

OPTIMAL CONTROL OF A ROBOTIC SYSTEM WITH TWO DEGREE OF FREEDOM

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ABSTRACT

A simple improvisation technique for designing a linear quadratic regulator (LQR) optimal controller for a robotic pan and tilt platform (PTP) with two degrees of freedom (DOF) has been proposed in this paper. Newton-Euler linear model of this robotic system has been stabilized to obtain the desired performance criteria via LQR. The performance of the proposed LQR controller is highlighted through comparisons with the existing proportional derivative (PD) and lead Compensator controllers on account of both steady state and transient response parameters.

KEYWORDS: Linear Quadratic Regulator, Newton-Euler Equation, Robotic System With 2- DOF, Transient Response Analysis