

274. MODELING AND ANALYSIS OF SEPARATELY EXCITED DC MOTOR UNDER LOADED CONDITIONS USING VARIOUS CONTROLLERS

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The development of high performance motor drives is very important in industrial as well as other purpose applications. Generally, a high performance motor drive system must have good dynamic speed command tracking and load regulating response. The dc motors are used in various applications such as defence, industries, Robotics etc. The non-linear characteristics of a DC motor such as saturation and friction could degrade the performance of conventional controllers. This paper presents a comparative study of various controllers for the speed control of DC motor. Proportional–integral–derivative controller (PID controller) is a generic control loop feedback mechanism (controller) widely used in industrial control systems. The controller attempts to minimize the error by adjusting the process control inputs. But still the controllability and stability can be improved by using fuzzy PID controllers. Fuzzy logic controller is able to cope with system uncertainty which is the disadvantage of traditional controller. Simulation result show that proposed controller gains optimal performance and wide range of speed control is possible by means of fuzzy logic controller.

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