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...esis Title	:	Digital Speed and Torque Control System of D.C.Motor Without Current Feedback.
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Abstract

The thesis reports a digital speed and torque control system of a ...c. motor without current feedback. The technique, employs in this ...udy, is similar to well-known analog control. However, in the current ...ntrol loop, the current feedback signal is derided from the motor ...peed obtained from the encoder. This signal is used for comparsion ...th the current reference. A personal computer 286 is used as PID ...ontrollers both in the current loop and speed loop.

An optimum operating conditions are determined by amount optimum ...nd symmetrical optimum criteria.

The system is tested with a phase controlled D.C. converter, which ...upplying a 10 KW D.C. motor. The experimental results show that, ...lthough the sampling period from PC is rather long (55 ms) it is ...ufficient for controlling d.c. motor which has a rather long ...echanical time constant. Transient response of the calculated ...urrent is always a lot less than the measured current (about 50%). ...his might be the result of the time delay occurs in calculation. The ...teady state response of the calculated current agree well with the ...easured current.

Comparsion with the analog control shows that theis method causes ...igher percentage of ripple in the steady state current. However, ...here is no obvious difference in the speed response both dynamically ...nd statically.