DESIGN AND SIMULATION OF DIRECT TORQUE CONTROL FOR INDUCTION MOTOR USING SPACE VECTOR PULSE WIDTH MODULATION THREE PHASE TWO LEVEL INVERTER

Azharul Fikri - 2206 100 122

Dr. Ir. Mochammad Rameli - 195412271981031002
Ir. Rusdhianto Effendi A.K, MT. - 195704241985021001

ABSTRACT

One of method developed for induction motor speed control is Direct Torque Control (DTC). This method aims to directly control the flux and torque motors. But this method has some shortcomings such as high torque ripple, high current distortion and changing of switching frequency. This final task proposed a new control scheme by integrating the methods of Direct Torque Control (DTC) with space vector modulation (SVPWM). Because of SVPWM, the switching frequency will be made constant and the PI controller is used to provide a more precise reference to the SVPWM block. Simulation of this control scheme will be ran on two load conditions with two different motor types. The simulation results indicate that the response faster than the conventional DTC with a time constant 0127 seconds. DTC-SVPWM also produced a smoother response and active torque of 2 Nm and active current of 4 A.

Keyword : Direct torque control, Space Vector Pulse Width Modulation, Induction Motor, Inverter.