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Field Oriented Control of PMSM Using Improved Space Vector Modulation Technique

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Abstract: **The Field Oriented Control is an external device that regulates and controls the performance of Permanent Magnet Synchronous Motor. With the fluctuations accessed in the motor, rotor magnets structured from ferrite core experience turbulent flow and hysteresis loss. The Space Vector Pulse Width Modulation is a standard model that provides pulse to the inverter. The orientation of pulse from FOC to PMSM is subjected to monitoring and control, made feasible by PI controllers. It is popularized that control properties of PID controller is far superior in consideration with PI controller. In this paper, the FOC system is enabled with PID replacing PI from standard model. The system was experimented on MATLAB/SIMULINK 2010a and the results with proposed structure outperformed the standard model. The evaluation parameters for the system were THD Stator Current Value, Torque, Speed and d-q axis current.**

Keywords: **SVPWM, FOC, PI, PID, PMSM.**