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# Open-Loop Vector Control of Induction Motor with Space Vector Pulse Width Modulation Technique

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**Abstract :** This paper presents open-loop vector control method of induction motor with space vector pulse width modulation (SVPWM) technique. Normally, the closed loop speed control is preferred and is believed to be more accurate. However, it requires a position sensor to track the rotor position which is not desirable to use it for certain workspace applications. This paper exhibits the performance of three-phase induction motor with the simplest control algorithm without the use of a position sensor nor an estimation block to estimate rotor position for sensorless control. The motor stator currents are measured and are transformed to synchronously rotating (d-q-axis) frame by use of Clarke and Park transformation. The actual control happens in this frame where the measured currents are compared with the reference currents. The error signal is fed to a conventional PI controller, and the corrected d-q voltage is generated. The controller outputs are transformed back to three phase voltages and are fed to SVPWM block which generates PWM signal for the voltage source inverter. The open loop vector control model along with SVPWM algorithm is modeled in MATLAB/Simulink software and is experimented and validated in TMS320F28335 DSP board.

**Keywords :** electric drive, induction motor, open-loop vector control, space vector pulse width modulation technique
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