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Out of the Gait: Robot Ranger Sets Untethered 'Walking' Record at 14.3 Miles

ScienceDaily (July 23, 2010) — The loneliness of the long-distance robot: A Cornell University robot named Ranger walked 14.3 miles in about 11 hours, setting an unofficial world record at Cornell's Barton Hall early on July 6. A human -- armed with nothing more than a standard remote control for toys -- steered the untethered robot.

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Ranger navigated 108.5 times around the indoor track in Cornell's Barton Hall -- about 212 meters per lap, and made about 70,000 steps before it had a 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.

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

funds this research.

Previously, students in Ruina's lab set a record for an untethered walking robot in April 2008, when Ranger strode about 5.6 miles around the Barton Hall. 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 flip up -- and out of the way, while it swings its legs -- so that the robot can finish its step.



The robot Ranger, which set an untethered walking record in Barton Hall. (Credit: Image courtesy of Cornell University)

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