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Development of multi-rotor flight robotics and applications

The author developed a disk type flight robot equipped with multiple rotors used as an aerial observation platform in 2007. Models for the system are introduced. A quadratic optimal linear regulator based solution has been proposed. A simulation model is used to test the controller which successfully tracks a reference trajectory while providing rigidity against external disturbance. For the fault tolerant control of an eight-rotor VTOL Unmanned Air Vehicle (UAV), a control allocation scheme is proposed. Also, the authors have used hybrid flying robotic mechanisms to provide solutions tailored to specific needs. Such examples include a hybrid lighter-than-air (LTA) balloon (to remotely check tunnels) and tethered kite controlled by multi-rotors, and a wheeled vehicle also controlled by multi-rotors for efficiently checking bridge cables despite windy conditions

Recent Publications:

- 1. Ikuo Yamamoto (2016) Practical Robotics and Mechatronics: Marine, Space and Medical Applications, IET (The Institution of Engineering and Technology, UK, ISBN 978-1-84919-968-1.
- 2. N Inagawa, I Yamamoto and T Nakamura (2010) Application of unmanned flying observation robot using real time video transmit system. Journal of Electrical Engineering Theory and Application 12010(2):86-91.

Biography

Ikuo Yamamoto is a professor under Department of Mechanical Systems Engineering at University of Kitakyushu.he completed his doctorate from Kyushu University.His research topic include Robotics, Systems engineering ,bio-mechanism robots etc.He has won the ArchipelaegoAward for the year 2005 at the 32th Festival mondial de l'image sous-marine in France by "Bio-maneuvering type underwater vehicle / Development of life-like swim".

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