

Article Abstract

Title:	Generalised simulation and experimental implementation of space vector PWM technique of a three-phase voltage source inverter
Author(s):	Atif Iqbal ^{1*} , Sk Moin Ahmed ¹ , Mohammad Arif Khan ² , Haitham Abu-Rub ³
Address(es):	^{1*} Department of Electrical Engineering, Aligarh Muslim University, Aligarh (UP), India ² Department of Electrical Engineering, Krishna Institute of Engg. & Tech., Ghaziabad, 201206, India ³ Electrical & Computer Engineering programme, Texas A&M University at Qatar, Doha, Qatar * Corresponding author (e-mail: atif_iqbal1@rediffmail.com)
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Abstract:	Adjustable speed drive system requires variable voltage and frequency supply which is invariably obtained from a three-phase voltage source inverter (VSI). A number of Pulse Width Modulation (PWM) schemes are used to obtain variable voltage and frequency supply from an inverter. The most widely used PWM schemes for a three-phase VSI are carrier-based sinusoidal PWM and space vector PWM (SVPWM). There is an increasing trend of using space vector PWM (SVPWM) because of their easier digital realisation and better dc bus utilisation. However, a proper simulation model is still not available in the literature. Thus, this paper focuses on step by step development of MATLAB/SIMULINK model of SVPWM followed by their experimental implementation. Firstly model of a three-phase VSI is discussed based on space vector representation. Next a simple and flexible simulation model of SVPWM is developed using MATLAB/SIMULINK. The developed model is general in nature as it can be utilised to implement both continuous and discontinuous SVPWM. The novelty of the paper relies on the proposal of the flexible and general Matlab/Simulink model of SVPWM. Experimental and simulation results are provided to validate the proposed model.
Keywords:	Space vector, PWM, voltage source inverter, discontinuous PWM