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SIMULATION MODELLING OF PERMANENT MAGNET SYNCHRONOUS MACHINE USING ARTIFICIAL NEURAL NETWORK WITH PWM TECHNIQUE

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ABSTRACT

Today many electrical drives use the mechanical gear and pulley system to control the speed of prime mover for the generator which causes greater number of losses and wear and tear losses. So to eliminate these losses we can use the ANN techniques. In this paper work controlling of permanent magnet synchronous generator is done by controlling the firing angle of the voltage source inverter using an artificial neural network with PWM technique. The pulses of PWM generator is controlled by using the ANN system. The low speed drives are used for wind power generators. The best generator for Wind power generator is Permanent Magnet Synchronous generator as it works in low speed, compact and reduced weight. This scheme shown is using double ANN controller with PID error Analyser. Today wind power generators are utilised greatly in renewable energy conversion technique. The proposed circuit can be utilised for wind power generation units.

KEYWORDS: Artificial Neural Network (ANN), VOLTAGE Source Inverter, PID (Proportional-Integral Derivative), Permanent Magnet Synchronous Generator (PMSG), Speed Controller, MATLAB Simulation Modeling, Pulse Width Modulation (PWM)

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