Abstract

This paper presents a comparative assessment of modern and intelligent controllers based on time response specification performance for a yaw control of an aircraft system. The dynamic modeling of yaw control system is performed and an autopilot that controls the yaw angle of an aircraft is designed using two controller design methods. The mathematical model of the system is derived by substituting the known parameters of a standard aircraft in standard equations. The transfer function for yaw control surface, i.e., rudder, is derived and two separate controllers, Linear Quadratic Controller (LQR) and Fuzzy Logic Controller (FLC) are designed for controlling the yaw angle. The effectiveness of each controllers are tested and verified using Matlab/Simulink platform. It is found from simulation, LQR controller give the best performance compared to fuzzy logic controller.

References

Index Terms

Computer Science  Fuzzy Systems

Keywords

Aircraft  Flight Control  Lateral Dynamics  Lqr  Fuzzy Logic