

# All-terrain robot for nuclear decommissioning

December 2 2015, by Cécilia Carron

---

ROVéo is a robot whose unique four-wheel design allows it to climb over obstacles up to two-thirds its height. Rovenso, the start-up that developed this prototype, aims to produce a larger-scale model equipped with a robotic arm for use in dismantling nuclear plants, for example.

Steps, rubble and rocks: nothing seems to stop ROVéo, whose legs move in response to the obstacles it encounters. ROVéo is a rolling robot that can get past objects up to about two-thirds of its height without breaking stride.

The device, which looks like an armadillo, is surprisingly adaptable, thanks to its unique mechanical design and the presence of a motor on each leg. The wheels at the end of each leg operate autonomously, and the legs themselves – which jut directly downward from the shell – are linked together by only one degree of freedom. This configuration allows the robot to handle uneven terrain just as easily as it cruises over uniform obstacles like a staircase.

Rovenso is also developing a remote-control system combining immersive vision and force feedback. Steering is done by synchronizing the rotation of the front and rear wheels. This allows for high-precision maneuvers, including effortlessly reversing course to get out of a dead end. "The device has no trouble moving on both convex and concave surfaces, whether solid or loose," said Thomas Estier, the start-up's co-founder.

## **A 500-kg model equipped with a robotic arm**

"Our prototype was built in six months by a talented Master's student using only sketches and texts written for the patent filing," said Lucian Cucu, Rovenso's other co-founder. The company is preparing to raise half a million francs, in part to complete a 500-kg model based on a similar underlying mechanism. Its properties will be the same, including the ability to negotiate obstacles that are one and a half times as tall as the robot's ground clearance, i.e. the distance between its chassis and the ground.

The heavyweight version will also come equipped with a [robotic arm](#) for remote handling operations. The robot's main vocation, in the view of its designers, will be to conduct dangerous operations in hard-to-reach places, such as nuclear decommissioning and emergency response.

Provided by Ecole Polytechnique Federale de Lausanne

Citation: All-terrain robot for nuclear decommissioning (2015, December 2) retrieved 24 November 2024 from <https://phys.org/news/2015-12-all-terrain-robot-nuclear-decommissioning.html>

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.