street
Hamilton, NZ
Tim.hunt@wintec.ac.nz

Dileep Rajendran
Waikato Institute of Technology
Tristram Street
Hamilton, NZ
Dileep.rajendran@wintec.ac.nz

ABSTRACT

The research focus at Wintec has changed in emphasis. Researchers are encouraged to create products for industry/clients, to work in teams and develop projects that could involve multiple disciplines. The ideas presented in this paper for the Assisted Living (AL) project help align the School of Information Technology with the institute. The term AL is used in this paper to mean the application of technology to assist the elderly or disabled. The AL project will also be used as a vehicle for discovery and mastery of current and relevant issues in ICT, is a focus for researchers and allows for a wide range of skills to be utilised. This paper outlines the context of AL, the methodology used, current projects and possible projects for the future.

Keywords

Health Informatics, Assisted living, Applied ICT research

1. INTRODUCTION

The use of computing technology continues to grow in most fields, with many developments under the banner of "Health Informatics".

The term Assisted (or Independent) Living, (example Mann, Ottenbacher, & Fraas, 1999), fits into the context of Health Informatics. It uses ICT to help people who wish to have their daily living requirements monitored by a 'Carer'. For example, an elderly person who wants to be reminded to take medicine (Pollack et al., 2002) or their adult children who live at a distance and want to ensure their parent is well.

The developed world has an aging population that is unlikely to be looked after to the same extent as that of previous generations (Future Demands for Aged Care services, 2007). The increasing ratio of elderly to young (Pollack, 2005) means that the way health care is provided is changing.

The AL project intends to assist by using some of the latest developments in technologies, particularly cloud computing, mobile devices, networking and data mining to create useable products. This seems to be relevant to some European developments (European Commission, 2010 & 2011).

2. Methodology

Contrary to classical applied research that simply solves known problems, applied research projects using modern ICT also involve creating new possibilities. This has been demonstrated by many technology explorers, entrepreneurs and innovators.

The 'Inquisitive Development' methodology (Sastry, Boyd, & Wilson, 2001) is used for AL. It is well suited to the area of ICT and research outputs will be discovered as the project develops. The well-known Prototyping methodology, as described by Techtarget (2012), is also appropriate.

3. Current Projects

Three areas of development are currently being investigated. The first is an application running on an Android tablet device. An event is created on the website by the 'Carer'. When an event is acknowledged by tapping the screen, it is logged on the server via the eclipse engine and a report is made available to the 'Carer'.

The second investigates inbuilt sensors on a 3G smartphone that retrieves data from the physical environment e.g. movement or light. It communicates this to a database on the cloud. The data will be analysed and reports/alerts sent to the 'Carer'.

A third area is the collection of electricity power usage to help determine if a person is behaving abnormally – possibly indicating that there is a problem.

4. Future Projects

The aim is to have all sub-projects integrated into one system using either the Google AP engine database or Microsoft's Azure cloud. Ideas for projects involving multiple schools such as; nursing, media arts and/or sports science are being explored. E.g. people who are prescribed daily physiotherapy/sport exercises could report back to their specialist via a mobile phone or 'Xbox' connect device and this is monitored on the AL system.

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