International Journal of Advances in Engineering and Management (IJAEM)
Volume 7, Issue 02 Feb. 2025, pp: 656-658 www.ijaem.net ISSN: 2395-5252

Controller depend upon solar power inverter

Dr . Naser farag Elmajdoub
Technical college of Civil Aviation and Meteorology Tripoli – Libya
Department : Aircraft Maintenance Engineering

Date of Submission: 15-02-2025 Date of Acceptance: 25-02-2025

ABSTRACT
This Resarch paper study and the implementation of new micro-Control depend'son Solor power inverter. The main objective of this paper is to design and improve single phase. inverter which can Convert De voltage to AC Voltage at Low Cost. high efficiency and Low cost .
Solor and wind powered electricity. generation being favored now days as the world in creasingly focuses an environmental Concerns, Power inverters, which Convert Solor-Cell DC into domestic use AC, are one of the key technologies for delivering efficient Ac power, The hardware and software design are oriented.

Ī-INTRODUCTION

Electronic devices run on AC power, however, batteries and some forms of power generation. produce a DC voltage so it is necessary, to Convert the voltage into a source that devices Can use. Hence a need for power rating inverter to smoothly operate electrical and electronic appliances.

Most of the Commercially available inverters are actually square wave or quasi square wave inverters. Electronic devices run by this, inverter will damage due to harmonic are expensive and their output is not good. For getting pure sine wave we have to apply sinusoidal pulse width modulation technique. This technique has been the main choice in power electronics, because. Of its Simplicity and it is the mostly used method in inverter application .

- To generate signal, triangular Wave is used as a Compared signal is compared with sinusoidal wave at desired frequency.
- Advances in Micro. Controller technology. have made it possible Perform Functionsthat were previously done by analog electronic Components.

1. with multitasking capability micro- controltoday are able to perform functions Like Comparator. analog to digital Conversion (ADC) Setting input/output (1/0), Counters/timer, among others dedicated analog Components, for each specified tasks, greatly reducing number of component in circuit, Lowering Component production Cost.
2. Flexibility in the applicant has also been introduce by using micro-Controller with Capability program and of tasks. reprogram of tasks .
3. The proposed approach is to replace The Conventional method with the of micro- control It has Low Cost and reduces the Complexity of the Circuit for the single phase full bridge inverter.
4. The focus for testing of a of a DC to AC inverter with efficiently transform a DC Voltage Source to high voltage AC Source Similar the power delivered through (240 YMS, 50 HZ)

Ⅱ. Method discusion and proposed Model

- The paper focus and investigates the application of micro-Controller depended on Solor power inverter operation during Power disturbances

International Journal of Advances in Engineering and Management (IJAEM)
Volume 7, Issue 02 Feb. 2025, pp: 656-658 www.ijaem.net ISSN: 2395-5252

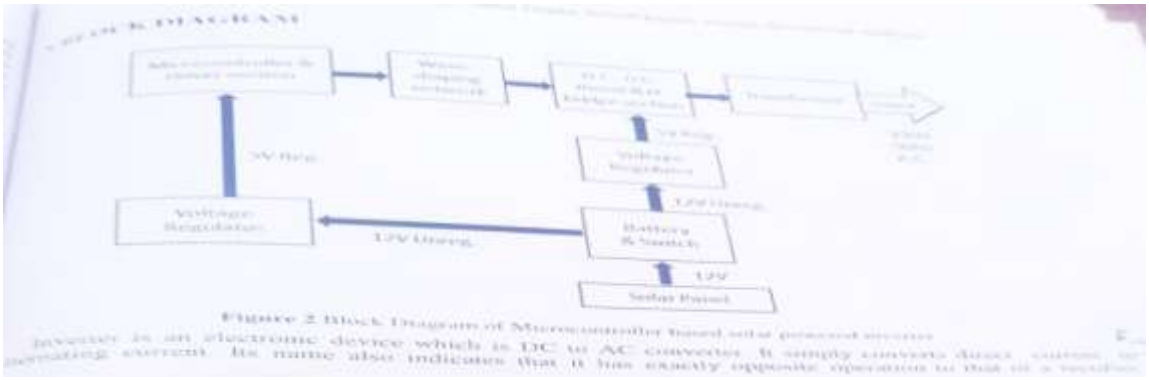


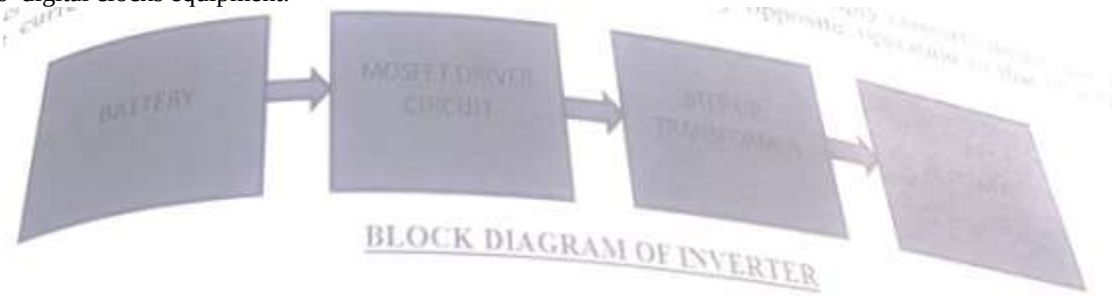
Fig.1 Block Diagram of Micro Controller based sular powered inverter

- It is detailed how inverter Controls. are implemented with a digital approach. using micro-processor for control system and how effective and Canbe.
- The inverter, device will be able to run more sensitive devices that a modified Sine Wave may Cause damage tosuchas:
- Laser printed, Laptop to op Computer, power tools digital clocks equipment.

This form of AC power reduces audible noise In device such as suns inductive. Fluorscent lights and runs inductive .

- We have tried to reduce the cost of and Complexity of the Conversion Circuit by using Micro-Controller..
- It has been to generate trigger pulses For the Mosfet So as to enable high speed switching .

This DC. supply is Converted into AC-



Rig. 2 Block Diagram of Inverter

Inverter is an electronic device which is DC to AC Converter

- It Simply Converts direct to alternating Current. it's name also indicates that it has exactly opposibe operation to that of a rectifier .
- In the Circust DC input from battery is as shown in fig.2 is given to an inverter. Circuit and then its AC output to a tranhrmer.
- when the switch is cused the current starts to rise in the circuit.

This will make the transformer to generate an EME, opposing the EMF of the battery.

- If we stance that the resistance of the trans former is negligible.
- then the current will vise at a Constant rate the more . time will be needed, to produce the required current to balance the EMF of the battery.

If we assume that the resistance of the transformer is negligible, the current will rise at a constant a rate this vise will depend on the mauctance of the transfermer, the more time will be needed to veshume produce the balance the EMF required Current to of the battery.

Now if switch is opened before the Current in the transformer grows fully, the current in Circuit will start to fall, This will make the transformer to generate reverse EMF.

Now the Circuit Current reaches Zero, the switch is Oncegain closed and this will start repeat itself. So, by producing in opencycle , Switch in the circuit, wecan produce AC CURRENT OUTPUT FROM A Dc current source i.e battery .

- The output from secondary Winding of transformer will be a square wave of frequency at which, switch is opened and Closed; this is the basic Working principle of invertoz.

IIIMOSFET and MOSFET Driver MOSFET is basically used to Control the by Controlling the 12V DC voltage by Controlling the phase angle of MOSFET

International Journal of Advances in Engineering and Management (IJAEM)
Volume 7, Issue 02 Feb. 2025, pp: 656-658 www.ijaem.net ISSN: 2395-5252

-We Control the 12 VDC Supply by giving appropriate gate pulse's to It it. as MOSFET driver.

The metal-oxide-semiconductor field effect transistor is a type of transistor used for amplifying or switching electronic Signals.

- The main adva a regular Fransistor is very Little over that it required turn on 1 mA), while delivering Cument a (Less than much higher to a Load (lo to 50 times) In enhancement mode MOSFETs a voltage dropea cross the oxide induce channel between the Conducting channel and drain Contacts Via, the field The term " enhancement mode the increase in Oxide Source effect. ode refers to of Conductivity with field that ald Carries to Increase the channel also referred to as the inversion Layer .

The channel Can Contain electrons called (an HMOSFET OF Mos), or In the Less Common depletion halaleMostET, detailed on the channel In a surface type to the Consists of carried impurity Layer of opposite the substrate, and, is decreased by application of a field that Conductivity depletes Carriers from this surface layer.

II. CONCLUSION

- In this paper, Solar power inverter, is design with use of micro-Controller. The objective of the Circuit was to invert power from high voltage DC Sources or an output voltage & DC to DC boost into Ac power, Similar to one available in our wall Sockets for any Load and of which was partially met.
- The inverter qutput is, usable for qutput power is usab oh not practically tested.
-Almost 90% of the work given and was being Submitted.
- There are a few changes that need Worked on for plane work .
- The inductor used in the filter is atransformer Coil-and therefore not suitable for theamount of power required. is recommended.

Iron core inductor re inductor that has Iron Core resistance which will increase the efficiency

So in we can say that We Can Save Conventional Sources of energ and are as Conventionalre ~, we should provide ge to the non- Conventional energy weight age resources, so this this paper to the people that Creates do utilize alternative Sources of energy

REFERENCE

[1]. Julio Sanchez and Maria P. Canton Programming the Microchip pic, 1st edition CRS press 2009
John J. Grainger and william D. Stevenson[2]
Power system Analysis McGraw-Hill, Inc. 1994.[3]
[4]. Principles and Application of Electrical Engineering McGraw hill.
[5]. Application note AN-978, "HV Floating Mos-gate driver ICs" by Rectifier.
[6]. John Bird " Electrical circuit theory technology &Revised second edition
[7]. Power Electronics Circuits, Devices and Applications 3rd Edition.