EEE DEPARTMENT, VELTECH MULTITECH, UG BEST PROJECTS

2012-2013

HIGH PERFORMANCE Z-SOURCE INVERTER FOR ADJUSTABLE SPEED DRIVES

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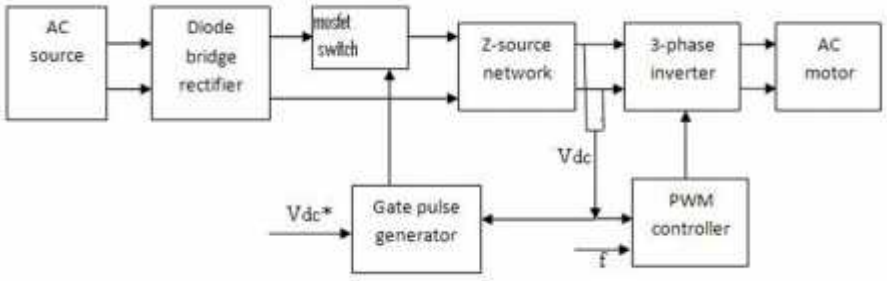
- A new adjustable speed drive system based on Z-Source inverter can operate at wide range load with small inductor.
- The MOSFET switch is controlled in such a way that it is in off state when inverter is in shoot through state and switch is on when inverter is in non-shoot through state.
- The voltage and frequency ratio is maintained constant to maintain DC link voltage constant of PWM gate pulse of the inverter.

Therefore the proposed system verifies the validity of high performance Z-source inverter of adjustable speed drive system.

The Z-source inverter system employs a unique LC network in the DC link and a small Capacitor on the AC side of the diode front end. By controlling the shoot-through duty cycle, the Z-source can produce any desired output AC voltage, even greater than the line voltage. The new Z-source inverter system provides ride-through capability during voltage sags, reduces line harmonics, improves power factor and reliability, and extends output voltage range**.**

HARDWARE MODULE

PROPOSED SYSTEM BLOCK DIAGRAM



Design of Embedded Ethernet Interface for Smart Industries Using SPI Protocol

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The aim of the project is to control the devices or equipment's from the remote place through a web page. Here all the devices, which are to be controlled, are connected to the relays (acts as switches) on the web server circuit board.

The web-server circuit is connected to LAN or Internet. The client or a person on the PC is also connected to same LAN or Internet.

By typing the IP-address of LAN on the web browser, the user gets a web page on screen; this page contains all the information about the status of the devices.

The user can also control the devices interfaced to the web server by pressing a button provided in the web page.

The web server circuit board incorporates the ARM processor and ETHERNET controller.

HARDWARE KIT

The proposed system allows us to control and monitor the devices from anywhere in the world. So it enable us to take decision making about the device operation whether it is working or not. It can be applied to all kinds of industries in order to make the production as per the requirement as well as home appliances. By using this proposed system the manpower requirement is gets reduced for controlling and monitoring purpose

MULTIPLE FAULT DETECTION AND RECTIFICATION USING WIRELESS TECHNOLOGY IN SUBSTATION

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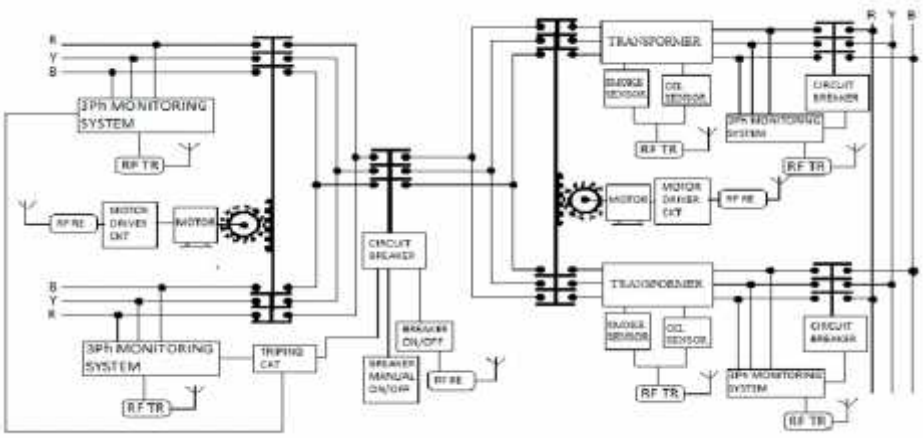
- Fault in substation is detected & rectified using RF transceiver.
- To avoid mishaps & to have continuous power supply throughout.
- To automate fault detection process using sensor aided with RF transceivers.
- To perform remote rectification of phase fault by switching back & forth the feeders using RF remote unit.

PROPOSED SYSTEM

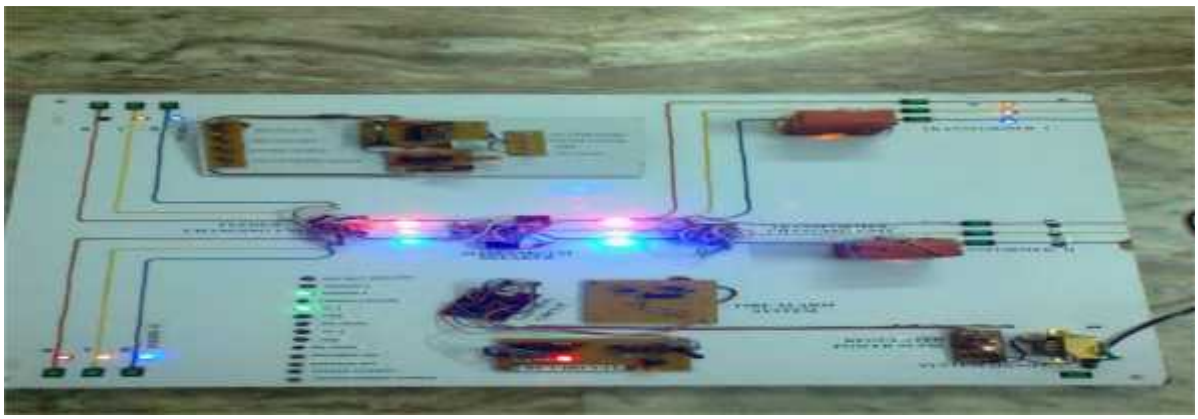


The substations are prone to faults, and these faults have to be detected, isolated and then rectified for continuous supply of power to the needy.

The best way to do so is to automate the fault detection process and identify the location of faults easier.

This serves a great deal in reducing the time taken between the tripping time and the charging time and hence, the consumers (May it be the public or the manufacturing sector) can benefit a lot.

HARDWARE KIT



DEVELOPMENT OF AN INTEGRATED CONVERTER TOPOLOGY FOR HYBRID ENERGY APPLICATIONS

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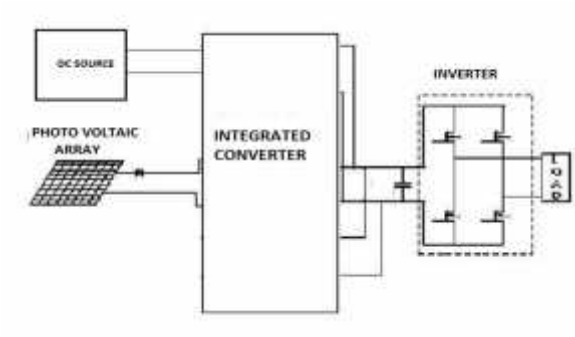
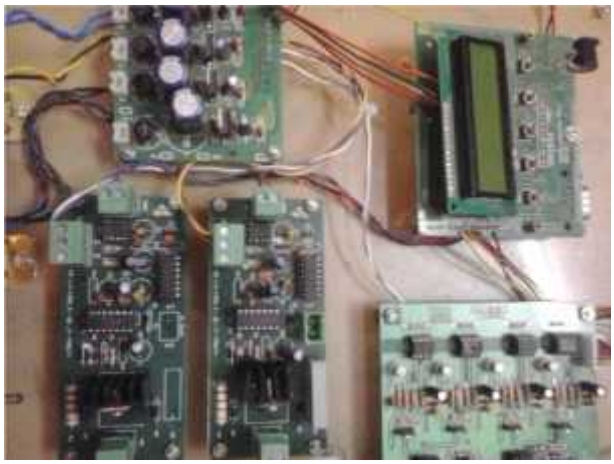
- The aim of this project is to produce maximum power by using the integrated converter.
- Integrated converter is the combination of cuk and sepic converter. The output is given to inverter and is applied to load.
- Renewable energies have advantages of zero fuel cost and reduced environmental impacts.
- Renewable energy resources are gaining ever deeper penetration into the power grid because of its advantages.
- Hybrid power sources are becoming more and more popular.
- A hybrid energy system usually consists of two or more renewable energy sources used together to provide increased system efficiency.
- With increasing concern in renewable energy systems with various sources becomes greater than before.

Renewable energy sources such as photovoltaic (PV) and wind energy can be used to enhance the safety, reliability, and sustainability of a power system.

PROPOSED SYSTEM



HARDWARE KIT



- The separate converters are integrated in order to minimize the circuit components and to improve the circuit efficiency.
- In the near future using hybrid systems for electricity generation may have more profitable in parallel with the technological advances.
- The easy installation and maintenance free operational feature of the hybrid system created more popularity among the rural masses.
- By using these converters, step up and step down operations can be done.

A Remote Measurement and Control System for Greenhouse Based on GSM-SMS

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A remote measurement and control system of large-scale greenhouse was developed based on GSM-SMS.

The whole system consists of a central station and base stations.

The central station is composed by a PC server along with its application software, the GSM (Global System for Mobile Communication) module, and the database system.

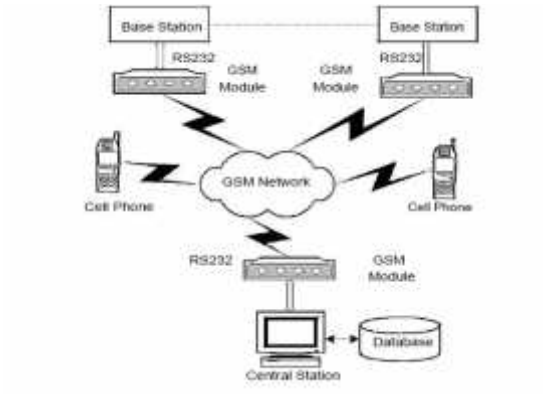
The base station consists of a microcontroller, sensors, the operation administer, and GSM module.

Modularization is adopted in the design of the system hardware; and the software by embedded operating system.

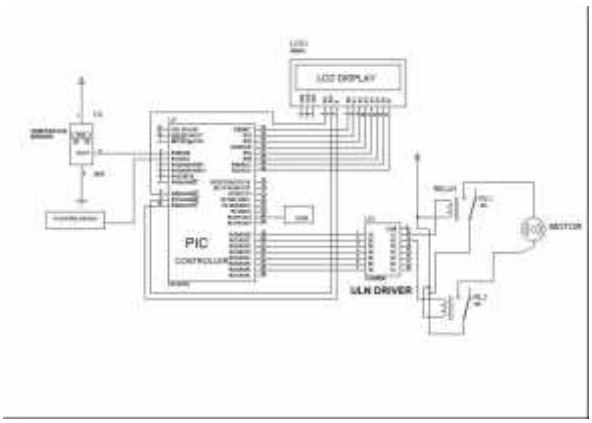
Module involves

- **GSM module**
- **Cell phone**
- **GSM network**
- **Sensor**
- **PIC controller**
- **ULN driver**
- **LCD display**
- **Motor**
- **Relays**

HARDWARE MODULE



CIRCUIT DIAGRAM



Agriculture process take place in green house with complete automation yields more cultivation with less labour and avoid wastage of water.