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Application of Japanese Origami Ball for Floating Multirotor Aerial Robot

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Abstract : In this work, we propose the application of Japanese “Origami” art for a floating function of a small aerial vehicle such as a hexarotor. A preliminary experiment was conducted using Origami magic balls mounted under a hexarotor. This magic ball can expand and shrink using an air pump during free flying. Using this interesting and functional concept, it promises to reduce the resistance of wind as well as reduce the energy consumption when the Origami balls are deflated. This approach can be particularly useful in rescue emergency situations. Furthermore, there are many unexpected reasons that may cause the multi-rotor has to land on the surface of water due to problems with the communication between the aircraft and the ground station. In addition, a complementary experiment was designed to prove that the hexarotor can fly maintaining the stability and also, takes off and lands on the surface of water using air balloons.

Keywords : helicopter, Japanese origami ball, floating, aerial robots, rescue
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