

Robots to help elderly or paint nails at Tokyo expo (Update)

November 7 2013, by Miwa Suzuki



A Japanese elderly care company Asahi Sun Clean employee (top) wearing a power suit, called 'Muscle Suit,' lifts a fellow worker during a demonstration at the annual International Robot Exhibition in Tokyo, on November 6, 2013

Pneumatic muscle suits and a walking stick that behaves like a guide dog competed for attention with an industrial robot that can paint fingernails

at a huge expo in Tokyo Thursday.

In a country where a quarter of the 128-million population is aged over 65, innovations that can make life easier for the elderly or their caregivers are potentially big business and the subject of a lot of research.

A "muscle suit" that gives extra power to a carer to help them lift a bed-bound patient was one of the star attractions at the International Robot Exhibition in Tokyo, which runs until Saturday.

Worn like a backpack, the device is powered by compressed air and takes some of the strain out of lifting an elderly or disabled person by giving extra muscle-power to the back and hips.

The machine, developed by Tokyo University of Science and a nursing care company, is activated by a tube in the wearer's mouth, adding lift when the operator breathes in. Exhaling switches the power off.

"It feels like you're using about half the power to lift people," said caregiver Norikatsu Kimura, who took part in a trial at elderly care firm Asahi Sun Clean.

"The assistance gives me relief as we are always worried about hurting our lower waist."



Japan's auto parts maker NSK demonstrates a cane style navigation 'LIGHBOT' robot for elderly and handicapped people, equipped with a laser rangefinder to avoid obstacles, at the annual International Robot Exhibition in Tokyo, on November 6, 2013

"I've seen many workers who were willing to continue this job but had to stop because of hip pain," he said.

The device's compressed air power makes it safe to use around water—vital because of the need to lift patients in and out of the bath. It

weighs 10 kilograms (22 pounds) including a two-kg air tank.

Among the 300 companies at the four-day expo was NSK, which was showcasing a walking stick-like device to help visually impaired users with physical support and guidance on directions.

The LIGHBOT, which looks a little like a cane standing on a tiny cart, can guide a visually-impaired user to a pre-programmed destination. It even watches out for dangers along the way, including trip hazards such as holes or walls, and head-height obstacles like branches.

"Thanks to the sensors, this machine avoids any obstacle and allows visually-impaired users to move safely," said Mayuko Mori from NSK.

"There is a severe shortage of guide dogs and in any case, some people cannot keep animals in their apartments."



Japan's machine maker Toyo Riki displays a nail decoration robot 'Robo Nailist', during a demonstration at the annual International Robot Exhibition in Tokyo, on November 6, 2013

She said no decision had yet been made about putting the device into production, but field-testing in hospitals or other institutions was expected to start soon.

Funai Electric was showcasing a walking assistance cart, which it hopes to begin selling in 2015.

The appliance is a modern twist on the traditional shopping cart, where onboard motors give assistance on uphill climbs and apply a steadying brake on the way back down. GPS equipment can help family members locate a wandering shopper.

On the lighter side of the expo, Toyo Riki demonstrated a "Robo Nailist", an industrial robot arm which uses its incredible precision to apply layers of nail varnish, which it decorates with miniscule crystal rhinestones in the very latest fashion.

"Many people imagine 'industrial robots' are doing welding work in big factories but we displayed this just to show how dexterous they are," said company head Narito Hosomi.

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