

Fall guy

Robot catches seniors before they take a tumble

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Researchers have unveiled a new robot that can predict and catch seniors before they fall — a potentially major development in caring for the world’s rapidly aging population.

The new device, which looks like a motorized wheelchair, has guardrails that come up to a person’s hip and are outfitted with sensors to judge when a person begins to go off balance. Users strap into a harness, and when they are starting to tip, the robot engages it to keep them from falling.

The machine’s inventors, from the Nanyang Technological University (NTU), in Singapore, affectionately call the machine Mr. Bah, a stand-in for its actual name: the mobile robot balance assistant. The device still needs regulatory approval in major markets like the United States, and faces significant funding challenges for getting to market, but is targeted to be available in two years.

Mr. Bah joins a growing number



The mobile robot balance assistant, called Mr. Bah by its inventors, was designed to catch seniors before they fall, but faces an expensive and uphill battle to get to market. *NANYANG TECHNOLOGICAL UNIVERSITY*

of technological advances for elderly care, including robots that clean homes and provide companionship and wearable devices that track key health metrics.

“(Falls) are a big problem worldwide,” said Wei Tech Ang, a lead researcher for the project and executive director of the Rehabili-

tation Research Institute of Singapore (RRIS). “The ... intention was to help people walk around at home without the fear of falling down.”

Globally, falls are the second leading cause of unintentional injury deaths.

Ang has personal experience.

“My 85-year-old mother, she’s a frequent faller,” he said. “After she fell for the first time about 10 years ago, I started having this idea of creating a robot.”

So far, the device has been only tested on 29 participants. They were patients who suffered from strokes, traumatic brain injuries

and spinal cord injuries. During testing, which spanned three days per participant, the robot aided seniors with sitting, standing and walking. No falls were recorded during the trials, researchers said.

The team’s goal is to get regulatory approval for the device in major markets across the world, including the United States. They envision releasing two versions of the robot. One is a hospital version, outfitted with many high-end sensors and cameras that track an elderly person’s movements, and could cost around \$20,000. The other is an at-home version, which would either have fewer sensors and cameras in it or use lower-quality ones, and could go for \$3,000 to \$4,000, Ang said.

But the team faces a steep challenge. They need around \$4 million in initial funding just to get device approval from regulatory agencies in places like the United States, Europe, China and Singapore, Ang said. From there, they would need an additional \$10 million to \$20 million to get the device into market.

“One of (the) key strategies is to empower patients,” Karen Chua, a co-developer of the mobility robot at NTU’s medical school said in a statement.

“We want to make robotics therapies more sustainable and accessible in the community where our patients can lead healthier and happier lives.”

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