iRobot Unveils Morphing Blob Robot (w/ Video)

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The blob bot uses a jamming mechanism to change its shape and roll, enabling it to squeeze into small spaces. Credit: iRobot.

(PhysOrg.com) -- iRobot's latest robot is unique on many levels. The doughy blob moves by inflating and deflating - a new technique its developers call "jamming." As the researchers explain in the video below, the jamming mechanism enables the robot to transition from a liquid-like to a solid-like state.

Earlier this week, researchers from iRobot and the University of Chicago presented the new "blob bot" at the IEEE/RSJ International Conference on Intelligent Robots and Systems.

As a new kind of chemical robot (or chembot), the blob bot has stretchy

silicone skin, which is composed of multiple cellular compartments that each contain a "jammable slurry." When some of these cells are unjammed, and an actuator in the center of the robot is inflated, the robot inflates in the areas of the unjammed cells. By controlling which cells are unjammed, the researchers can change the shape of the robot and make it roll in a specific direction.

The new robot is being funded by DARPA, which gave iRobot $3.3 million to work on the chembot last year. The goal is to build a robot that can squeeze through tiny openings smaller than its own dimensions, which could be valuable in a variety of missions. The video shows the robot from about one year ago, and since then the researchers have been working on adding sensors and connecting multiple blob bots together.

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