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Cornell's robot Ranger sets 'walking' record at 14.3 miles

A Cornell robot named Ranger has traveled 14.3 miles in about 11 hours, setting an unofficial world record at Cornell's Barton Hall on the morning of July 6. A human -- armed with nothing more than a standard toy remote control -- steered the untethered robot.

Ranger navigated 108.5 times around the Barton Hall indoor track -- about 212 meters per lap -- and made about 70,000 steps before it had to stop and recharge. The 14.3-mile record beats the former world record set by Boston Dynamics' BigDog, which had claimed the record at 12.8 miles.

Lindsay France/University Photography

Graduate student Pranav Bhounsule operates the robot Ranger, which set an untethered walking record in Barton Hall. Watch Ranger walk.

A group of engineering students led by Andy Ruina, Cornell professor of mechanical and aerospace engineering, announced the robotic record July 9 at the Dynamic Walking 2010 meeting in Cambridge, Mass. Ruina leads the Biorobotics and Locomotion Laboratory at Cornell. The research is funded by the National Science Foundation.

Previously, students in Ruina's lab set a record for a robot walking untethered in April 2008, when Ranger strode about 5.6 miles around the Barton Hall track. Boston Dynamics' BigDog subsequently beat that record.

One goal for robotic research is to show off the machine's energy efficiency. Unlike other walking robots that use motors to control every movement, the Ranger appears more relaxed and in a way emulates human walking, using gravity and momentum to help swing its legs forward.

Standing still, the robot looks a bit like a tall sawhorse, and its gait suggests a human on crutches, alternately swinging forward two outside legs and then two inside ones. There are no knees, but its feet can be flipped up and out of the way while it swings its legs so that the robot can finish its step.

Ruina says that this record not only advances robotics, but helps undergraduate students learn about the mechanics of walking. The information could be applied to rehabilitation, prosthetics for humans and improving athletic performance.

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