Sensor system may be a lifesaver for the live-at-home elderly

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RESEARCH

AN Australian project could deliver a low-cost and unobtrusive system to enable the elderly to live independently in their homes for longer.

University of Adelaide researchers are adapting radio-frequency identification and sensor technologies to automatically identify and monitor human activity, without the need to wear or turn anything on or off.

The project, which aims to develop novel sensor systems, will determine if an individual's normal routine is being maintained so that timely assistance can be provided if it is needed.

The team are developing a system using a network of sensors attached to objects that an elderly person interacts with in the home, such as cups or an oven. Software will then be used to interpret the collected data to detect what they are doing.

The research will use a passive RFID device, developed in an Intel research lab in the US, known as WISP (wireless identification and sensing platform). It uses RFID technology with traditional sensors such as accelerometers.

"We are not focused on developing hardware," chief investigator and University of Adelaide school of computer science senior lecturer Michael Sheng said.

The project will determine if an individual's normal routine is being maintained

"The main point is we are developing software to understand the data collected from the WISP devices."

The work will be among the first few projects in the world conducting large-scale commonsense reasoning in automatic human activity recognition.

The project, which is in collaboration with the University of Queensland and the University of Washington, recently received Australian Research Council Discovery project funding of $360,000 across the next three years.

The system was expected to be low-cost, with WISPs costing about $US1 (96c) when mass manufactured, unobtrusive and without privacy issues and intensive monitoring of video surveillance.

Dr Sheng said the project, which was intended to be commercialised, had a wide range of possible applications including helping the elderly to live independently and monitoring hospital patients.

The technology will be first investigated in a laboratory setting, then in hospital trials with geriatric patients.

"We know this (ageing population) is a very challenging problem," he said.

"We don't know anywhere they have already come (up) with a perfect solution."