

عنوان مقاله:

Digital Hardware Implementing of Fuzzy based Roll Control System of Unmanned Aerial Vehicle

محل انتشار:

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خلاصه مقاله:

This paper illustrates a hardware description and implementation of a fuzzy logic roll angle control system using very high speed integrated circuit hardware description language (VHDL). The controller inputs are desired roll-angle of an Unmanned Aerial Vehicle (UAV) generated by the trajectory controller and the present value of roll-angle, measured by Inertial Measurement Unit (IMU). The inference outputs are used to drive electro-mechanical actuators (aileron) of plane. Finally results of syntheses could be directly programmed into a Field Programmable Gate Array (FPGA) chip. The main advantages of the proposed method are real-time ability of controller that guaranties the satisfactory and safety of the application, low power consumption and rapid prototyping

کلمات کلیدی:

VHDL, fuzzy logic controller, autonomous flight, roll control, hardware implementation, FPGA

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