



Robot snake

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ROBOT SNAKE CAN CRAWL THROUGH PIPES

● WORK & LIFESTYLE

Engineers have developed a robotic snake that can conduct inspections in places where humans cannot fit.

We have seen ways in which robots that mimic biological structures can read [sign language](#) and search for the sources of [water pollution](#). Now, a team of engineers from Japan's [Kyoto University](#), [Kanazawa University](#) and [Okayama University](#) have developed a snake robot that is capable of wiggling through complex pipe structures to aid inspection and repair.

Despite their very simple body design, snakes are capable of using many different forms of locomotion, such as lateral undulation and pole climbing. Researchers studied the movements of real-life snakes to try and achieve a similar range of motion. The researchers designed their robot snake to mimic movements such as the sinus-lifting motion, where the snake moves forward by lifting and twisting parts of its body; and the side-winding motion. The robot duplicates these real-life movements to slither over debris and to climb up cylindrical objects by winding around them.

The snake robot is around six feet long and weighs approximately 20 pounds. It is equipped with a camera and high-performance sensors that allow it to weave its way through complicated networks of pipes. The robot keeps track of its location by monitoring its own echoes. According to Kyoto robotics professor Fumitoshi Matsuno, the robot will be upgraded to be water and dust resistant in the future. The team is currently studying how to control snake robots in complex environments such as disaster sites and plant facilities. The engineers have already devised a way to use the snake like a robot arm by lifting up the 'head' and a way for two snakes to carry a load between them. In the future, the researchers hope that the snakes can be used for checking sites that are

dangerous for humans to enter, such as in decommissioning work at the Fukushima Daiichi nuclear plant. What other uses might there be for a snake-shaped robot?

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Email: info@mechatronics.me.kyoto-u.ac.jp

Website: www.mechatronics.me.kyoto-u.ac.jp

Contact: info@mechatronics.me.kyoto-u.ac.jp