Abstract

Generally conventional inverter is used for DC-AC power conversion. To eliminate the difficulties associated with the use of convention inverter at high power applications, multilevel inverter is the best alternative. Multilevel inverter gives staircase output voltage waveform, which is approaching to sinusoidal waveform, with less distortion, less switching frequency, higher efficiency and low voltage devices. This report explains basic principle and most important topologies of multilevel inverter like diode clamped (neutral point clamped), capacitor clamped (flying capacitor) and cascaded inverters with separate DC sources.

Work presented in this project deals with design, development and simulation of multilevel inverter. This project presents simulations of all the topologies of multilevel inverter done in MATLAB. In fabrication work fabrication of cascaded inverters with separate DC sources will be done. To make prototype, design and fabrication of power and control circuit of cascaded inverters with separate DC sources will be done. Finally the prototype is tested with load. Harmonics analysis of output is also done and practical results are compared with simulation results.