

Control Systems Lab

Experiment No – 3

Inverted pendulum

Aim

To design and implement control action for maintaining a pendulum in the upright position (even when subjected to external disturbances) through LQR technique in an Arduino Mega.

Objectives

- a) To restrict the pendulum arm vibration (α) within ± 3 degrees
- b) To restrict the base angle oscillation (θ) within ± 30 degrees.

Prerequisites

LQR technique, Matlab coding, Arduino coding, State space modelling

Materials/ Equipments required

Inverted pendulum setup, Arduino mega, A-B cable, Decoder shield, Power supply, Screw driver, Jumpers, Wires and Wire stripper.