The optimal control value of LQR is added negatively with PID control value to have a resultant optimal control. The MATLAB-SIMULINK models have been developed for simulation of the control schemes. The tuning of the PID controllers which are used here either as PID control method or PID+LQR control methods is done by trial & error method and observing the responses achieved to be optimal. The simulation results justify the comparative advantages of optimal control using LQR method. The pendulum stabilizes in upright position with acceptable minor oscillations and cart approaches the desired position even under the continuous disturbance input such as wind force justify that the control schemes are effective & robust. The response of PID controller using LQR is better than PID controller.

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