



**J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY
(AUTONOMOUS)**

Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai.

Accredited by NAAC with "A" grade


T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506

M.E. POWER ELECTRONICS AND DRIVES

**2023-2024
M.E.(PED) II YEAR**



S.NO	REG.NO	STUDENT NAME	PROJECT WORK	INTERNSHIP
1	731222415001	DEIVAMANI.P	✓	
2	731222415003	MANIMEGALAI.P	✓	


Principal
J.K.K.Munirajah College of Technology
(Autonomous)
T.N.Palayam, Gobi (Tk),
Erode (Dt) - 638 506



J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY
(AUTONOMOUS)

Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai.

Accredited by NAAC with "A" grade

T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506

POWER ELECTRONICS AND DRIVES

PG PROJECT BATCH LIST (2023-24)



BATCH NO	S.NO	REG. NO.	NAME	TITLE	SUPERVISOR
1	1	731221415001	P.DEIVAMANI	SINGLE PHASE TRANSFORMERLESS PHOTOVOLTAIC INVERTER FOR GRID CONNECTED	Mr. A. VIGNESHKUMAR, M.E
2	2	731221415003	P.MANIMEGALAI	IMPLEMENTATION OF WIND POWER SYSTEM USING HIGH VOLTAGE GAIN DC-DC CONVERTER	Mr.T.S.THAMBIRAN, M.E

Principal
J.K.K.Munirajah College of Technology
(Autonomous)
T.N.Palayam, Gobi (Tk),
Erode (Dt) - 638 506

**SINGLE PHASE TRANSFORMERLESS
PHOTOVOLTAIC INVERTER FOR GRID
CONNECTED**

PROJECT REPORT

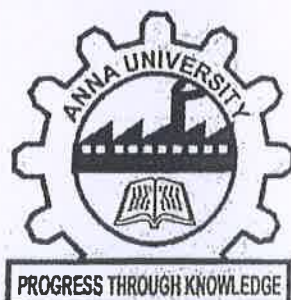
Submitted by

DEIVAMANI P

(731221415001)

*In partial fulfillment for the award of the
degree of*

**MASTER OF ENGINEERING
IN
POWER ELECTRONICS AND DRIVES**



**JKK MUNIRAJAH COLLEGE OF TECHNOLOGY
DEPARTMENT OF ELECTRICAL AND ELECTRONICS
ENGINEERING**

ANNA UNIVERSITY CHENNAI - 600025

MARCH-2023



**Principal
J.K.K.Munirajah College of Technology
(Autonomous)
T.N.Palayam, Gobi (Tk),
Erode (Dt) - 638 506**

ANNA UNIVERSITY, CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report "SINGLE PHASE TRANSFORMERLESS PHOTOVOLTAIC INVERTER FOR GRID CONNECTED" is the bonafide work of DEIVAMANLP (Reg.no: 731221415001) who carried out the Project work under my supervision. Certified further that to the best of my knowledge the work reported here in does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate



SIGNATURE

Mr. A.VIGNESHKUMAR, M.E.,

SUPERVISOR,

ASSISTANT PROFESSOR,

Department of Electrical and

Electronics Engineering,

J.K.K.M College of Technology,

T.N.Palayam-638506.



SIGNATURE 09/10/23

Dr.C.SARAVANAN, M.E., MISTE., Ph.D,

PROFESSOR,

HEAD OF THE DEPARTMENT,

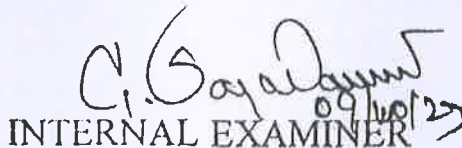
Department of Electrical and

Electronics Engineering,

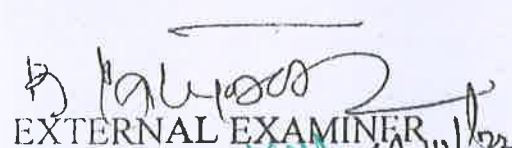
J.K.K.M College of Technology,

T.N.Palayam-638506.

Submitted for the Project Viva-Voce examination held on ...09/10/23.....



INTERNAL EXAMINER



EXTERNAL EXAMINER

Principal
J.K.K.Munirajah College of Technology
(Autonomous)
T.N.Palayam, Gobi (Tk),
Erode (Dt) - 638 506

ABSTRACT

Single phase transformer less inverter is widely being adopted for grid connected PV systems due to their high efficiency, lower cost and high power density. However, leakage current is the main concern in these inverters which needs to be addressed carefully. Moreover, PV inverters should also be capable of injecting a definite amount of reactive power into the grid as prescribed by the international regulations. In this paper, an improved common mode voltage clamped topology with modified modulation strategy is proposed. The proposed topology offers low loss ac side decoupling, complete elimination of leakage current via clamping and reactive power generation capability. The proposed modulation technique facilitates the flow of current in order to generate zero voltage state during negative power flow.




Principal
J.K.K.Munirajah College of Technology
(Autonomous)
T.N.Palayam, Gobi (Tk),
Erode (Dt) - 638 506

CHAPTER 8

CONCLUSION

In this project, an alternative inverter topology is proposed for the PV system connected to the single-phase grid under the safety regulation. The main principle of operation of this topology depends on decoupling the DC link from the AC side during the zero voltage levels of inverter output voltage. The proposed inverter topology has the advantages of using a single DC link capacitor, eliminating the possible resonance due to the junction capacitors and oscillations in the common mode voltage of improved. It keeps the common mode voltage constant while providing almost the same efficiency. The use of single DC link capacitor eliminates possible voltage unbalance with the existence of two or more capacitors and it reduces the failure probability of more electrolytic capacitors used in the system. Also, this proposed inverter topology is fully compatible with the standard switching enabling the use of PWM ports of digital signal processors.


Principal
J.K.K.Munirajah College of Technology
(Autonomous)
T.N.Palayam, Gebi (Tk),
Erode (Dt) - 638 506

IMPLEMENTATION OF WIND POWER SYSTEM USING HIGH VOLTAGE GAIN DC-DC CONVERTER

PROJECT REPORT

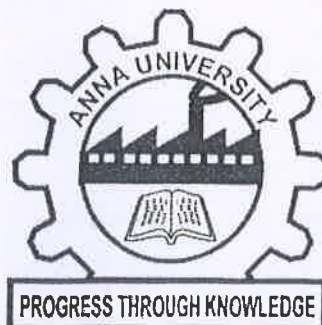
Submitted by

MANIMEGALAI.P

(731221415003)

In partial fulfillment for the award of the degree of

**MASTER OF ENGINEERING
IN
POWER ELECTRONICS AND DRIVES**



J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY

DEPARTMENT OF ELECTRICAL AND ELECTRONICS

ENGINEERING

ANNA UNIVERSITY CHENNAI - 600 025

OCTOBER-2023

Principal

J.K.K.Munirajah College of Technology

(Autonomous)

T.N.Palayam, Gobi (Tk),

Erode (Dt) - 638 506

ANNA UNIVERSITY, CHENNAI 600 025

BONAFIDE CERTIFICATE

Certified that this project report "DESIGN AND IMPLEMENTATION OF WIND POWER SYSTEM USING HIGH VOLTAGE GAIN DC-DC CONVERTER" is the bona fide work of (Reg.no: 731221415003) who carried out the Project work under my supervision. Certified further that to the best of my knowledge the work reported here in does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate


SIGNATURE 09/10/23


SIGNATURE 09/10/23

Mr. T.S. THAMBIRAN, M.E.,

Dr. C. SARAVANAN, M.E., MISTE., Ph.D,

SUPERVISOR,

PROFESSOR,

ASSISTANT PROFESSOR,

HEAD OF THE DEPARTMENT,

Department of Electrical and

Department of Electrical and

Electronics Engineering,

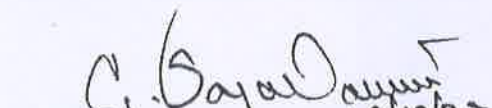
Electronics Engineering,

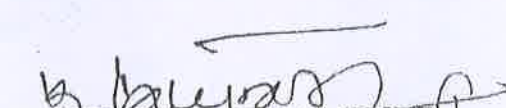
J.K.K. Munirajah College of Technology, J.K.K. Munirajah College of Technology,

T.N. Palayam-638506.

T.N. Palayam-638506.

Submitted for the Project Viva-Voce examination held on ..9.10.2023.....


INTERNAL EXAMINER 09/10/23


EXTERNAL EXAMINER 09/10/23


Principal
J.K.K. Munirajah College of Technology
(Autonomous)
T.N. Palayam, Gobi (Tk),
Erode (Dt) - 638 506

ABSTRACT

Wind energy is one of the most promising and developed renewable energy resources. A power electronic interface is needed in order to connect a Wind Energy Conversion System (WECS) to the load or the utility grid. Control of this interface, which consists of Interleaved DC-DC converter, is a very important and demanding task. The main purpose of controlling the quasi DC-DC converter is implementing PIC microcontroller. In this project, MPPT algorithm is modified using PIC in a way that its performance has been enhanced in terms of accuracy and speed. This modified algorithm enables the system to continuously extract the maximum energy from the wind by generating an appropriate feedback voltage reference. Verify the satisfactory performance of the control scheme and the modified algorithm.



Principal

**J.K.K.Munirajah College of Technology
(Autonomous)
T.N.Palayam, Gobi (Tk),
Erode (Dt) - 638 506**

CHAPTER 8

CONCLUSION

In this work, a novel architecture for a high Gain interleaved DC-DC boost converter with continuous input and output current is introduced. How to increase the voltage, time intervals of ON/OFF mode of the main power switch and all of the diodes are illustrated. In this topology the Wind power transfer ratio is improved without using any isolated transformers or coupled inductors. Compared to the conventional boost converter, this converter offers much lower voltage stress across its power switch which contributes to the much higher reliability in practice. Also, the voltage stresses across all diodes are same as voltage power switch which are considerably low. It should be noted that due to the presence of the inductor on the input and output of the converter, the proposed converter offers much proper choice to be used in applications such as wind power application.



Principal
J.K.K.Munirajah College of Technology
(Autonomous)
T.N.Palayam, Gobi (Tk),
Erode (Dt) - 638 506