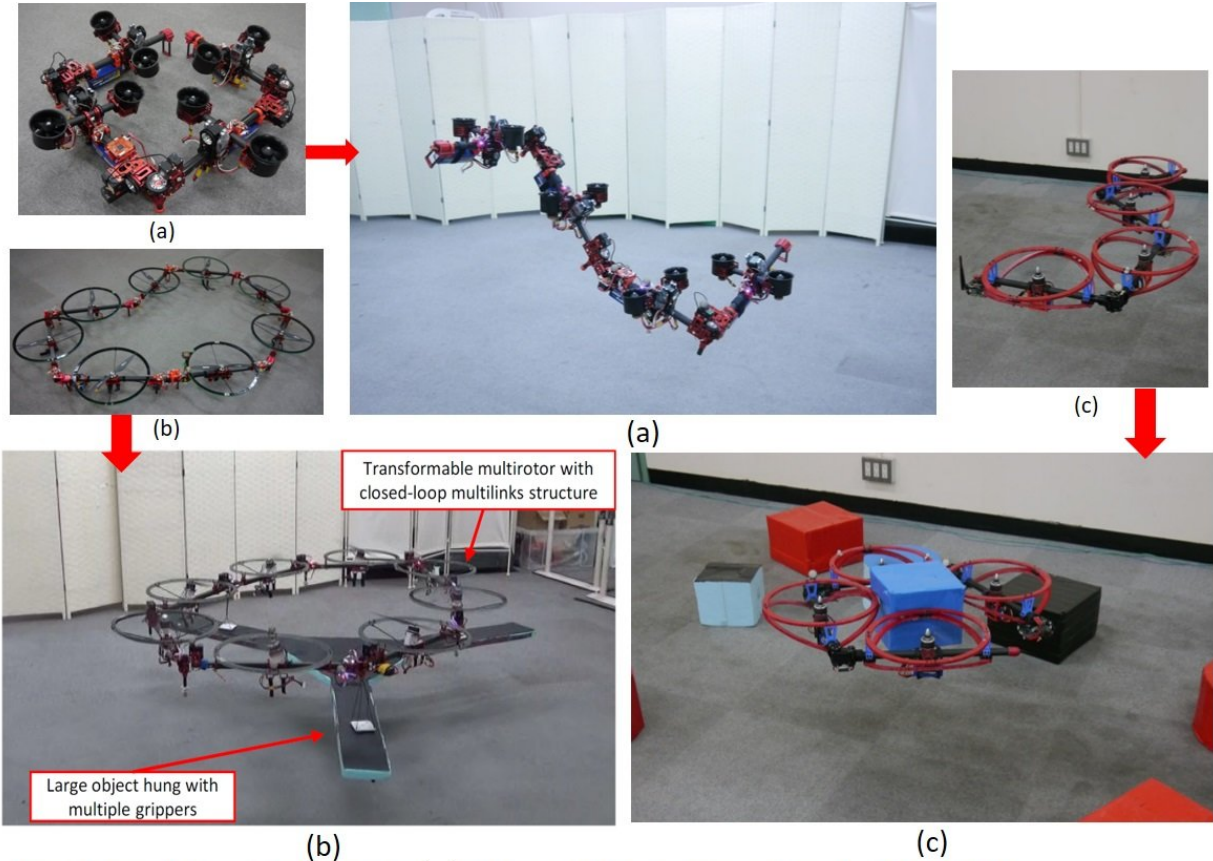


Flying DRAGON robot can slip through tight spaces

June 29 2018, by Bob Yirka



Transformable aerial robots. (a): 3D aerial transformation by **DRAGON**; (b): picking large object by **HALO**; (c): whole body aerial manipulation by **HYDRUS**.

Credit: JSK

A team of researchers at JSK Lab at the University of Tokyo has created

a new type of drone called DRAGON, which is shaped like a snake. The team has written a paper describing their robot and recently presented it at the International Conference on Robotics and Automation—they have also posted it on their website.

In recent years, [drone](#) technology has progressed at a rapid pace due to factors such as smaller, lighter circuitry, battery improvements and increased demand. The result has been the development and production of commercial and private drones able to carry out a wide variety of tasks. In this new effort, the researchers have sought to expand the capabilities of drones by building one that is capable of flying indoors. Such drones, they note, face a very large number of challenges such as avoiding objects and perhaps most importantly, navigating through tight spaces. Their research efforts have led them to create the DRAGON.

What is most striking about the robot is its shape. Instead of the standard quadcopter configuration, the DRAGON is linear and flexible. This means it can alter its shape on demand. Examples include a snake, a box or a zig-zag. And as if that is not enough, it can do so autonomously to suit its needs—such as switching from a standard box formation to that of a snake to allow it to slip through a small opening. Though it might look tentative in its movements, the design of the robot is groundbreaking because it opens the door to the possibility of a whole new kind of flying robot.

The DRAGON is constructed from individual modules—each with circuitry, a battery and dual duct fan thrusters that can be rotated. A robot is created by hooking the modules together like a flying train. The robot is controlled by an Intel Euclid. The researchers have plans to add arms with grippers on either end of the [robot](#), allowing it to pick up objects and attach itself to a desired object by wrapping around it. They also note that while they are currently testing four module DRAGONs, they envision adding more to suit different applications.

More information: www.jsk.t.u-tokyo.ac.jp/research/multilink.html

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