

Augmented Reality

Human Computer Interaction (HCI)

Smart Homes

Ubiquitous Computing

Persuasive Technology

Multimodal AR to Assist Ageing-in-Place

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The Project

A recent research agenda to develop persuasive computing systems to support healthy ageing has been put forward in [1]. This project aims to exploit the emerging and powerful interface technologies of augmented reality (AR) [2] to create persuasive, motivational interfaces to provide just-in-time, appropriate cues to aid ageing-in-place for the older population. The aim of the 12 Month pilot study is to prototype a small number of AR systems to provide real-time cues to older people in a home setting. The cues themselves will contain information about healthier and safer (but longer term) lifestyle choices, or (short term) warning messages based on a person's current activity.

Objectives

The objectives of the project are as follows:-

- 1) to develop prototype visual (simple and distributed), aural and multimodal (combined) AR displays, using commercial off-the-shelf (COTS) components, suitable for providing context aware information to older users within the home.
- 2) to use a Wizard-of-Oz (WoZ) methodology to evaluate the developed prototype displays using a small, recruited user group of older people in a mock home environment.
- 3) to use qualitative analysis to assess user reaction to our developed prototypes.
- 4) to use results from (3), and our overall experiences, to construct a research agenda to develop, in collaboration with researchers and practitioners in other disciplines, multimodal AR displays to support ageing-in-place.

References

- [1] Intille, S. A New Research Challenge: Persuasive Technology to Motivate Healthy Aging". IEEE Transactions on Information Technology in Biomedicine, 8(3) 2004, pp. 235-236.
- [2] Lawson, S.W, Pretlove, J., Wheeler, A, and Parker G.A., Augmented reality as a tool to aid the telerobotic exploration and characterisation of remote environments, Presence: Teleoperators & Virtual Environments, 11(4), 2002, pp. 352-367.



Methodology

We will adopt a two pronged approach to evaluating the needs of older people and how AR could be used to support them. Firstly, structured questionnaires, coupled with paper based scenarios will be used to formulate some possible application scenarios. Secondly, local NHS practitioners will provide 'vignettes' of particular individual's needs. We will then prototype a number of multimodal AR systems deployed in a home setting. A short user evaluation study, based on a Wizard-of-Oz methodology [3] (to obviate the need to implement complex, autonomous context aware systems) will be undertaken to assess older peoples' attitudes towards the deployment, nature, effectiveness and use of such technology whilst qualitative data analysis will be used to inform the construction of a future research agenda .

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