Project Report Title : The Construction and Control of Invert Pendulum
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Year : 2012

Abstract

This project is to create and control inverse pendulum system. Which is the model of control systems and nonlinear instability. Structure of invert pendulum in this project is 1 degree of freedom. Table size 145 cm x40 cm.Consist the pendulum with pivot point attached to the cart. By cart can move on the rail with Direct Current motor 24 volt driver cause the force to drive move cart, for balance pendulum rod.

Operation of the system first part of the swing pendulum rod to define is set point raising the pendulum rod at the 180 or -180 degree. When pendulum rod swing depending on the degree define. System will change the operation mode of the pendulum

rod. By encoder is measurement angle of the pendulum rod to feedback control. Computer is processor. When pendulum rod change position DC motor will rotate to keep the pendulum rod in balance point by PID controller and Fuzzy logic in program Lab VIEW.

The results showed that the control model. PID and Fuzzy PD model. Can control the i nvert pendulum, but PID controller can control pendulum rod longer than a fuzzy PD controller. The PID controller can eliminat e the error caused by the Cain integrals. But the fuzzy PD controller will go to the Set point faster than the PID controller.

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