

Wacharapol Binhayihmat 2012: Fuzzy Control of Two-Wheeled Vehicle.

Master of Engineering (Mechanical Engineering), Major Field: Mechanical Engineering,

Department of Mechanical Engineering. Thesis Advisor:

Assistant Professor Withit Chartlatanagulchai, Ph.D. 50 pages.

The design of two wheeled vehicle controller is complicate and challenge. The dynamic of two wheeled vehicle is a complicated, multi-input multi-output system, and it is under-actuated. Therefore it is difficult to develop the controller using a conventional controller

In this project we use fuzzy controller. The fuzzy controller is human reasoning by which we can control the system through our knowledge and experience of how the system works. Fuzzy controller can control nonlinear system, multi-input-multi output system, also fuzzy controller can reject plant output disturbance .The two wheeled vehicle consists of a aluminum platform, human, dc motor and several sensor that feedback output signal to the controller. We aim to design two wheeled vehicle that has good response, stability and robustness. Simulation and experimentation show that the fuzzy controller can stabilize the system, also can reject the disturbance due to external force.

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Thesis Advisor's signature