



'Smart Homes' for the Disabled and the Elderly

CMC Microsystems is helping university researchers to develop wireless monitoring and tracking systems for smart homes—an innovation that could help save millions of dollars in Canadian health care costs

"The hardware platforms and software tools provided by CMC are essential to our research. By developing several microsystems prototypes through CMC, we have achieved cost-effective hardware for a variety of smart home applications."

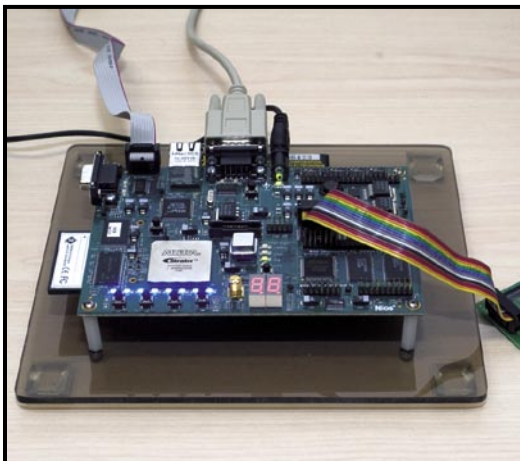
**Dr. Gul Khan, P.Eng.
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Dr. Gul Khan, (left); Shirley Arnold (right) and other graduate students at Ryerson University are using the System-on-Chip Research Network resources managed by CMC to develop a wireless tracking system that would allow care-providers to remotely monitor patients with dementia or other disabilities.

Dr. Gul Khan has an important goal—to make it possible for the elderly and the disabled to thrive in their homes as opposed to living in long-term care facilities.

The professor at Ryerson University leads the Embedded Microsystems Research Group—a team that relies on tools and technologies provided through the System-on-Chip Research Network managed by CMC. These researchers are using hardware and software tools supplied by CMC to develop a wireless tracking system that would allow care-providers to remotely monitor patients with dementia or other disabilities.



The research team at Ryerson University is developing technology for a new generation of 'smart homes', using tools and technologies provided by CMC Microsystems.

"We are striving to make patients' homes 'smarter', enabling them to live in their own homes longer," he explains. "We hope to have the first prototypes completed next year. We then plan to set up our own smart home demonstration lab, so these technologies can be tested in various rooms such as the kitchen, living-room, bathroom and bedroom."

Dr. Khan's research team is working in collaboration with the Wireless/Optical Communication Research Group led by Dr. Xavier Fernando. The research team is using a new generation of active Radio Frequency Identification (RFID) tags that have high power, expanded range, greater functionality and the ability to store and transmit more data. They are using equipment supplied by CMC to configure system-on-programmable-chips that enable the RFID tags to communicate with computerized embedded-wireless transmitters and receivers in the smart home.

"You could place some of these tags in the shoes or clothes of the disabled or elderly, and then monitor them in real time as they move about the smart home," says Dr. Khan. "Today, institutions conduct patient-monitoring with video and infrared technologies. RFID technology will provide patients and care-givers with increased flexibility and quality in home care. As a highly cost-effective technology, it has the potential to significantly reduce health care costs, while improving quality of care."

The technology will also enable the elderly and disabled to live in their own homes longer with proper care, contributing to a better quality of life for Canadians. *cmc*