ABSTRACT

SPEED CONTROL OF INDUCTION MOTOR BASED ON DIRECT TORQUE CONTROL USING NEURAL NETWORK SELF-TUNING SLIDING MODE CONTROL FOR ELECTRIC CAR DRIVE

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This study discusses a method to control the speed of three phase induction motor using Sliding Mode Control based on Direct Torque Control (DTC). With this method, it is expected to produce accurate steady-state speed response for the motor parameters (electromagnetic torque and stator flux) can be set directly. Neural Network is used to adjust the gain parameters the Sliding Mode Control when the induction motor speed reference changes, so the control can be done online. Simulation for the proposed system is using Simulink/Matlab and applied to control the speed of an induction motor as an electric car drive. The results of simulations show damping oscillation and motor rotation stability when there is a change of reference speed.

Keywords – induction motor, speed control, direct torque control, sliding mode control, neural network