

Zhejiang University researchers design gecko inspired robot

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(PhysOrg.com) -- Those of you who paid close attention in biology (or zoology) class may recall that the gecko can climb any vertical substance known to man, with the exception of Teflon, without much trouble thanks to the help of micro hairs, which create a kind of dry adhesion. Researchers at Zhejiang University in China used the capabilities of these lizards when they began building their new robot.

The [robot](#), which does not at this time have a name, uses [water](#) instead of hairs to make its amazing climbs up vertical surfaces. The bot is designed to wash windows, so the choice of water as a means of creating a motion-induced vacuum is really quite a practical one. The bot can currently carry only its own weight, and comes equipped with only a small battery and no motors, which would weigh it down.

The system works something like this. The robot is attached to a faucet with a hose loop. When the water begins to flow the pressure makes the system work in three ways. First, it passes through the fluidic vacuum generators, which use the Bernoulli principle to create the needed suction for sticking. After that it is routed through a [solenoid](#) valve and piston that are attached to the robot's spine. This allows the robot to climb and move by managing the flow of the water with a simple spinal [actuator](#). Finally, the water is squirted out of the bot and onto the target windows for washing.

Anyone wishing to find out more about this robot can refer to the published paper "A Gecko Inspired Fluid Driven Climbing Robot," by Jilin Liu, Zhangqian Tong, Jinyuan Fu, Donghai Wang, Qi Su, and Jun Zou of the Institute of Mechatronic Control Engineering at Zhejiang University, China, which was first presented to the [International Conference on Robotics and Automation](#).

More information:
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