

Shifting of Load of Transformer on Actual Load Basis

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Abstract: The main aim of the project is transformer load sharing, whenever load is increased for certain value and also protecting transformer under overload condition. Drop in efficiency and overheating in secondary winding can be prevented with the help of this project. Load sharing of transformer is possible with the help of this project; this project is also use as un-interrupted power supply. The objective of this project is to protect the domestic supply and power transformer from over load power.

Keywords- Transformer, Arduino, Relay, Power circuit, LCD

I. INTRODUCTION

Transformer is a static device that converts power at one Power level to another. It is an electrically isolated inductively coupled device which changes voltage level without change in frequency. Transformer works on the principle of mutual induction. Distribution transformers are the most important equipment in power system. Monitoring and controlling of voltage is necessary for evaluating the performance of the distribution transformer. Thus it helps in avoiding interruption due to the sudden unexpected failure. Due to overload on the transformer, the efficiency drops and the windings gets thermal heated and may get damaged.

II. BLOCK DIAGRAM

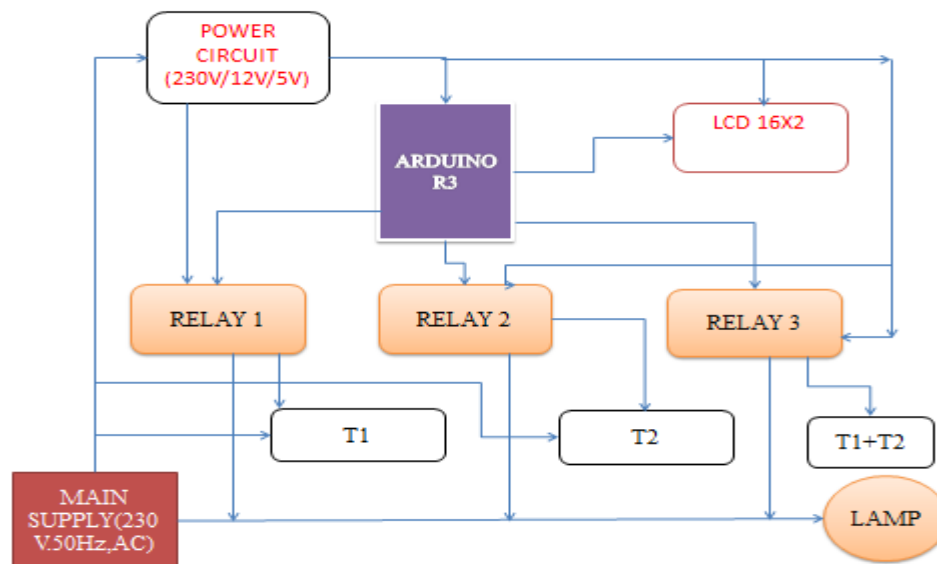


Figure 1 load shifting of transformer on actual load basis

Above is the block diagram of “load shifting of transformer on actual load basis”.

- We have designed this project which is capable of withstanding peak load of 230 V.
- Here we have used two transformers i.e: transformer 1 and transformer 2.
- For example Trans-1 and Trans-2 has a max. Individual rating of 100V and 130 V respectively.
- Two Relays 1 and 2 are directly connected trans-1 and trans-2 respectively.
- Here relay is used for sensing and as well as switching purpose also.
- Suppose our peak demand of load is up to 100V then at that time transformer 1 is operating while Transformer 2 is not supplying power to load.

- As soon as peak load crosses 100v but it is below 130v than at that time trans-1 is disconnected and the load is shifted to trans-2.
- As soon as the load demand increase above 130v then both transformer will operate up to 230v.

III.CIRCUIT DIAGRAM

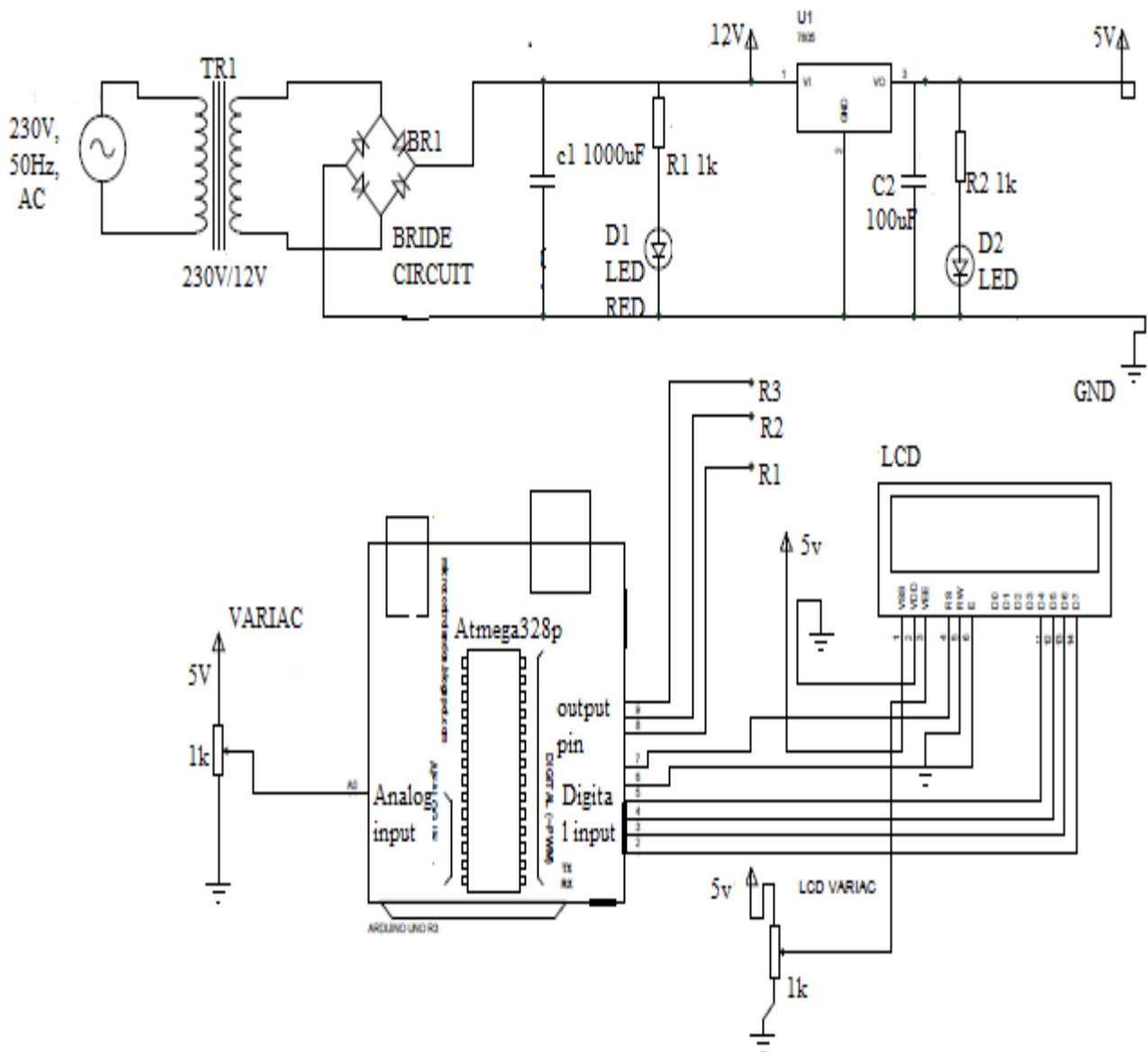


FIGURE 1: Ardduino Connection Lcd And Supply Connection

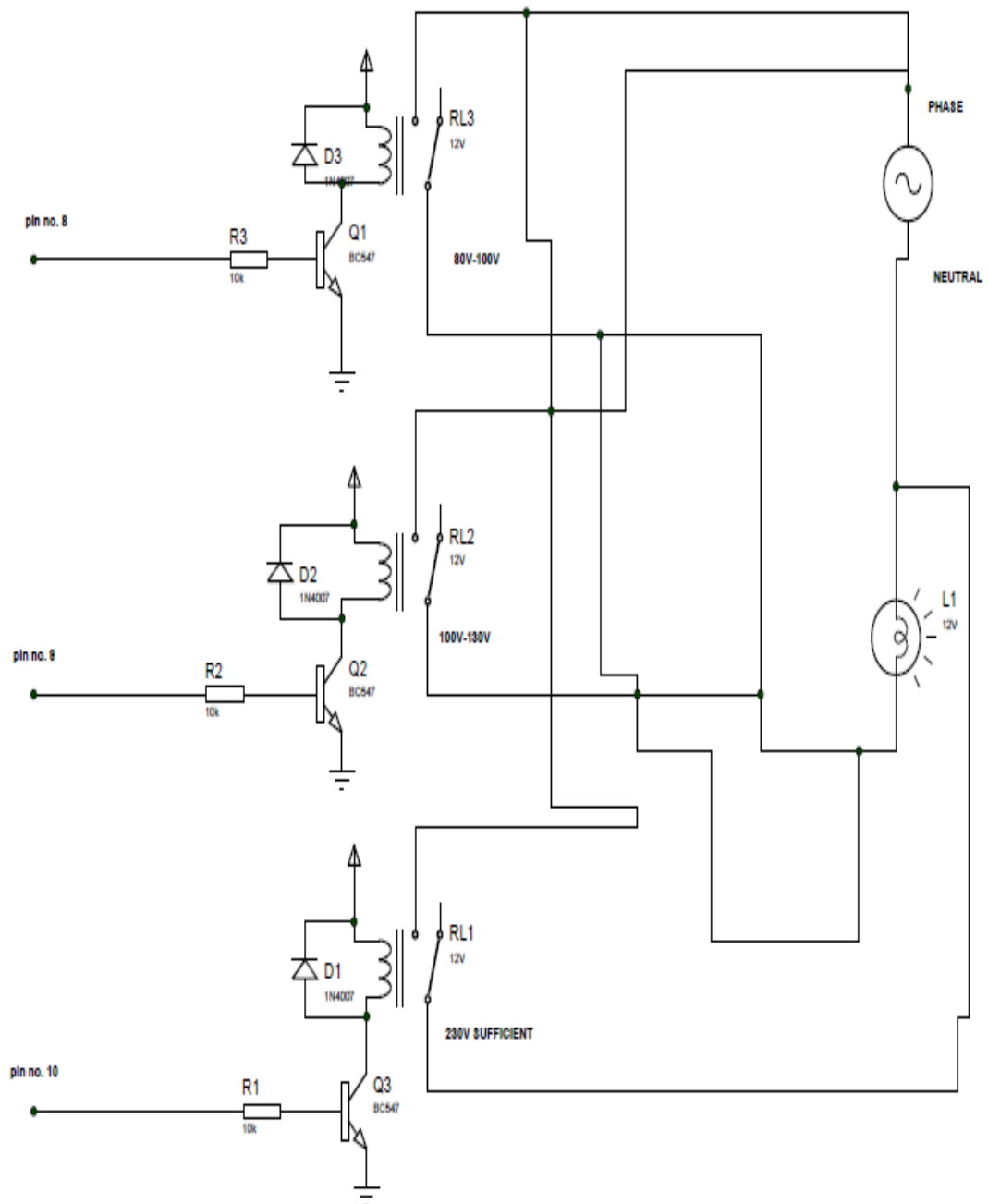
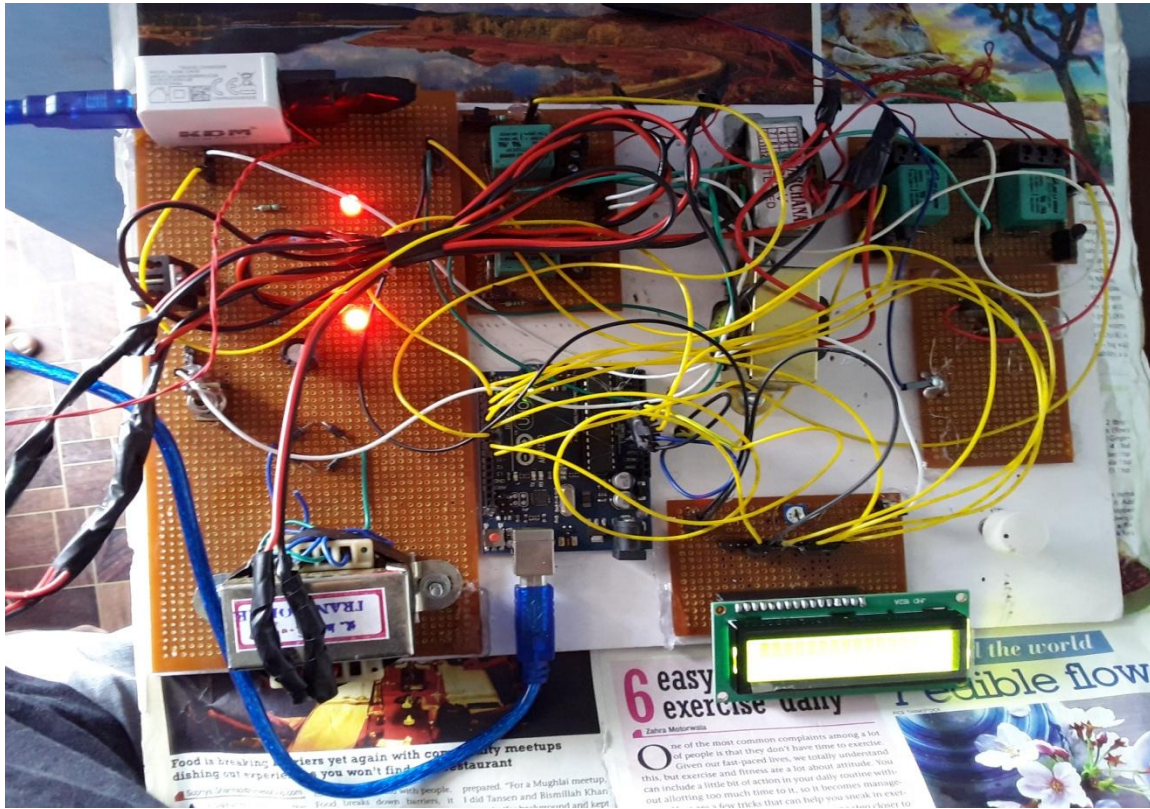


FIGURE 2: Relay Sensing Effect With Load

- Here, Pin number 8,9,10, of arduino is connected to the relay R1, R2 and R3.
- Each Relay is individually connected to the Transformer and Senses any violation of Predefined limit.
- Thus, it operates and maintains Continuity of the supply.
- Here we can vary the load manually with the help of a variac. The change in load is indicated with a change in intensity of lamp.
- For peak load demand of about 230v at that time relay R3 will operate in such a way that both the transformer T1 and T2 will share the load and thus maintaining the continuity of supply.

IV. RUNNING HARDWARE



V.CONCLUSION

In this project we designed the block diagram in such way that if load of one transformer is more than its load handling capacity then it shifts the load on second transformer which comes automatically in operation which shares the load and maintain continuous power supply.

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