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Control The Output Voltage of De-De Buck Converter Using PI & NNC Controller

A graduation project submitted in partial fulfillment of the requirements of Al-Asmarya Islamic University for the Degree of Bachelors of Science in

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BY

Abraheem Abdulsalam Aldhabaa

Mohammed Salim Rahoumah

Mohammed Miftah Rizq

Supervisor: Dr. Abdulmajed Elbkosh

Zliten- Libya

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ABSTRACT

Switched mode DC-DC Converters are known to exhibit an unstable behavior when they are operating outside of their design specifications. A condition must be avoided. In this project, the switching dynamics of a de-de buck converter was first modelled. Then several control methods were developed to improve the performance of the dc-dc buck converter circuit and to avoid unstable behavior. The first method is the traditional control method, which is the proposed integrated control unit (PI), and the second method is the neural network control (NNC). The aim of the controller is to maintain a constant output voltage when the input voltage or the load are varied. The simulation results of the two controllers were compared and it was found that the controlled buck converter with neural network was better than the other controller (PI) in terms of the steady-state error, overshoots and oscillations. In addition, the output voltage with NNC controller did not affect with the change of the input voltage compared with PI controller