PROPOSAL

INTRODUCTION

Living in a society where there is constant power outage and irregular power supply, power produced is insufficient and has to be rationed throughout the country, it is therefore not strange when voltage fluctuations are experienced. It causes damage to electrical appliances like fridge or air conditioners or television. For when a fridge is operated on low voltage, excessive current flows through the motor, which gets heated up then gets damage.

Also, serial port lines are quite prone to damage by over voltages. The damage to computer serial port has became more and more expensive to replace because of higher integration. Usually you have to buy a new motherboard if one serial port in it gets broken.

So it is wise to use some extra protection in situation where over voltage surge are quite probable and repairing gets expensive. The high and low voltage protection circuit is a low and reliable for protecting such equipments from damage whenever the power line is switched on, it gets connects to the appliance only when the output voltage is more appreciated. If there is high or low fluctuations beyond set limits, the appliance get disconnected.

1.1 AIM AND OBJECTIVE

To Design a circuit which trips off appliance or equipments connected to it when voltage supply is excessive low or high using rapidly available components.

1.2 SCOPE

This project is limited to the design of high or low voltage protection circuit using comparator, Relay, standard bipolar medium power NPN transistor (2N3904) and regulator.

SOLDERING

Good soldering is a skill that is most important to learn this skill before starting any project.

The main point to remember is that both part of the joint to be made must be at the same high temperature. The soldier will flow evenly and make a good electrical and mechanical joint only if both parts are at an equal high temperature. IN most kits, almost all the soldier joints to be made are between a copper wire and a printed circuit track, so in this case both the wire and the track must be at the same high temperature before the soldier is applied. Even though there is a metal to metal contact. Very often of firm of oxide on the surface is enough to insulate the two parts; it is not good applying the soldering iron tip to the component wire only and expecting this to heat the pcb track as well. Before attempting this project practice soldering a piece of Vero board and some surplus resistors and scrap components was made.

The first thing to get is a good soldering iron. There are plenty to choose such as the X1 Cs which both have a fairly high wattage to help the heat flow quickly into the joint, so the heat needed to be supplied for fully a short time, many semiconductors and plastic packages can be damaged by excessive heat. Joint should be formed with this fact in mind.

When the iron is hot, apply some soldier to the flattened working area at the end of the bit and wipe it with a piece of cardboard or damp cloth so that the soldier forms a thin film on the bit. Always use a good quality soldier. A standard 60% tin, 40% lead alloy soldier with cores of no corrosive flux will be found the easiest to use.

If the wires of the components to be fitted are parallel to one another and on the this side of the component (radial), they should fit directly into the pcb without bending, but if the bends are located at opposite ends or sides of the components (axial), they should first be bent at right angle close to the body of the component. Push the leads through the pbc from the legend side and spray out the ends of the leads a little on the track side so that the component does not fall out when the board is turned over for soldering, and so that the wire touches the edge of the copper track. Be careful that the wire does not also bridge across to cross adjacent tracks however, or these will be soldered too, creating “solder bridge” type of short circuit.