

Robots climb up the wall (w/ Video)

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Amir Shapiro and the 3-limbed spider-robot.

(PhysOrg.com) -- A robotics scientist from Ben-Gurion University of the Negev in Beersheeba, Israel, has developed four different kinds of robots that climb up walls.

The latest projects of Amir Shapiro, head of the robotics laboratory in the Department of Engineering, are wall-climbers, two of which are inspired by animals that climb. One robot, inspired by snails and their trails of mucus, secretes a tiny trail of hot melted glue that allows it to stick to walls as it climbs, while another, inspired by cats and rodents, has four legs with claws made of fish hooks to help it climb rough surfaces.

A third robot in the collection is a wheeled robot with 3M sticky tape on the wheels to enable it to climb up smooth surfaces such as glass or a

whiteboard. The fourth is magnetic and can climb smooth metal surfaces, which may make it useful for clambering around the submerged hulls of cargo ships to check for contraband and bombs, and replacing divers who now do this work. Shapiro said that a good scanning algorithm could make the robot very efficient for this purpose.

Shapiro's field is known as biomimetics, which involves using technology to mimic nature, and within that field is a sub-specialty that uses technology specifically to mimic animal location. Several researchers have worked on robots mimicking the undulation motion of snakes, but Shapiro and his team have succeeded in combining vertical and horizontal wave motions to create the trademark slithering motion of snakes. This [robot](#) can slither through small holes and pipes, which could help rescue workers locate and rescue people trapped under collapsed buildings.

Shapiro was asked to design the wall-climbing robots by the Israeli military, who wanted them for intelligence gathering.

More information: www.bgu.ac.il/~ashapiro/

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