1, Details of the Paper

Title: MICRORAPTOR: A LOW-COST AUTONOMOUS QUADROTOR SYSTEM
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From: ASME/IEEE International design engineering technical Conference and Computers and Information in Engineering Conference
San Diego, California, USA, August 30–September 2, 2009
URL:http://proceedings.asmedigitalcollection.asme.org/proceeding.aspx?articleid=1649510

2, Summary

This paper describes Microraptor, a complete low-cost autonomous quadrotor system designed for surveillance and reconnaissance applications. The Microraptor ground station is custom-made and features a graphical user interface that presents and allows the manipulation of various flight parameters. The aerial vehicle is a 4-rotor vertical takeoff and landing (VTOL) vehicle that features the advantages of traditional helicopters with significant reduction in mechanical complexity. The vehicle frame is a handmade magnesium and carbon fiber structure. The onboard avionics system is a custom dual processor design capable of autonomous path navigation and data exchange with the ground station. The vehicle is outfitted with a video and still-photo system that provides real-time images to the system operator through the GUI.

3, Strong Points and Main Contributions

(1) Introduce the background of the quadrotor in detail and described how the quadrotor work.
(2) Using simulation to study the control stability of the quadrotor.
(3) Using a new and convenient method to debug the PID parameter.
(4) Making a ground station which presents and allows the manipulation of various flight parameters.

4, Weak Points

(1) Did not build the mathematic modal and the transfer function of the quadrotor which made the whole paper lass of theoretical analysis.
(2) The description of the hardware which just introduces the hardware superficially and did not mention the reason of choosing it and compare of other choices.

(3) The structure of the hardware is vague. Did not mention the connection and communication mode between the sensor and the microprocessor.

(4) Using ready-made flight control appliance making the quadrotor easy to fly but lack of study result.

(5) The field test just easily describes the result which lack of testing index.

(6) Lack of innovation.

5, Organization and presentation

The organization and presentation of the paper is clear. Firstly, the background is introduced. Secondly comes the hardware structure and software. And then design the ground station. Finally test the quadrotor system.

6, Inspire Points

The ground station which presents and allows the manipulation of various flight parameters make the debug part easily processed.