

**MITIGATION OF VOLTAGE SAG BY USING PROPORTIONAL-
INTEGRAL AND MAMDANI-TYPE FUZZY LOGIC BASED ON
DYNAMIC VOLTAGE RESTORER (DVR)**

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ABSTRACT

Voltage turbulence or voltage sag are the most frequent power quality difficulty that had been occurred in a system. This problem can be caused by many types of noise and interference to load sensitive industrial and utility distribution network. Therefore, in order to solve the problems, there are a few power compensation devices that can be used to enhance the performance of the power quality. As for this project, Dynamic Voltage Restorer (DVR) has been chosen as the devices that will be used in the simulation. This project will include on the simulation of the DVR in mitigating the voltage sag and to analyze the effectiveness of DVR using PI Controller and Mamdani-type Fuzzy Logic Controller. Then the comparison will be made to decide which method is more effective to use in the simulation. After simulation, the results shows that Mamdani-type Fuzzy Logic Controller is slightly better than Proportional Integral Controller (PI) because the waveforms are almost reaching 1 p.u. The result of these simulations are presented and discussed in this thesis.

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