

# Japan shows off disaster-response robots at android fair

December 2 2015, by Natsuko Fukue

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Two humanoid robots walk over mock debris to show their disaster-response abilities at the International Robot Exhibition in Tokyo, on December 2, 2015

Japan on Wednesday displayed a pair of two-legged humanoid robots that can operate in harsh conditions as the country prone to earthquakes and volcanic eruptions prepares for the next catastrophe.

Simulating work in a tunnel after a quake, two slender robots with tiny

heads attached with sensors walked through fake debris to extinguish a fire during a demonstration at the International Robot Exhibition in Tokyo.

The four-day event which kicked off Wednesday, is held once every two years in Japan's capital.

This year it is drawing nearly 450 participating organisations—the biggest since it started about four decades ago. Some 57 of the groups come from countries including France, Britain, Russia and South Korea.

This year's show is focused on robotic equipment for disaster relief, assisting the elderly as well as their caregivers, and for farming.

Disasters are a fact of life for Japan, an archipelago nation facing the "Ring of Fire"—the rim of the Pacific Ocean that includes other earthquake and volcanic zones from Chile all the way around to New Zealand.

The two disaster-relief droids were developed under the New Energy and Industrial Development (NEDO)—a national research organisation—that started after a devastating earthquake and tsunami hit northern Japan in 2011.

But unlike in Hollywood movies where bots can run, jump and fly at high-speeds, these droids are the slow and steady type.



Softbank's "Pepper" humanoid robots 'rest' before the International Robot Exhibition in Tokyo, on December 2, 2015

HRP-2 Kai and red-and-yellow coloured JAXON—named after the late singer Michael Jackson—were on Wednesday focused on more serious tasks.

## 'Wonderful robots'

"HRP-2 Kai is now recognising debris and thinking with a sensor on its head about where to put its foot," said Fumio Kanehiro, researcher at the National Institute of Advanced Industrial Science and Technology that developed the [robot](#).

While HRP-2 Kai, which is 170 cm (5-feet 6-inches), walked on a

narrow board, 188 cm-tall JAXON—developed by the University of Tokyo—moved forward by bending its back and putting both hands on the floor, judging that the ceiling was too low to move upright.

It then lifted itself up to remove a box and debris to secure a pathway—tasks that could be done even in a risky environment hazardous to humans.

But humanoid bots are far from perfect, suffering from balance problems on rough terrain, conceded Shuji Yumitori, head of NEDO's robot division.

He added that his organisation hopes further improvements will put them in commercial use in as little as five years.



Some 450 companies unveiled their latest droids at the International Robot

Exhibition in Tokyo, on December 2, 2015

"They'll be wonderful robots," Yumitori said.

Still Japan, where robots have been developed for decades, does not always excel in global competitions.

In June, Japanese-made robots made it to the finals of a US disaster-response contest inspired by the 2011 meltdowns at the Fukushima nuclear plant that followed the earthquake and tsunami.

JAXON's performance at the event—eventually won by South Korean scientists—proved to be cringe-inducing as the droid tumbled and had to be carried away on a stretcher.

Yumitori, however, shrugged off the defeat.

"Our priority is not about whether we win or not," he said.

"It's about whether we can create something that is useful for human beings."

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