Development of a fuzzy logic based maximum power point tracking system for a wind power generating system

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Research in wind energy has expanded cumulatively in the universe due to the ongoing growth in fuel price and the requirements to have environmentally friendly sources of energy. The main purpose for the control of wind generator output is to ensure that the wind farm outputs which are voltage and power are not affected irrespective of the stochastically changing wind speed. It is therefore desirable to device a control scheme which should keep posted to leverage the variations. In this research, fuzzy logic control system is proposed for the control of the wind generator voltage and power outputs. The proposed fuzzy logic control scheme was applied to the SEPIC DC-DC converter which regulated output voltage and maximized output power. Simulation results showed that the proposed fuzzy logic control scheme was capable of regulating the output voltage as well as tracking the maximum power point from wind powered generators.