ABSTRACT

Based on the nature of the aircraft movement, aircraft dynamics are grouped into two dynamic models, lateral and longitudinal dynamics. Lateral dynamics is a mathematical model that describes the dynamics of aircraft motion to horizontal motion which includes turning movement. On lateral deflection motion, only two controls affect the response of plane motion that are aileron and rudder.

A plant must be stable means of resistance to outside interference and can return to a position that is expected especially at the last turn. To overcome this problem, designed a control system to use optimal PID controller.

From the results and analysis of the performance test data from the optimal PID controller for position control roll with the feedback gain $K = [0.5774 \ 0.9284 \ 0.5709]$ and yaw position control feedback with gain $K = [-0.3162 \ -0.1069 \ -0.0349]$ capable of providing output in accordance with the desired (set point).

Keywords: PID Optimal, LQR, UAV, Lateral Motion
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