Group 7

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Power Supply (Using a transformer)

This project entitled “Power Supply” has been carried out under effective supervision. The work done was assigned in order to impart the knowledge of component identification & fabrication.

Aim of the project: To create a 5v circuit charger capable of powering a smart phone. The aim of our project is to build a mobile charger that uses electricity to charge mobile phones. Our project is extremely simple but highly useful. Also, our objective is set to learn the basic concepts of components, fabrication. With this project, we want to enhance our skill set in the electronic and engineering industry.

Overview of approach: A charger is a device for recharging a cell phone’s battery.A mobile phone charger is a step-down transformer.

Mobile phone chargers contain a step-down transformer to convert the input of 220 V to a working output voltage of around 5 Copper windings in a transformer. Mobile phone chargers contain a step-down transformer to convert the input of 220 V to a working output voltage of around 5 Copper windings in a transformer. A Mobile Battery Charger is a type of power supply called Switched Mode Power Supply. It provides a Constant Voltage (CV) and a Constant Current (CC) to the Battery, providing it with the energy required to charge it. Generally, the voltage is 5V DC, and the current is 0.5A or 1A.

The components needed include:

Diodes (4)

Capacitor

Voltage regulator

Resistor

LED (Light Emitting Diode)

Procedure

◦ Mount the components in the same order as in the diagram (in terms of terminals)

◦ Preheat the soldering iron

◦ Connect the components in the appropriate directions.

◦ Solder the components with lead so the current is able to flow through them

Uses of the various components

◦ Diode: It allows the current to flow in one direction only and blocks it from going to other directions

◦ Capacitor: this component stores the electrostatic energy and then supplies it when needed. The capacitor also filters or rectifies the AC from the main power source gradually to DC to smoothen the circuit to form “ripples”.

◦ Voltage regulator: It regulates the voltage during power fluctuations and also ensures a steady constant voltage supply through the circuit

◦ Resistor: it divides the voltage and adjust signal levels in the circuit

◦ LED: It allows you to know if the current is passing through the circuit

Conclusion

At the end of the project, through series of tests we found out that the charger efficiently charged a mobile phone without any form of casualties.

