

Turning remote control into intimate support

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(PhysOrg.com) -- All the remote controls lying around our houses or fixed to our walls can be combined via new standardised middleware. Combined control enables new levels of home support to the elderly and disabled.

Any networked home appliance or software service can be integrated with any user interface, via an open standardised middleware developed by researchers on a project called I2HOME.

The I2HOME solution can replace the plethora of remote controls we use to operate our TVs, stereos, DVD players, and laptops, as well as those fixed to the walls to control heating, air conditioning and ventilation, cookers, washing machines, dishwashers and lights.

Proprietary smart home solutions that can link appliances to a control

hub have been available for a number of years. But complete proprietary home networks are costly. The I2HOME middleware decouples the home networking code from the user interface. That enables any user interface to be ‘plugged’ into I2HOME’s universal control hub.

This shaves costs for the developers of home appliances and services. They need no longer be concerned with the networking capabilities of their equipment, provided they work to the ISO standards that I2HOME’s ‘Universal Control Hub for Universal Remote Consoles’ (URC-UCH) is based on.

For householders, I2HOME is a step towards a future where they could quickly and easily integrate new appliances, devices or services into their home network without employing professionals to configure everything.

The I2HOME solution even allows several devices to be controlled at the same time. That is important in the digital home where devices often need to operate and be controlled together. For example, the TV and DVD player must be able to run together to view a DVD.

Remote support

The I2HOME solution is particularly useful for the elderly and people with a range of disabilities. For instance, someone with poor sight could replace visual interfaces with a single speech interface. Or the householder could use technology that they are already familiar with, such as a mobile phone, to control a range of devices around the home.

There has been constant development in so-called ambient technologies that sense and respond to the presence of people. There are user interfaces that can read gestures, facial expressions, or that can be controlled by eye movements. The flexibility in the architecture means that all of them can be integrated with the Universal Control Hub.

To boost uptake of the solution, researchers on the EU-funded project have created a resource server from which user interfaces and other software can be downloaded that integrate particular devices with the Hub - in just the same way that drivers can be downloaded to enable a PC to use a particular printer, or apps can be downloaded to the iPhone. The resource server creates an open market for adaptable user interfaces for the digital home.

Integrating the control of a range of [home appliances](#) enables a higher level of support for people with disabilities via ‘activity management’. The householder can specify an ‘activity’ such as making coffee and toast for breakfast. A support worker can arrange the tasks that need to be taken in chronological order in the I2HOME system - water boiled, coffee filter filled and loaded, toaster loaded... The I2HOME activity manager will monitor whether each step in the process has been completed before prompting the next step.

Activity management enables people with cognitive disabilities to be more independent by providing simple ways to do tasks - from changing the TV channel to picking the song they want on a CD. And a calendar that integrates with the universal remote console can remind the householder to take their medicine, to pay a bill, or to put out the rubbish bins.

One of the biggest challenges, according to Jan Alexandersson of German Research Centre for Artificial Intelligence - DFKI GmbH and I2HOME project coordinator, was getting the balance right. They wanted to create a system that simplified and supported people but not a system that left people feeling that it controlled them!

Support outside the home

Alexandersson sees I2HOME as a step towards a smart environment,

rather than just smart homes. “This infrastructure should be built into the future ICT so that it is available everywhere. It is a technology that could tell you how to reach a meeting room in a strange building or that you could use to buy a rail ticket via your desired [user interface](#).”

More information: I2HOME project - www.i2home.org/

Provided by ICT Results

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