

Implementation and Modeling of a Quadrotor

Authors : Ersan Aktas, Eren Turanoğuz

Abstract : In this study, the quad-electrical rotor driven unmanned aerial vehicle system is designed and modeled using fundamental dynamic equations. After that, mechanical, electronical and control system of the air vehicle are designed and implemented. Brushless motor speeds are altered via electronic speed controllers in order to achieve desired controllability. The vehicle's fundamental Euler angles (i.e., roll angle, pitch angle, and yaw angle) are obtained via AHRS sensor. These angles are provided as an input to the control algorithm that run on soft the processor on the electronic card. The vehicle control algorithm is implemented in the electronic card. Controller is designed and improved for each Euler angles. Finally, flight tests have been performed to observe and improve the flight characteristics.

Keywords : quadrotor, UAS applications, control architectures, PID

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