

“UNINTERRUPTED POWER SUPPLY CONTROL BY USING FOUR DIFFERENT SOURCE WITH IOT”

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ABSTRACT:- The main purpose of this system is to consume the power supply from four different sources such as; solar, wind, mains and generator and provide the uninterrupted power supply as the need of electricity is increasing day by day at a tremendously rate. System arrangement is designed by using (ATMEGA16) microcontroller and relays along with IoT. Amongst these sources of any of the sources fails to supply, the supply power is automatically shifted to the next priority which is wind, mains and then generator.

Keywords: Microcontroller, Relay, IoT, LCD, supply sources.

I. INTRODUCTION

The problems like power outages, unexpected routine line maintenance and power interrupts are increasing day by day. So, to overcome from these problems, this system provides a continuous power supply. In this system renewable energy sources are used along

with system microcontroller ATMEGA16, which is advanced in many ways than the 8051 microcontroller.

System also consists of IoT i.e. internet of things is used which gives updated status regarding the working of the system. Overall working of the system is totally automated. System aims at to avoid manual interaction.

II. METHODOLOGY

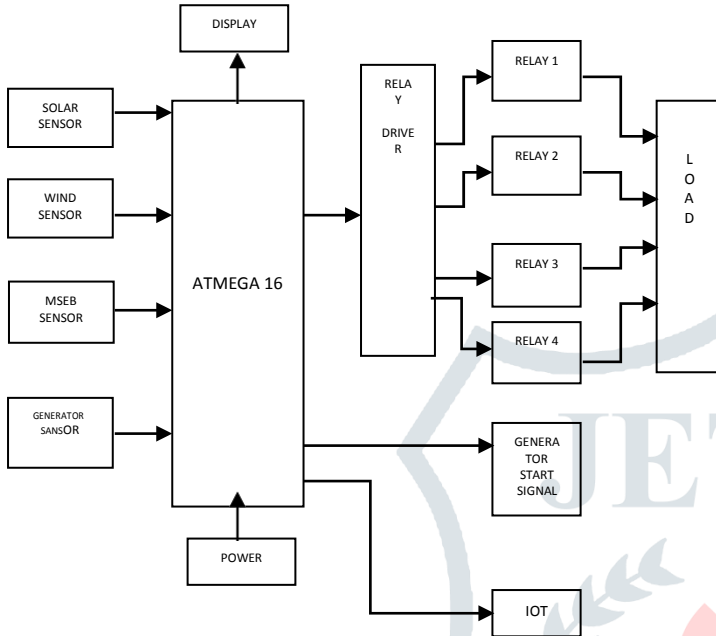
In the power supply there are chances of interruption occurring at any instant like power failure, faults etc. so as to avoid this type of problems this system is best by using four different sources. Because, many electrical systems are highly sensitive. Which can be affected by a minute interruption in the line. This system has merits of reliable and economical.

The reason behind to select this system is there are a lot of uses in manufacturing industries and domestic appliances where, huge amount of power is required. And some electrical devices

need continuous power supply to work well and for better life.

The relay are connected to the load. The ATMEGA16 microcontroller provide the signal from IOT (internet of thing).

BLOCK DIAGRAM



SCHEMATIC CIRCUIT DIAGRAM

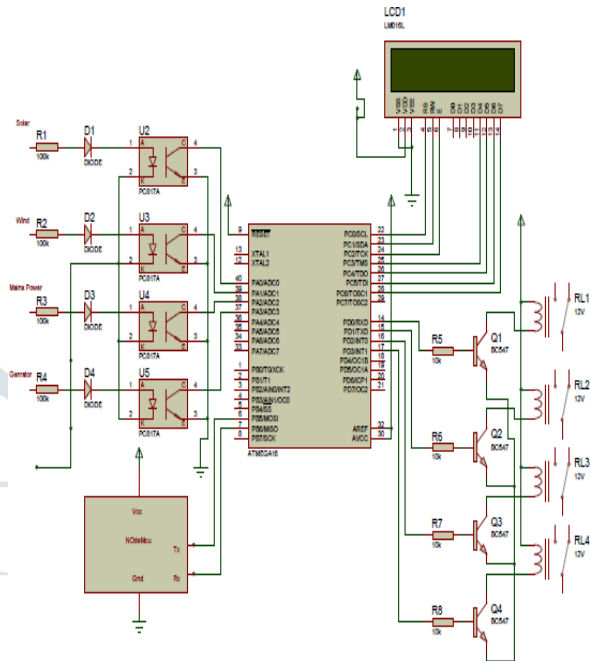


Fig.1 Block Diagram of Multi Power Supply Control by using Four Different Sources.

III. WORKING

As shown In above fig.1 The block diagram of MULTIPOWER SUPPLY CONTROL BY USING FOUR DIFFERENT SOURCES. The power supply (5V) DC are apply to the ATMEGA16 microcontroller and LCD display. The system is used for four sensor i.e. Solar sensor, wind sensor, mains and generator are connected in ATMEGA16 microcontroller. The first priority are given to the natural sources and and least priority to the mains and generator.

Thesystem having an arrangement of four different sources of supply which are channelized to a load. So, as to give an continuous power supply it is not practicable to get four sources of supply such as solar supply, wind supply, mains and generator supply. We used one source and a set of relays. First source given here is the solar supply and assumed as if being fed from four different sources by connecting all the incoming sources in parallel as shown in block diagram.

The first priority are set to the solar or wind and sensor to sense the maximum voltage. This signal apply to the ATMEGA16 microcontroller. The relay driver receive the signal from atmega16 microcontroller and shifted to the relay. These are the used four relay are used in the switching operation for different sources.

The sequence of power sources is solar, wind, mains and generator respectively i.e. highest priority is given to the renewable energy sources and least priority is given to the mains and generator.

Gradually, we have given the high input signal to the Atmega16 microcontroller. So, as a result

microcontroller feed a low output to active first V. relay driver. Which will give result of that relay is being energized and the lamp glows. In case if supply is cut off, power is automatically dragged from second sources i.e. wind source. If there is absence of wind supply then the microcontroller will automatically switched to mains supply. If main supply is also absence then supply will automatically shifted to generator.

Here, Microcontroller is an very essential component which always keeps sensing the available sources. If any of the source is switched off through the selection keys then microcontroller shift the load to the other supply sources. By giving the signal to the relay driver which re connected in parallel with the load relays and four different sources. Load relays has open and closed contacts which are operated through the relay driver IC. Here, we used 16×2 LCD display which display the condition of supply sources and the load on real time basis.

The relay driver IC collects outputs of microcontroller which adjust to relay in such a way that it supply continuous power to the load.

IV. LIST OF COMPONENTS

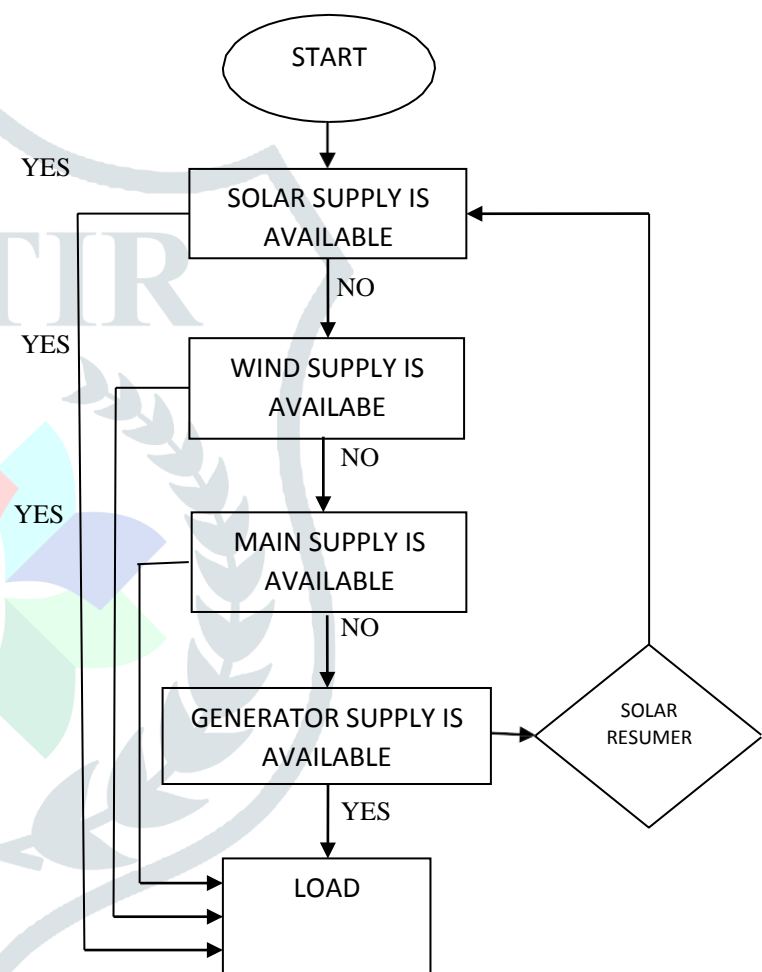
Sr. No.	List of Component	Quantity
1	Resistor	1
2	Capacitor	5
3	Atmega16	1
4	Crystal Oscillator	1
5	Voltage Regulator	1
6	Relay	4
7	Transformer	1
8	16×2 LCD	1

The steps involves in designing this system includes:

ASSETS & APPLIANCES

It does not have any rotating or moving part. It includes zero manual interaction. This system effectively uses renewable sources which have lower cost. Its applications lies in the wide places such as especially mining industries, manufacturing industries where, role of power is vital.

FLOW CHART



RESULT AND DISCUSSION

Output of the Bridge Rectifier	Input into the Voltage Regulator	Output of Voltage Regulator	Input into the Microcontroller (VCC)
11.9 VDC	10.4 VDC	5.0 VDC	5.0 VDC

Table showing results of power supply circuit of the microcontroller.

Power Source	Input of the power source	Switch Status	LCD Display	Load Status
Solar	230V	ON	Solar	Bulb Lights
Solar	230V	OFF	No power	No Light
Wind	230V	ON	Wind	Bulb Lights
Wind	230V	OFF	No power	No Light
Mains supply	230V	ON	Mains	Bulb Lights
Mains supply	230V	OFF	No power	No Light
Generator	230V	ON	Generator	Bulb Lights
Generator	230V	OFF	No power	No Light

VI. CONCLUSION

This system is use to provide a continuous power supply connected to the load from any of the four different sources i.e. solar, wind, mains and generator in automated mode in the absence of any source. The whole system is based on microcontroller Atmega16 which has low cost and efficient system. The particular components which has used give better maintenance and long period to the system.

VII. ACKNOWLEDGEMENT

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