Automatic Working Phase Picker for Domestic load from Three phase supply

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Abstract: ***Absence of phase is a very common and serious problem in every sector, at home or workplace. Many times, one or two phases in three phase supply cannot be live. Regardless of this, certain electrical equipment in one room and OFF in another room would be on, several times. This causes considerable disturbance to our routine work. This paper is intended to test the availability of any live phase, and will only link the load to the specific live phase. There is only one phase available, and then the load will still be ON. The idea is conceived with ARDUINO. This controller continually checks the live state of all connected phases, using a Relay the load is connected to active phase by controller. Transistor is operated the relay.When two or more phases are active but load is only connected to phase 1,that active phase number is display in LCD for observation.***

Keywords: Controller, LCD, Relay, ARDUINO.

I. INTRODUCTION

In In developing countries , like India, the issue of disrupted Strom supply is generated as inadequate power for continuous service delivery and satisfactory quality for consumers. This results in a chronic power shortage, which in effect impacts on economy of the public and private sectors. Hospitals, industries, banks, corporate offices and many private and public institutions are having large vital loads that need to be driven at any time to efficiently to execute their process. The demand for loads is also growing on a regular basis; the main challenge facing consumers is power interruption. Large damage to domestic appliances and, sometimes, to life is caused by this power break. The power pause problem arose from single phase distribution system faults when power is available at other phases. Although most household loads are connected to single phase supply and power is available in other phases, even though there is a fault in any of these phases and we aren't using the power. There is a need to change automatically from one phase to another and Emergency backup supply if a power outage occurs in any or all 3 phases of the power supply. The integration of some of these alternative power sources increases the possibility of alternating between the power supply and the alternative sources in a timely manner whenever there is a failure on the main source For smooth and instantaneous operation 3-phase automatic selector is an integral part of the power supply process, transferring and storing electric current from various sources.

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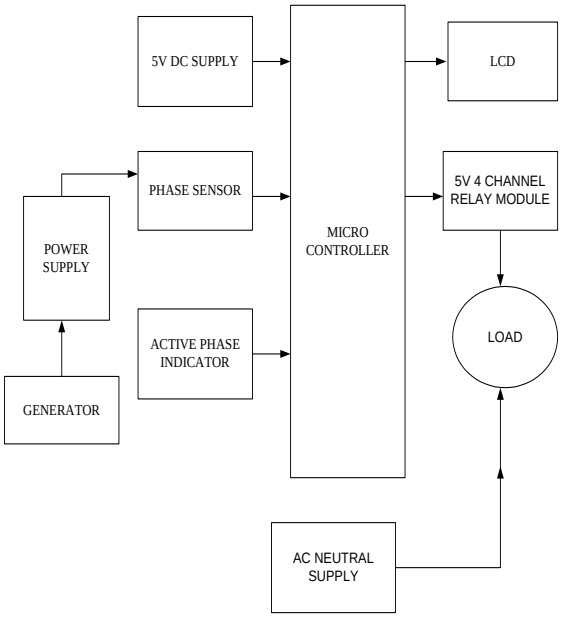
The main function of automatic 3 phase selector is to track the incoming public supply voltage and identify the voltage drop with refence voltage the electrical and electronics applications will work depending upon the utility supply This differs the automatic three-phase selector voltage of the other two phases with the unit switches and the comparator circuit from public supply to generator if the voltages are not available This prevents any feedback current to the load when the generator is in operation. This also ensures that the various power sources are coordinated before charging It passed on to them. When the switch interrupts, it senses the power source is missing.

II. BLOCK DIAGRAM



The diagram shows how the different modules which were involved in the program were implemented. All the modules are interconnected and are independent of the attached load. There are two main sections to the device, namely: software and hardware Hardware architecture includes power supply, control logic, phase detection, relay driver, Unit monitor, and relays for DC. The phase-identifying circuit has phase sensors R, B and Y, and to identify the availability of phase R, B, and Y , respectively. The priority of phase is selected by control logic circuit from three phases .Control logic circuit sends the signal to relay driven circuit for working the relay. For all these equipment power supply provided from supply mains. Through the relay contacts best available phase is connected to load by which is taken from three phase in display unit what are the voltage is displayed is nothing but rms voltage phase .

Objective:

The Arduino controller unit is working with 3 phase supply. If one or two phases of a three-phase electrical line are supplied, the APS system distributes the electrical supply automatically to the failed phases from the active phase. The paper aim is to provide supply for the single phase load from the one of the 3-phase supply active phase. This project increases reliability where it requires continuous power supply.

III. RESULT

Fig 1: Model Deigned of Proposed System

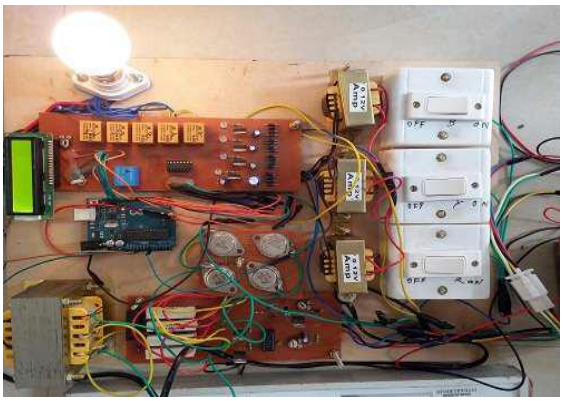


Fig 2:All Three Phases Are Off And Load On Via Solar

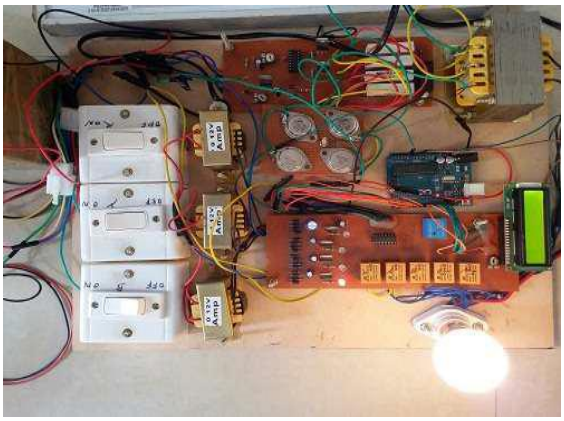


Fig 3:Two Phase Off And Load On B

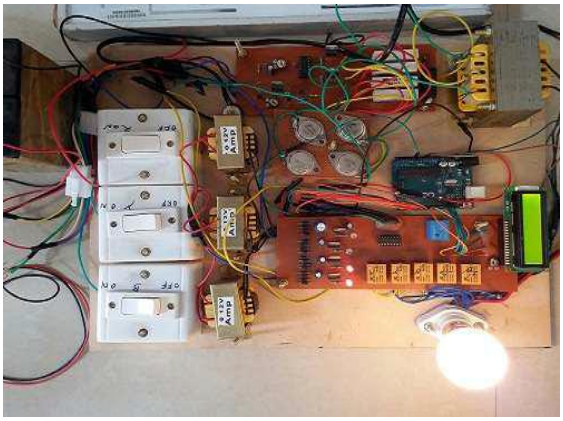


Fig 4 : One Phase Off And Load On Y

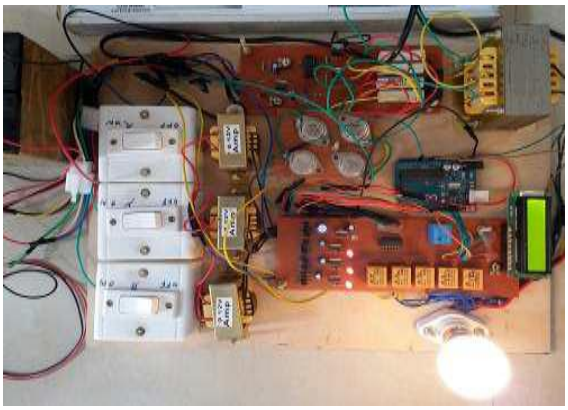


Fig 5:All phase on and load on R

above diagrams shows the hard ware of the this paper. From this experiment what observed is if two phases are fail at that time also another phase is active.

IV. APPLICATION

This paper may be used where continuous power supply is required. This paper is best suited even if interruption of a few seconds can cause a huge loss.

a.Industries
b. Hospitals operation units
c.Schools/ college libraries
d. Banks
e. Govt. offices/ institutes

V. CONCLUSION

Automatic phase Change is very important in Africa to help switch automatically from generator to public power. Such a move makes it easier for these changes to take place, and with the added advantage of being able to choose between phases, it can be easily implemented in any automatic switching circuit in combination with its versatility. The most critical aspect of this concept is that in developed countries, energy users who are suffering from the power supply challenges.

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