Maximum Power Point Tracking for Small Scale Wind Turbine Using Multilayer Perceptron Neural Network Implementation without Mechanical Sensor

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Abstract : The article proposes maximum power point tracking without mechanical sensor using Multilayer Perceptron Neural Network (MLPNN). The aim of article is to reduce the cost and complexity but still retain efficiency. The experimental is that duty cycle is generated maximum power, if it has suitable qualification. The measured data from DC generator, voltage (V), current (I), power (P), turnover rate of power (dP), and turnover rate of voltage (dV) are used as input for MLPNN model. The output of this model is duty cycle for driving the converter. The experiment implemented using Arduino Uno board. This diagram is compared to MPPT using MLPNN and P&O control (Perturbation and Observation control). The experimental results show that the proposed MLPNN based approach is more efficiency than P&O algorithm for this application.

Keywords : maximum power point tracking, multilayer perceptron netural network, optimal duty cycle, DC generator
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