

Optimal Control of DC Motor Using Linear Quadratic Regulator

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Abstract : This paper provides the implementation of optimal control for an armature-controlled DC motor. The selection of error weighted Matrix and control weighted matrix in order to implement optimal control theory for improving the dynamic behavior of DC motor is presented. The closed loop performance of Armature controlled DC motor with derived linear optimal controller is then evaluated for the transient operating condition (starting). The result obtained from MATLAB is compared with that of PID controller and simple closed loop response of the motor.

Keywords : optimal control, DC motor, performance index, MATLAB

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