

# SkySweeper robot makes inspecting power lines easy and inexpensive (w/ Video)

August 6 2013

---



SkySweeper is V-shaped with a motor-driven "elbow" and its ends are equipped with clamps that open and close as necessary to move it down utility lines, searching for damage, inch by inch. It was designed by graduate student Nick Morozovsky in the Coordinated Robotics Lab led by mechanical and aerospace engineering professor Tom Bewley. Credit: UC San Diego Jacobs School of Engineering.

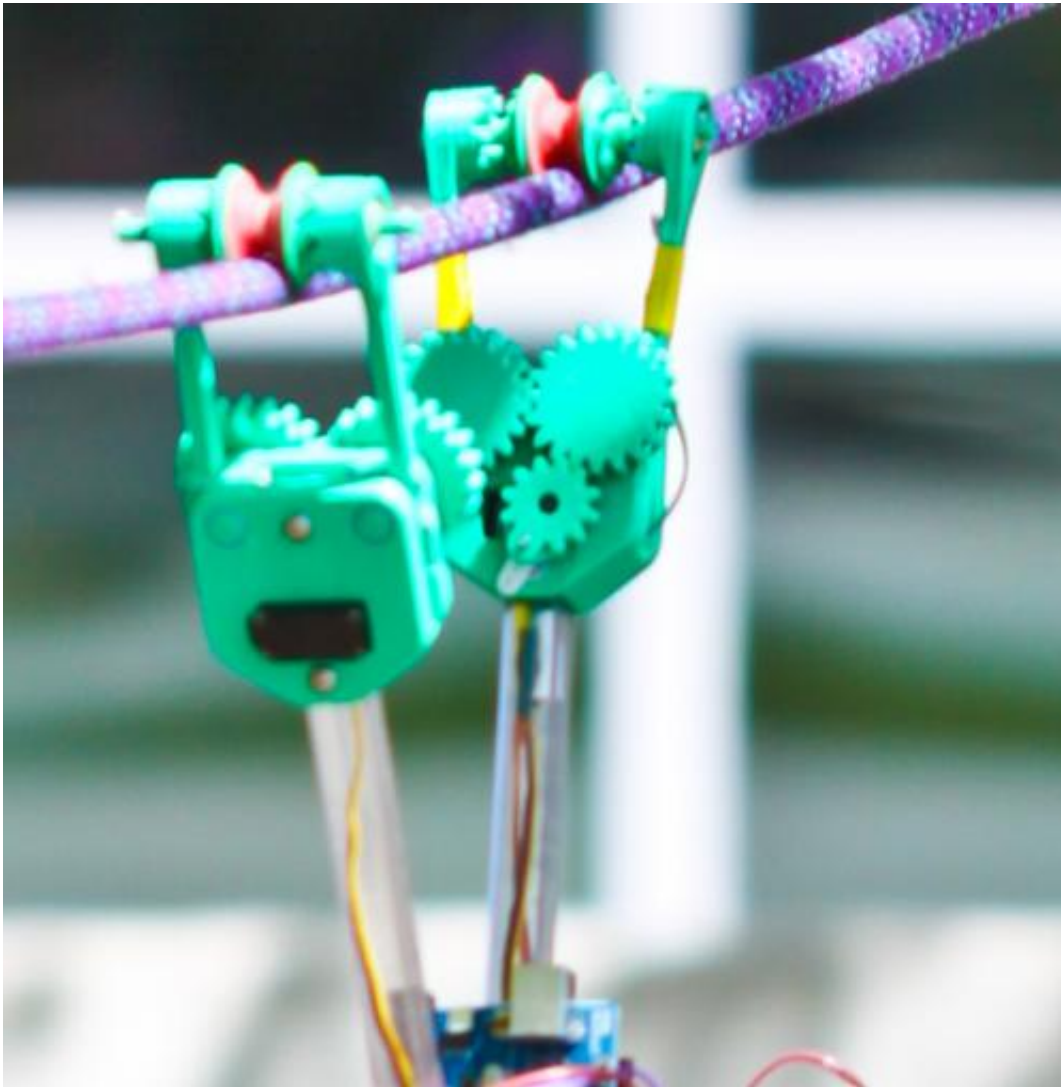
Mechanical engineers at the University of California, San Diego invented a robot designed to scoot along utility lines, searching for damage and other problems that require repairs. Made of off-the-shelf electronics and plastic parts printed on an inexpensive 3D printer, the SkySweeper prototype could be scaled up for less than \$1,000, making it significantly more economical than the two models of robots currently

used to inspect power lines.

"Current line inspection robots are large, complex, and expensive. Utility companies may also use manned or unmanned helicopters equipped with [infrared imaging](#) to inspect lines," said Nick Morozovsky, a graduate student in [mechanical engineering](#) at UC San Diego, who designed the robot. "This is much simpler."

Morozovsky, who works in the lab of Professor Thomas Bewley at the Jacobs School of Engineering at UC San Diego, will introduce the robot at the International Conference on Intelligent Robots and Systems, also known as IROS 2013, from Nov. 3 to 8 in Tokyo. He will also present a paper, titled "A Low Degrees of Freedom, Dynamic High Wire Robot," at the conference.

SkySweeper is V-shaped with a motor-driven "elbow" in the middle and its ends are equipped with clamps that open and close as necessary to move it down the line, inch by inch. Morozovsky is strengthening the clamps so they can release from the rope and swing down the line, one end to the other, thereby swinging past cable support points.



SkySweeper is V-shaped with a motor-driven "elbow" and its ends are equipped with clamps that open and close as necessary to move it down utility lines, searching for damage, inch by inch. It was designed by graduate student Nick Morozovsky in the Coordinated Robotics Lab led by mechanical and aerospace engineering professor Tom Bewley. Credit: UC San Diego Jacobs School of Engineering.

SkySweeper could be outfitted with induction coils that would harvest energy from the power line itself, making it possible for the robot to stay deployed for weeks or months at a time. It could also be equipped with a

mounted camera, which would transmit images to an inspection crew.

**More information:** Before it heads out to Japan, SkySweeper is competing in the Road to Maker Faire Challenge, a contest where winners can bring home \$2,500 to take their project to the World Maker Faire Sept. 21 and 22 in New York. You can vote for SkySweeper from Aug. 6 to 13 here: [review.wizehive.com/voting/view/2013/15849/1387186/0](http://review.wizehive.com/voting/view/2013/15849/1387186/0)

Provided by University of California - San Diego

Citation: SkySweeper robot makes inspecting power lines easy and inexpensive (w/ Video) (2013, August 6) retrieved 25 April 2024 from <https://phys.org/news/2013-08-skysweeper-robot-power-lines-easy.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--