

# Smart Suit Doesn't Miss a Beat

July 3 2007

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Imagine wearing a smart T-shirt or a suit embedded with tiny electronics that can monitor your heart or respiratory function wirelessly. When dirty, you take it off and throw it in the wash or have it dry-cleaned.

Researchers from the University of South Australia have been using garment integrated electronic technology to develop smart garments that, when placed on electronic hangers, enable monitored data to be downloaded in a heartbeat to a computer in your wardrobe, and then be recharged ready for wearing.

And there's no need to worry about your heart skipping a beat while your garment is being cleaned, according to researcher and Director of UniSA's Wearable Computer Laboratory, Professor Bruce Thomas.

"For continuous monitoring, you can take off one garment and put on another smart garment so, instead of having just one heart monitor, you can have a wardrobe of them," Prof Thomas said.

Prof Thomas points out that his researchers were not the first to think of this technology, but "we're the first worldwide to develop smart garment management technology that works," he said.

"The wardrobe has a touch screen on the outside and conductive metal bands spanning the hanging rail inside, with wires connecting it to a computer in the base of the wardrobe. When we place electronic hangers, each with their own ID and metal connection, on the rail, it detects the hangers and smart garments incorporating the conductive

material and integrated electronics,” Prof Thomas said.

“Through this connection, the computer identifies, for example, that hanger 123 has coat 45 on it, which has stored heart monitoring data that needs to be downloaded and the hanger recharged,” he said.

Garments with communication technology only and a wireless connection enable users to access heart monitoring through a simple blue tooth or zigbee network, eliminating the need for expensive heart monitoring equipment to be placed in each garment.

Smart garments in the future may be used for a range of other monitoring services such as at home outpatient care and for people with dementia, enabling them to have a full life for as long as possible with a minimum level of intervention - and they can be monitored without having to learn to use a new device.

“The garments enable us to monitor people’s vital statistics and activity levels – when they get up, walk around, make breakfast and dinner, or sleep - but more importantly, we can determine if they are missing meals, fall over or stop moving. The technology can distinguish between normal and abnormal events and alert family or emergency services or, for people who live in retirement villages, alert local medical staff,” Prof Thomas said.

The smart wardrobe can also be adapted for other uses including the self diagnosis of faulty monitoring equipment; scheduling cleaning and dry-cleaning; a fashion butler to help people accessorise, colour match and select appropriate clothing for special occasions; and for preloading news, music and daily schedules into smart garments.

Source: Research Australia

Citation: Smart Suit Doesn't Miss a Beat (2007, July 3) retrieved 25 April 2024 from <https://phys.org/news/2007-07-smart-doesnt.html>

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