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<p>(51) International classification : H02M0007483000, H02J0003010000, H02J0003380000, H02J0003180000, H02M0001000000</p> <p>(86) International Application No Filing Date : PCT// / :01/01/1900</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number Filing Date : NA : NA</p> <p>(62) Divisional to Application Number Filing Date : NA : NA</p>	<p>(71) Name of Applicant : <b>1) Dr. K Prasadarao</b> Address of Applicant : Electrical and Electronics Engineering Dept., Malla Reddy Engineering College, Maisammaguda (Post. Via. Kompally), Mechal-Malkajgiri-500100. Maisammaguda ----- <b>2) Malla Reddy Engineering College</b> Name of Applicant : NA Address of Applicant : NA</p> <p>(72) Name of Inventor : <b>1) Dr. K Prasadarao</b> Address of Applicant : Electrical and Electronics Engineering Dept., Malla Reddy Engineering College, Maisammaguda (Post. Via. Kompally), Mechal-Malkajgiri-500100. Maisammaguda ----- <b>2) Dr. M. Kondalu</b> Address of Applicant : Electrical and Electronics Engineering Dept., Malla Reddy Engineering College, Maisammaguda (Post. Via. Kompally), Mechal-Malkajgiri-500100. Maisammaguda ----- <b>3) Dr. P. Ganesh</b> Address of Applicant : Electrical and Electronics Engineering Dept., Malla Reddy Engineering College, Maisammaguda (Post. Via. Kompally), Mechal-Malkajgiri-500100. Maisammaguda ----- <b>4) Mr. P. Mallikarjun</b> Address of Applicant : Electrical and Electronics Engineering Dept., Malla Reddy Engineering College, Maisammaguda (Post. Via. Kompally), Mechal-Malkajgiri-500100. Maisammaguda ----- <b>5) Mr. Neelam Raju</b> Address of Applicant : Electrical and Electronics Engineering Dept., Malla Reddy Engineering College, Maisammaguda (Post. Via. Kompally), Mechal-Malkajgiri-500100. Maisammaguda ----- <b>6) Mrs. T. Umamaheswari</b> Address of Applicant : Electrical and Electronics Engineering Dept., Malla Reddy Engineering College, Maisammaguda (Post. Via. Kompally), Mechal-Malkajgiri-500100. Maisammaguda -----</p>
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(57) Abstract :  
The MPPT based Photovoltaic fed Dynamic Voltage Restorer (DVR) and DSTATCOM using multilevel converter with reduced number of switches is developed. The DVR is used on distribution systems to reduce deep voltage sags and voltage swells. DSTATCOM compensates for reactive power in addition to harmonic reduction due to nonlinear load. Furthermore, using a cascaded multilevel converter with fewer switches reduces switching losses while increasing the power rating of both devices. PV based on Maximum Power Point Tracking (MPPT) will maintain a constant voltage across the DC side of the multilevel converter. In the simulation section, the system is analyzed and the simulation results are presented. The results show that DVR and DSTATCOM perform satisfactorily in distribution networks under various fault conditions, and it can be concluded that DSTATCOM and DVR effectively improve power quality in distribution networks. DVR injected voltage regulates the load voltage to a constant voltage with a near sinusoidal wave shape against supply voltage unbalancing and sags. A DSTATCOM is connected in shunt to the system to protect the source side from harmonics injected by the nonlinear load and to handle the reactive power requirement of the nonlinear load. Matlab/Simulink results are presented to validate proposed system.

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