voltage changes away from the references voltage. For the satisfactory operation of the active filter, The peak value of the reference source current must be adjusted to proportionally change in the real power drawn from the source. It is in this way that, by regulating the average voltage of the DC capacitor the references source current can be obtained. The real power is charged/discharged by the capacitor compensates the real power consumed by the load. If the DC capacitor voltage is recovered and reaches the references voltage then, the real power supplied by the source is supposed to be equal to that consumed by the load.

3. Fuzzy Logic Controller

The inability due to the disadvantage of this controller in the system and it can changes abruptly due to the error signal, because this can capable of while finding the values of error signal and changes in rise of system and finding the output values.

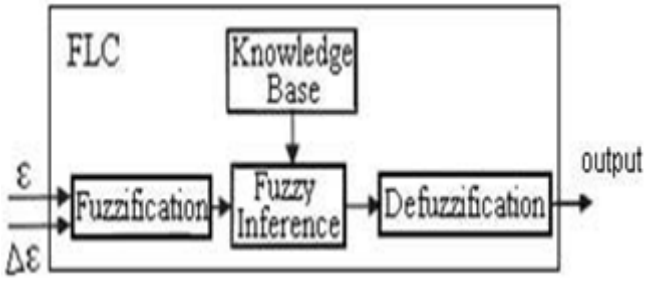

Figure 5: Simple representation of FLC

In mathematical terms is the derivative of the error. To solve this problem Fuzzy logic control is proposed as shown in Fig. 5.

The determination of the output control signal, is done in an interface engine with a rule base having if-then rules in the form of

"IF ε is…..AND Δε is……THEN output is ……."

With the rule base, the value of the output is changed according t the value of the error signal and the ratio of the error. The structure and determination of the rule base is done trail-and-error methods and is also done through experimentation. All the variables' fuzzy subsets for the inputs are defined as (NB, NM, NS, Z, PS, PM, PB). The membership function of inputs is illustrated in Fig. 6 & 7.

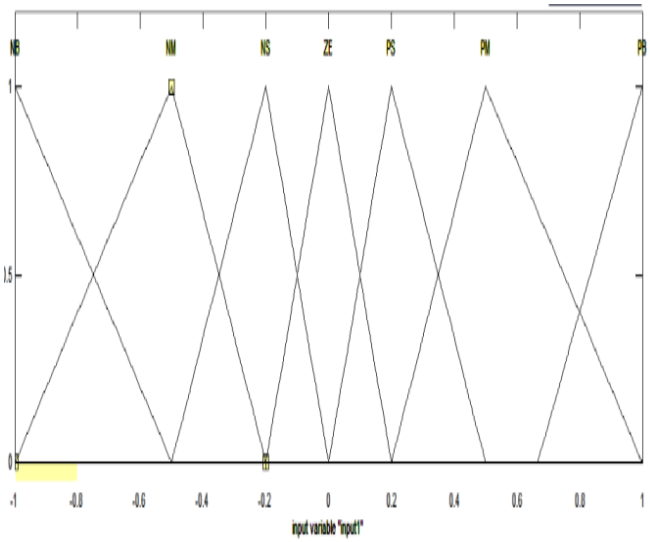

Figure 6: Membership function of input ε

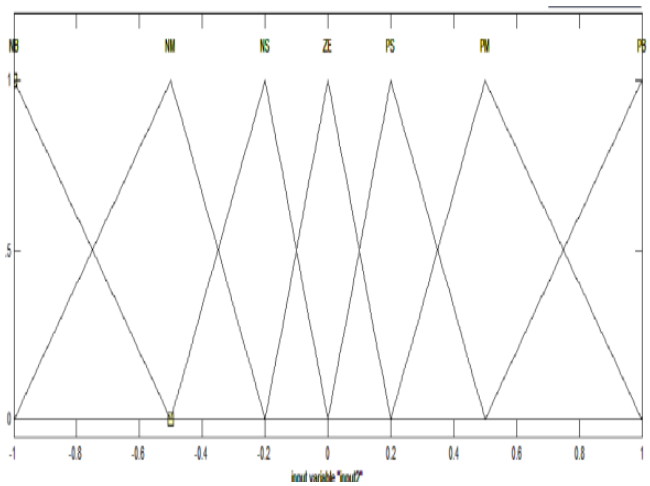

Figure 7: Membership function of input Δε

4. Simulation Results

An extensive simulation study is carried out using MATLAB/SIMULINK in order to verify the proposed control strategy. To achieve balanced sinusoidal grid currents at unity power factor, the 4-leg grid interfacing inverter is actively controlled under varying renewable generating condition. The wave forms of grid voltages, grid currents, unbalanced load currents as shown in Fig. 8.

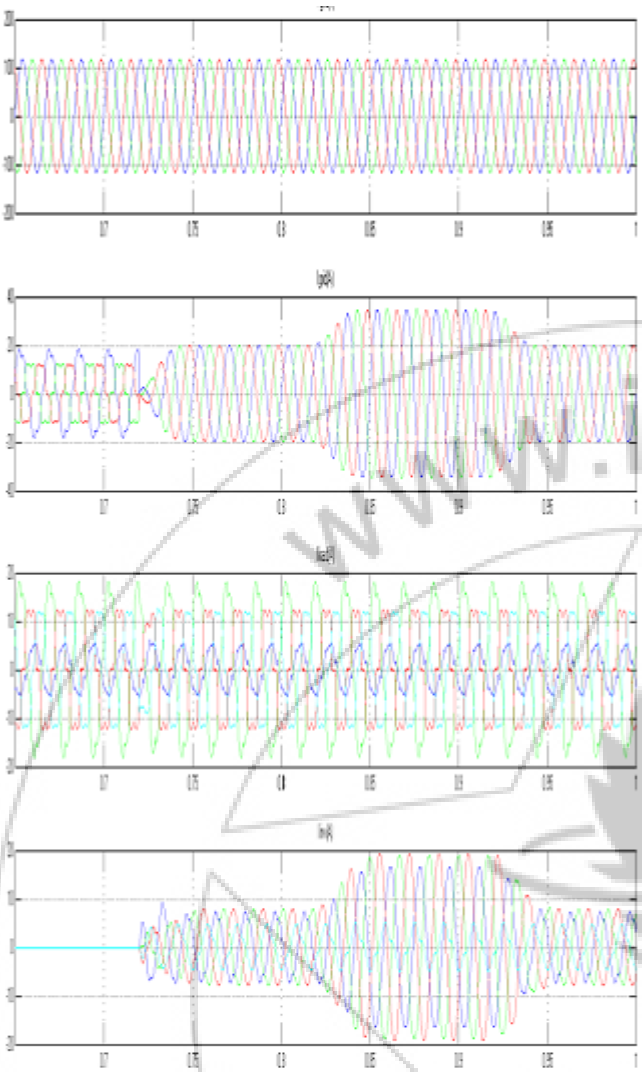

Figure 8: Simulation results: (a) grid system voltages, (b) grid system currents , (c) load currents in grid systems, (d) inverter currents in grid systems.

5. Conclusion

This paper has presented a novel method to improve power quality by using fuzzy logic controller and reducing the harmonics using filters with grid connected interfacing system. The performance of a fuzzy logic controller and PI controlled harmonic has been studied. And the system with fuzzy logic controller has been observed as superior in providing harmonic compensation. This approach is to eliminate the harmonics using filters in this system. Simulation results has shown that the fast response, high accuracy.

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Refrences

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