**Department of Electrical Engineering**

**Rajasthan Technical University, Kota**



**An abstract**

For

Minor project

(Session 2016-2017)

**Project- Dynamic voltage restoration using Series Active Filter & Unified Power Quality Conditioner**

Submitted to : Submitted by :

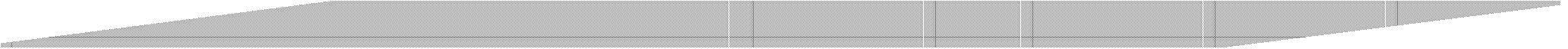
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1. **Introduction**



Power quality is one of the major concerns in the present era. It has become important, with the introduction of sophisticated devices, whose performance is very sensitive to the quality of power supply that results in a failure of end user equipments. One of the major problems dealt here is the voltage sag. To solve this problem, custom power devices are used. One of those devices is the Dynamic Voltage Restorer (DVR), which is the most efficient and effective modern custom power device used in power distribution networks. Its appeal includes lower cost, smaller size, and its fast dynamic response to the disturbance. It can provide the most commercial solution to mitigation voltage sag by injecting voltage as well as power into the system. This abstract presents modeling, analysis,and simulation of a Dynamic Voltage Restorer (DVR) using MATLAB. The efficiency of the DVR depends on the performance of the efficiency of series invertor.

DVR

DVR is a series-connected solid state device that is used for mitigating

voltage disturbances in the distribution system by injecting voltage into the

system in order to regulate the load side voltage. DVR maintains the load

voltage at a nominal magnitude and phase by compensating the voltage

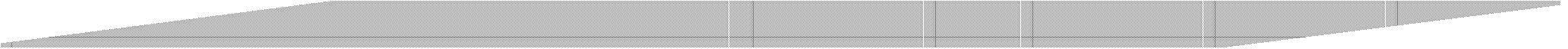
sag/swell.

Components of DVR

* Series active filter
* 3 phase voltage source convertor
* Unified Power Quality Conditioner (UPQC)

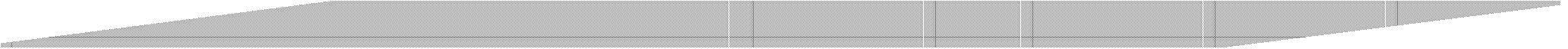
**Location of DVR**

**2.Methodology**



* Modeling of UPQC
* Modeling of Series active filter
* Modeling of nonlinear load
* Data Acquisition of injected voltage , load voltage ,line voltage
* Implement of all models in a single model

**3.Tools Required**



* MATLAB R2013a

Control system and power system tools of Simulink

