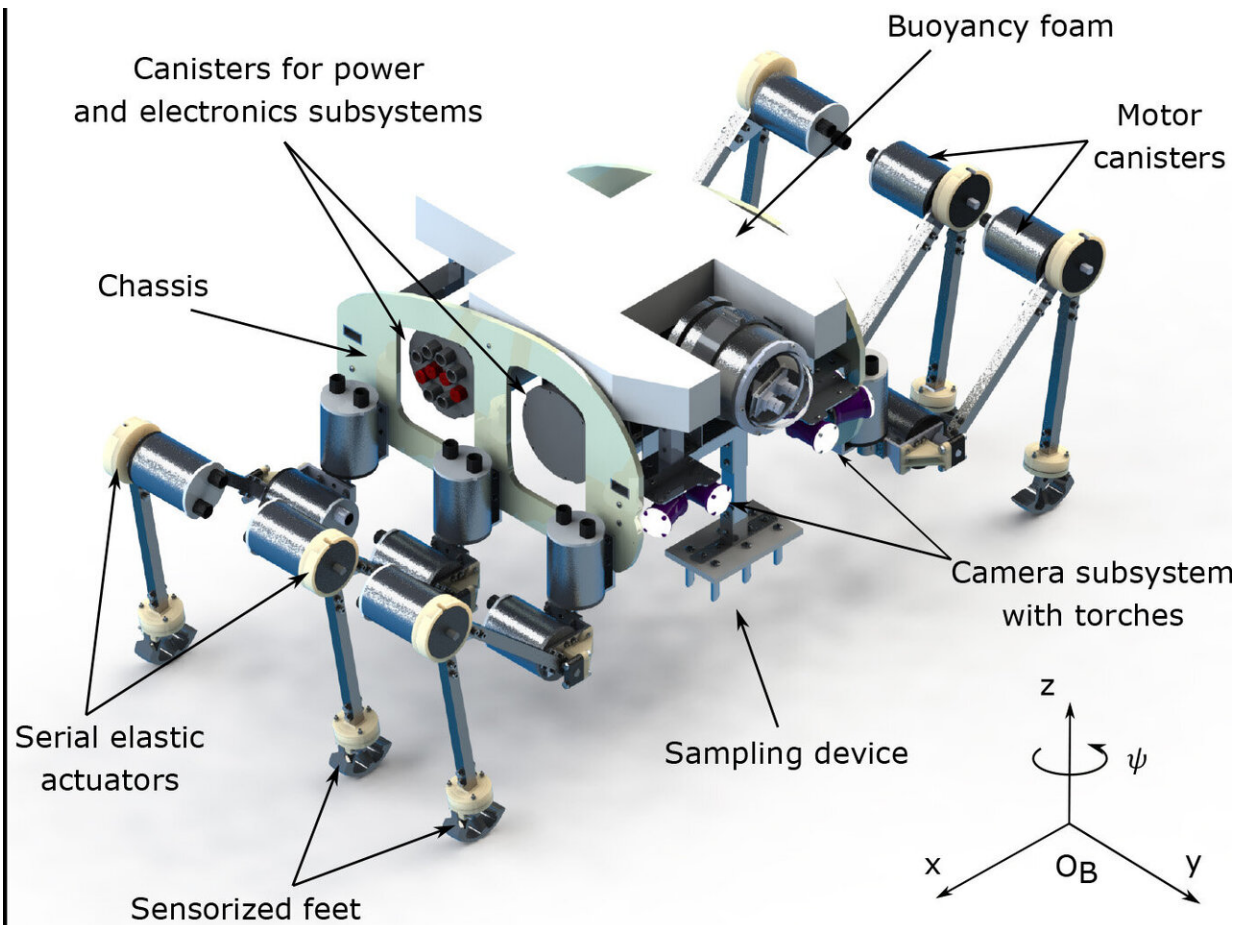


SILVER2 aquatic robot walks around on the seabed

May 14 2020, by Bob Yirka



Schematic of SILVER2's design. Credit: Picardi et al., *Sci. Robot.* 5, eaaz1012 (2020)

A team of Italian researchers from the BioRobotics Institute, Scuola Superiore Sant'Anna and Stazione Zoologica Anton Dohrn has developed a new and improved version of its Seabed Interaction Legged Vehicle for Exploration and Research (SILVER) with the SILVER2—a robot that can walk around on the seafloor taking video as it goes. In their paper published in the journal *Science Robotics*, the group describes the robot, its capabilities and how it might be used in research efforts.

Two years ago, the same research team debuted SILVER—a [robot](#) that could walk around on the seafloor like a dog. Shortly thereafter, the researchers received a National Geographic Society Early Career Grant that allowed them to improve the design and give it more functionality. In addition to being able to walk around, SILVER2 can now make its way across both muddy and rocky surfaces, even hopping when necessary to keep moving. The six-legged robot looks similar to a lobster walking across the sea bed, minus the claws. As it moves, it maintains its balance through use of a novel leg-stabilizing module in its waterproof body shell. The robot also has a navigation system that helps it avoid obstacles, and, of course, to make its way to a desired location. It also has a [pressure sensor](#), a buoyancy system, contact sensors and a pair of cameras and microphones to capture video of its immediate surroundings.

SILVER2 has already been tested under a variety of conditions, including billowing seaweed, mud, rocks and sand, all in varying currents. Testing also showed the robot to be remarkably quiet, which allowed it to capture video of sea creatures unaffected by its presence.

The undersea robot can be driven across the seabed by a boat-based human pilot, or it can operate in autonomous mode. It can operate for approximately seven hours when walking around or for 16 hours if it simply stands still on the seafloor. The researchers believe it can be used to interact closely, and if need be, delicately with the environment for

long periods of time—extending the capabilities of underwater robots for many types of applications, ranging from ecology to archeology.

More information: G. Picardi et al. Bioinspired underwater legged robot for seabed exploration with low environmental disturbance, *Science Robotics* (2020). [DOI: 10.1126/scirobotics.aaz1012](https://doi.org/10.1126/scirobotics.aaz1012)

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