

Toyota will showcase support robot for homebound

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Credit: Toyota

(Phys.org)—Toyota has unveiled a new single-arm robot to assist homebound residents with limited mobility. The 70-pound robot's arm has a two-fingered gripper and telescopic body to complete fundamental house tasks that would otherwise be impossible for the patient to complete. The Toyota prototype is called the HSR, which stands for Human Support Robot, to help those with limited arm and limb movements. The company announced HSR's debut on Sept. 21. HSR goes to work to fetch items, open curtains, and pick up items from the floor or on top of tables and high counters. The Toyota robot can be controlled using a graphical user interface via tablet PC.

The HSR also responds to [voice commands](#). The tablet can be worn on HSR's head. The resident would in turn talk to other family members or a [caregiver](#) via [Skype](#) or another [voice service](#). The robot's telescopic body enables it to pick items from the floor or on top of high counters; the body has heights of 2.7 to 4.3 feet and an arm length of 2.5 feet. It can hold an object that weighs up to 2.6 pounds.



Toyota designers considered home nuances that can affect how much of a welcome such a robot would be—small-sized rooms and floor-surface [interruptions](#) in crossing over from carpet to hardwood areas. HSR can overcome [bumps](#) in the floor up to 0.3 inches, which is said to be enough to cross from a wood to carpeted floor. When not in use, the robot's single arm can fold tightly to reduce its overall body diameter to 14.5

inches, to accommodate small-sized rooms.



Toyota tested the HSR prototype making use of feedback from the Yokohama Rehabilitation Service. Last year, residents gave Toyota feedback on the design during in-home trials, where the robot was used to help people with disabilities.

As for [safety precautions](#), the designers saw to it that the body's moving parts do not generate large amounts of force and that movements are slow, to prevent injuries. The robot travels at a maximum speed of 1.8 miles per hour and can climb slopes up to five degrees.



This new entry takes its place in the family of robots under Toyota's Partner Robot program. Since 2005, Toyota has been doing some serious tinkering on mobility and humanoid robots to accomplish varied tasks. Toyota is keeping a business eye on the fact that the role of personal-service robots is likely to increase as aging populations grow.

"Aiming to improve the quality of life, Toyota has developed the HSR prototype in cooperation with the Japan Service Dog Association to identify the needs and desires of individuals with limited limb mobility," Toyota said in its statement. The company will demonstrate the robot to the public this coming week, from September 26 to 28, at the International Home Care and Rehabilitation Exhibition in Tokyo.

The support robot has some way to go before commercialization. Toyota

intends to consult nursing professionals and other health experts to develop further [robot](#) functions before declaring it market-ready.

More information:

www2.toyota.co.jp/jp/news/12/09/nt12_051.html

[kaden.watch.impress.co.jp/docs ... 20120921_561409.html](http://kaden.watch.impress.co.jp/docs/20120921_561409.html)

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