



LQR- Based Stabilization and Position Control of a Mobile Double Inverted Pendulum

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Abstract. The double inverted pendulum is a system that can be used efficiently to test and validate the performance of control algorithms because of its instability and the many degrees of freedom system. The paper presents the design and development of a unique mobile double inverted pendulum system. LQR is applied for balancing control of both pendulums and position control of the mobile platform of the system. Both simulations and experiments are conducted to evaluate the system performance.

Keywords: pendulum, self-balanling, LQR, position control.