

**EATing-in again? Lets' take the HEAT off you:**

**Electronic Assistive Technology,  
Smart homes and disabled people.**

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and Stan Johnston

**HEAT 2004**




Providing appropriate technology to support people in their own homes is difficult. Ascertaining needs, real needs as opposed to desires and wish fulfilments can be harder still. For the designer of Electronic Assistive Technology (EAT) the effort can be compounded by the other parties involved with the disabled person, such as support workers, social care staff and finances.

The smart home appears to be the answer, by providing services to the disabled person through a network of preconfigured devices, and clearly in some cases this is appropriate. The use of RF modules configured together can produce a powerful system that allows alerts to be produced and the disabled person to be monitored on a number of different levels.

But the questions remain... Does it work? Does it really work? Is the system truly dependable? Does the system do what the disabled person expects it to do? Does it do it all the time or when it is expected to do it? Are the alerts suitable for the disabled person (not too loud or soft)? Is there a remote connection that the alerts are transferred to? If so what happens if the person at this location is not present at the time of the alert?

All these questions are nothing more than the starting point of any good design, (as discussed in [Designing Dependable Systems](#) and [Designing Reliable Smart Home Technology for Disabled People](#)), but things get complicated when the design is for a specific client group and for groups of individuals sharing communal spaces.

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The advertisement for Vantage Controls features a central image of a silver, rectangular control device with a screen and several buttons. Above the device, the text "click here to design your own custom automation system online." is displayed in a clean, sans-serif font. Below the device, the word "VANTAGE" is written in a large, spaced-out, serif font, and the website address "vantagecontrols.com" is written in a smaller, lowercase, sans-serif font. The entire advertisement is set against a white background with a dark red border.

The DIRC (Interdisciplinary Research Collaboration in Dependability of Computer-Based Systems) project has been involved in designing residential spaces providing responsive and appropriate support and care for people with autistic spectrum disorder (ASD) and those who present challenging behaviours. These residential spaces in Aberdeen, Scotland (UK) are individually tailored to meet the needs of the dweller. At the same time they need to be easily reconfigurable for future dwellers. The systems used in these sites are too complex to detail here but use six layers of system ranging from a support worker/staff attack system (IR and RF), a basic activity monitoring system (powerline), a security system (in case of burglaries) (powerline), a powerline fire system amongst other integrated systems.



Figure 1: One of the developments we have worked on in Aberdeen (Scotland, UK).

The use of technology to enhance the support requirements of people with ASD and those who may present challenging behaviours, was seen as a proactive way of assisting individuals to live as independently as possible, minimizing risk and enabling the provision of qualitative support rather than intensive care. The systems are designed to respond to changing need with capacity to either add or detract as the individual support plans require.

The project has adapted standard 'off the shelf' hard wired and RF/IR systems and reconfigured them to work together to produce a unified multilayered system. There are certain key elements to the systems that should be made clear. It was designed to

support the caring process, it was designed to enhance the life choices of the people with ASD and those who present challenging behaviours, it was designed to be non-invasive, and it was designed to enhance the supporting process. Although the designs are being refined with each new build the basic premise is the same. To date, responses from staff and residents are highly encouraging and as the refined designs are completed in the very near future we expect similar positive feedback. Although it might sound easy, we can guarantee that there have been occasional moment where everything appeared to go wrong. Luckily, the designs have been and continue to be built.

This scenario is just one of the many that will be discussed amongst other aspects of dependable design of EAT home systems at HEAT 2004 (the Home and Electronic Assistive Technology). HEAT 2004, a two day DIRC workshop, is being held in York (UK) on the 16-17th of March 2004. A call for papers is currently available from <http://www-users.york.ac.uk/~am1/HEAT.html> or <http://www.smarthinking.ukideas.com/Heat.html>. Although places are limited, we hope to encourage people from all areas of home technology to participate. We look forward to seeing you there.



For further information please contact Guy: [smarthinking@ukideas.com](mailto:smarthinking@ukideas.com) or Gordon: [g.baxter@psych.york.ac.uk](mailto:g.baxter@psych.york.ac.uk)

The workshop is organized by Gordon Baxter and Guy Dewsbury for the Interdisciplinary Research Collaboration in Dependability of Computer-Based Systems (DIRC) in association with the CUHTec the Centre for Usable Home Technology and Hometoys.

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