



(12) PATENT APPLICATION PUBLICATION

(21) Application No.202331022219 A

(19) INDIA

(22) Date of filing of Application :27/03/2023

(43) Publication Date : 07/04/2023

(54) Title of the invention : Design and Fabrication of a Multi-Converter Structure

(51) International classification :B29L 310000, G01N 335300, G06F 302000, G06F 303920, G06Q 100600
(86) International Application No :PCT//
Filing Date :01/01/1900
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
Filing Date :NA

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(57) Abstract :

The hardware design and implementation of a multiconverter module, which comprises of two controlled switches linked in an antiparallel fashion across the load and two diode bridges, are shown in this work. It can be configured to function as a cycloconverter, voltage regulator, and rectifier. Only two gate-controlled switches (IGBT in this case) are needed for the proposed circuit. The suggested circuit's output results have been validated on the prototype Hardware setup using MATLAB/Simulink software. Several auxiliary circuits, such as the ZCD (Zero crossing Detector), Voltage regulator Circuit, and Gate Driver/Isolation Circuit, have been constructed in order for the hardware module to function successfully, and their related output results have been shown in the article. Here, an Arduino microcontroller with programme code for interrupt detection and a gate firing generation has been employed

No. of Pages : 7 No. of Claims : 9