AUTO POWER SUPPLY CONTROL FROM 4 DIFFERENT SOURCESUSING PIC MICROCONTROLLER

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ABSTRACT - Power is most important requirement for all of us. We know that due to large demand ofelectricity and due to limited capacity of power plant at generating station, power cutcommon to all of us.The largest difficulty in the entire world is the lack of nonrenewable continuous supply sources and the restricted amount of electricity generation at power plants.If you look all around us, you will notice that people have encountered numerous issues in their daily lives as a result of power supply interruptions.This kind of power outage causes issues for hospitals, data centres, and some research projects.This is the main driver behind all nations' efforts to develop reliable, efficient, and well-regulated power supplies.

I. INTRODUCTION

An electronic device known as a power supply provides electricity to an electrical load.A power supply's main job is to change one kind of electrical energy into another.Because of this, power supplies are so metimes known as electric power converters.Some power supplies are independent, discrete units, while others are integrated into bigger units with their loads.Power supply used in desktop computers and con sumer electronics devices are examples of the latter.These days, as the need for electricity grows every day, frequent power outages are creating a number of issues in a variety of settings, includin consumers who want to attains uninterruptible power supply from different sources such as solar, main, generator and inverter. If we see it at commercial level, then we can estimate that there are so many consumers or customers which have the equipment or machines whose requirements is only uninterruptable power supply. Such as the data base companies whose all work is done on computer then it is required an uninterruptable power supply all the time, otherwise their computer could be off during the time when the load is shifted on another source, similarly the companies which have the data base production machines then it also could be also off during the load shifted then their production can be stop or damage. Here we are making this auto power supply control system with the help of power electronics components, microcontroller and electronic relays.

II. PROBLEM STATEMENT

1. Difficulty in troubleshooting with circuit without the circuit diagram

2. Difficulty in connecting the output without the three phases short-circuiting, until a multiplexing circuit was gotten.

3. Difficult in wiring because of the strong wiring the project required.

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2.1 Proposed System Methodology/Block Diagram:-

a. Proposed System Methodology

Here is the block diagram of the auto power supply control system from 4 different sources using **PIC microcontroller** with all the essential components. The Block Diagram of the auto power supply control system from 4 different sources using PIC microcontroller

The above diagram represents the architecture of the present work includes all major blocks used in the system. Microcontroller is the main component of the system. This microcontroller acts as a brain of the system and controls the function of the system.

This uninterrupted power supply control system works on the principle of auto selection for switch over the load to other available source without interruption or switch off the load. This work uses 4

different sources of supply which drive the load and provide uninterrupted power supply. All the four sources are connected parallel to each other as shown in the block diagram. The sequence of power sources is mains, solar, inverter and generator respectively i.e. highest priority is given to mains and least priority to generator.
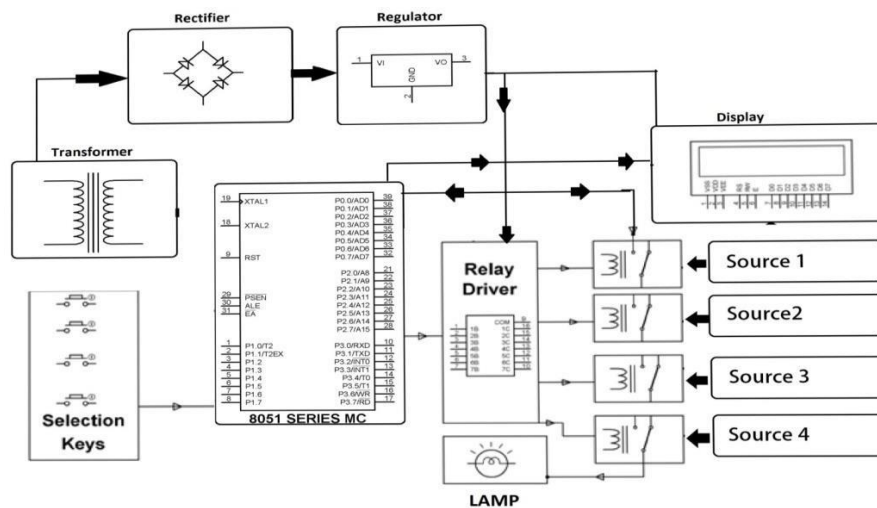
b. *Block Diagram*

Fig. 1 - Block Diagram

The purpose of this project is to provide auto power supply control from 4 different sources such asmains, generator, and inverter and solar automatically by selecting the supply from any source.

List of components	Quantity	Cost per Component Rs.	Total cost per Component Rs.
1. Resistor	11	20	220
2. Capacitor	5	150	750
3. Integrated Circuit	3	1360	4080
4. Microcontroller PIC16F877A	1	407.2	407.2
5. Crystal oscillator 4MHz	1	488	488
6. Voltage regulator	5	9	45

III. ADVANTAGES/DISADVANTAGES/APPLICATIONS

a) Advantages

1. This system is more compact and reliable as compared to the electrical ATS panels.
2. This system is less costly as compared to the other power control system.
3. Simplicity of design.

b) Applications

1. This system could be used in that places where we have different sources of supply such as solar, main and generator.
2. This system could be used in industrial for supplying the uninterrupted power supply to industrial machines.

IV. CONCLUSION

This study, AUTOMATIC POWER SUPPLY FROM FOUR VARIOUS SOURCES:Solar, Inverter, Main and Generator" USING A MICROCONTROLLER is used to handle power supply from Solar, Inverter, Main and Generator" automatically using the microcontroller concept.The importance of this project rests in its many benefits and broad application areas, which include industries, hospitals, and banks; it was created by merging colleges and schools, among other   institutions.It was created by merging functionality from every

piece of hardware used.Every module's existence and thoughtful placement contribute to the unit's optimal performance.

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