Project Report Title : Development of Cartesian Robot X-Y by Pneumatic
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Abstract

This project is creation the control system of Pneumatic Cartesian X-Y robot using compressed air as power transmission for movement of pneumatic rodless cylinder. The project aims to compare system response controlled both PID and Fuzzy, in order to develop path planning of pneumatic Cartesian X-Y robot.

The system consists of 4 parts. First is design and installation Pneumatic cylinder on X-Y axis, each cylinder is measured movement distance by linear encoder. Second is design and implement directional control circuit of pneumatic directional control valve in order to control direction of cylinder using IC L298. Third is programing with C++ develop on AVR microcontroller to generate PWM signal controlling board drive. The last is main program development with program LABVIWE on PC computer to sent and receive input-output signal through DAQ card (PCI 6221). As GUI, it can key command and display system response on PC monitor.

The experimental result, the fuzzy control has system response better than PID control and ON/OFF control valve suitable for position control than path planning control.