Fuzzy Logic Driven PID Controller for PWM Based Buck Converter

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Abstract : The main theme of this paper is to design fuzzy logic Proportional Integral Derivative controller for controlling of Pulse Width Modulator (PWM) based DCDC buck converter in continuous conduction mode of operation and comparing the results of FPID and ANFIS. Simulation is done to fuzzy the given input variables and membership functions of input values, creating the interference rules linking the input and output variables and after then defuzzfies the output variables. Fuzzy logic is simple for nonlinear models like buck converter. Fuzzy logic based PID controller technique is to control, nonlinear plants like buck converters in switching variables of power electronics. The characteristics of FPID are in terms of rise time, settling time, rise time, steady state errors for different inputs and load disturbances.