Keeping a watch on seniors living alone

Wristwatch device can sense a fall, send distress signals in emergencies

By POON CHIAN HUI

WHEN an elderly person living alone falls or falls at home, nobody is around to alert family members or the doctor.

In some cases, it can take days for the incident to be discovered, and the person may be dead by then.

With this worrying scenario in mind, engineers at the National University of Singapore (NUS) have come up with a system that allows distress signals to be sent with the push of a button.

Called the e-Guardian, it comprises a watch that looks just like any other digital watch but with an alert button built in.

The watch also has a device that can sense if the elderly person wearing it has taken a tumble.

An alert will also be automatically triggered if the person remains still for a long time; the duration can be adjusted by the user.

Prolonged inactivity may mean the person has suffered a stroke, said Associate Professor Tan Kok Kiong of NUS’ electrical and computer engineering department, who led a group of students for this project that started in 2010.

The watch is linked by a wireless system to a base station, a palm-size device fitted with a SIM card.

The base station sends SMS alerts to multiple contact numbers at once, as long as these are saved in the SIM card.

Alternatively, it can sound the alarm over the Internet through a website.

As the base station can sense the person up to only 50m away, range transmitters help expand the system’s reach.

These thumb-size objects can be placed at locations the person wishes to be covered, such as the kitchen, corridors or even the day-care centre that he or she frequents.

Said Prof Tan: “The system can be scaled up to cover the entire house, HDB block or elsewhere in the neighbourhood.”

The number of elderly citizens here is rising, with the figure now set to triple to 900,000 by 2030.

The number of those living alone is likely to increase to 83,000 by the same year, up from 35,000 last year.

The e-Guardian can also be equipped with other functions.

For example, red LED lights that blink when the distress signal is activated can be fitted onto the windows of HDB flats.

This way, passers-by or neighbours can render help more quickly, said Prof Tan.

It costs the NUS team about US$150 (S$184) to make one base station, one range transmitter and one watch. If the product hits the market, the selling price is likely to be higher.

The team plans to run a one-year trial of the e-Guardian at an elder-care centre that cares for about 80 seniors.

This will start within the next few months.

The project, which was sparked by the engineers’ volunteering stints at elder-care facilities, is funded by a grant from the welfare foundation of the Mitsu Sumitomo Insurance Group.

The group awards up to US$10,000 to teams working on initiatives dealing with senior citizens’ welfare and traffic safety.

Prof Tan said the e-Guardian will be more affordable than existing personal emergency response systems as it is a one-time cost.

Some of the more well-known systems require users to subscribe to services that can cost about US$50 per month.

In addition, these systems can be complicated to use. For instance, they may come with multiple parts, or have to be linked to a landline phone.

“We do not want to push new technology to this group of elderly users,” said Prof Tan.

“If you offer them something that is too high-tech, they will feel worried about it.”