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Tan et al.

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(54) **GLIDING ROBOTIC FISH NAVIGATION AND PROPULSION**

(56) **References Cited**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 149 days.

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CPC **B63G 8/001** (2013.01); **B63G 2008/005** (2013.01)

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CPC B63G 8/001; B63G 8/04–8/08; B63G 8/14–8/26; B63G 2008/14–2008/26; B63G 2008/002–2008/008

See application file for complete search history.

(57) **ABSTRACT**

A robotic submersible includes a housing having a body and a tail. In another aspect, a pump and a pump tank adjust the buoyancy of a submersible housing. In a further aspect, a first linear actuator controls the pump and/or a buoyancy, and/or a second linear actuator controls a position of a battery and/or adjusts a center of gravity. Another aspect includes a pump and at least one linear actuator that control gliding movements of the housing. In still a further aspect, a motor couples a tail with a body, such that the motor controls the movements of the tail to create a swimming movement. Moreover, an additional aspect provides a controller selectively operating the pump, first actuator, second actuator, and motor to control when swimming and gliding movements occur.

35 Claims, 8 Drawing Sheets

