International Innovative Research Journal of Engineering and Technology
ISSN: 2456-1983 Vol: 4 No: 3 March 2019

Portable and Inventive Electrical Power Supply

Kranthikumar K
Department of EEE, Shinas College of Technology, Oman

Abstract: Electric power plays an essential and important role in people's daily lives. Nearly all fields are covered by electricity and related devices. Then the findings are the electrical power demand, consumption are steadily increasing. Different ways of generating electricity are being searched, developed to resolve the situation. Nearly all electricity production techniques are classified as mechanical and semi - mechanical energy. Energy can neither be created nor destroyed under the energy conservation law, but can be transformed from one form to another. By implementing this principle, much effort is being made by the present scientific world to explore non-conventional and renewable energy sources for the development of growing humanity. The study in mechanical electricity production is in infancy, but in the long term it has broad scope to improve and evolve renewable and non-conventional resources. The study conducted defines the model part of such a non-traditional and also renewable low-energy source where general manual or laborious attempts can be used in conjunction and various electro-mechanical components.

Keywords: DC motor, controlled power supply and voltage controller.

1. INTRODUCTION

A controlled power supply is described as an inbuilt loop that can transform uncontrolled AC into a continuous and controlled DC. It transforms AC supply to DC with support of a rectifier. Its role was to supply a robust (or less frequently current) voltage to a loop which can be performed under certain limits of the power supply. Particular form of structure utilized could be limited to making sure that the output stays within certain rated limits under different load conditions, or may provide other compensation for differences in its own source of supply. For today's applications, it's much more common. A power supply, silicon diode bridge rectifier, reservoir capacitor and voltage controller Integrated Circuit are mostly used in recent controlled supplies. There are variations on this theme, such as supplies with multiple voltage and current lines, variable controllers, power control lines, discrete circuits and so on. Controlled power supplies for switching mode also include an inductor and typical Integrated Circuits for the controllers. There are differences over this theme, along with multi-voltage supplies and inconstant controllers, power lines, discrete circuits, etc.

2. BLOCK DIAGRAM OF POWER SUPPLY

Figure (1) shows the block diagram shows the Block Diagram of Portable and Inventive Electrical Power Supply.

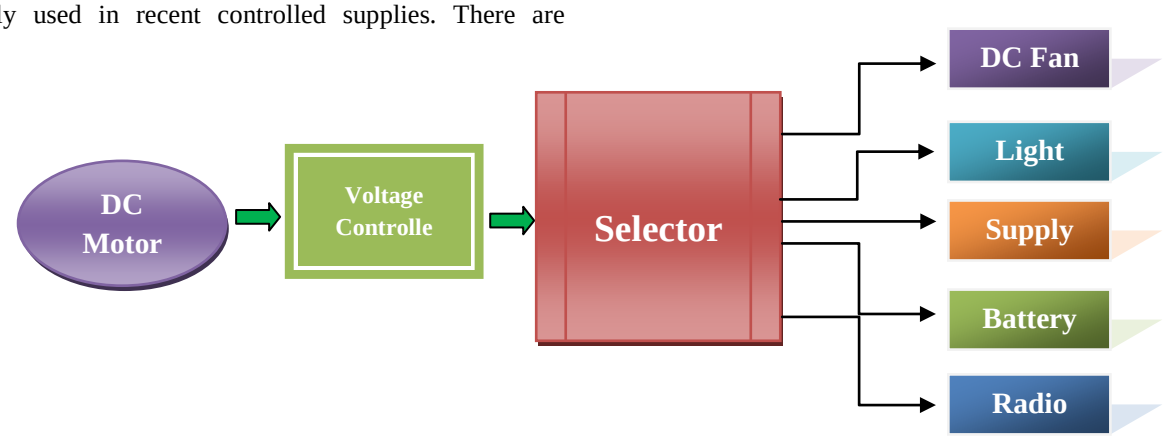


Figure 1. Block Diagram of Portable and Inventive Electrical Power Supply

International Innovative Research Journal of Engineering and Technology
ISSN: 2456-1983 Vol: 4 No: 3 March 2019

3. METHODOLOGY

A. DC Motor

A DC motor is one of a group of electrical rotating devices which transforms electrical voltage from mechanical power. The most common types rely on magnetic field forces. Practically all forms of DC motors have other alternate method to change direction of voltage on portion of a motor, either electro-electrical or electronic. In tools, toys and appliances, small DC motors are used. Although the universal motor should perform on direct current, it is a lightweight motor utilized for backup battery charger and devices. Bigger DC engines are utilized in automotive propulsion, lift propulsion, or in steel rolling mill drives.

Figure 2. DC Motor

B. Selector Switch

A selector switch main function is to produce a smooth shift up or down of switch. When a driver uses a switch selector mechanism, at a higher or lowers rotational speed. Using a mechanical or electronic switch, the final utility can be selected. We used a mechanical "single pole multiple way" switch with proper connections for the user's simplicity. At any time of preferred position, only one utility will be selected or connected.

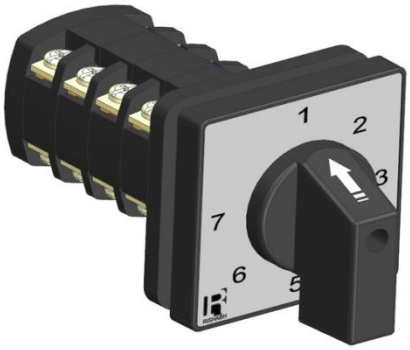


Figure 3. Selector Switch

C. Voltage Controller

A voltage controller is built to protect a continual voltage stage automatically. A voltage controller will utilize easy produce forward models or, where necessary, contain the negative feedback. They can need electronic materials that are electronic. These can be used to regulate one or more DC voltage levels, depending on the designs. In devices such as sophisticated power supplies, electronic voltage controllers are observed in which they stabilize the DC voltages utilized in the processor as well as elements. Voltage controllers control the output of these plants in automotive alternators but several main power station generator plants. A specific feedback mechanism controls that because in a linear controllers. While the series element is completely conductive or switched off, very little power is dissipated; what provides its reliability to having to switch design.

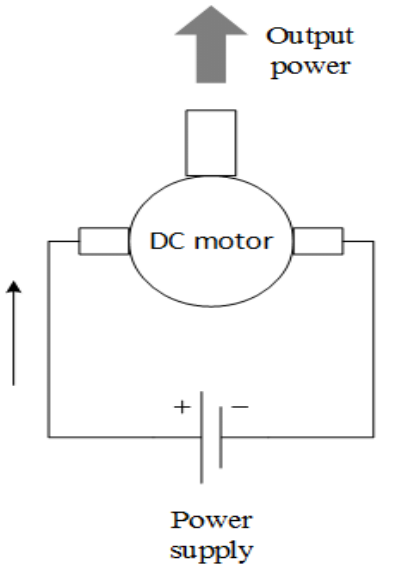
Figure 4. Voltage Controller

4. RESULT

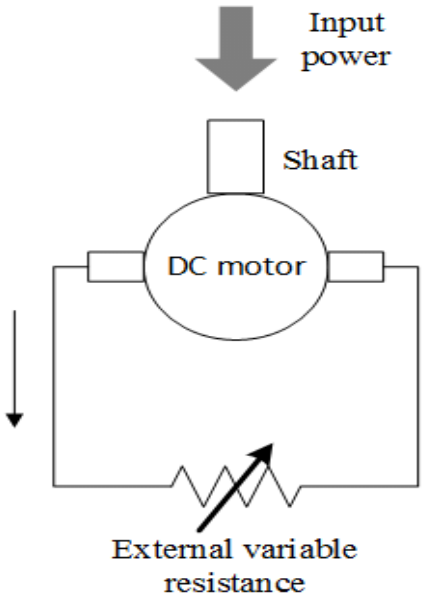
The result is the electrical power demand, consumption are steadily increasing. Different ways of generating electricity are often perused, involved in developing to overcome the situation. In order to solve the situation, different ways of generating electricity are being searched and developed. Classified as mechanical and semi - mechanical energy are almost all electricity production techniques. Energy can neither be created nor destroyed under the energy conservation law, but can be transformed from one form to another. By implementing this principle, much effort is being made by the present scientific world to explore non-conventional and renewable energy sources for the development of growing humanity.

International Innovative Research Journal of Engineering and Technology
ISSN: 2456-1983 Vol: 4 No: 3 March 2019

The study carried out defines the model part of such a non-traditional and also renewable low-energy source where the combination of general manual or laborious attempts and various electro-mechanical components can be used. The intended power supply is inventive and gives portable utilities to a number of candidates.



(a)



(b)

Figure 5. DC Motor transforms electrical voltage from mechanical power

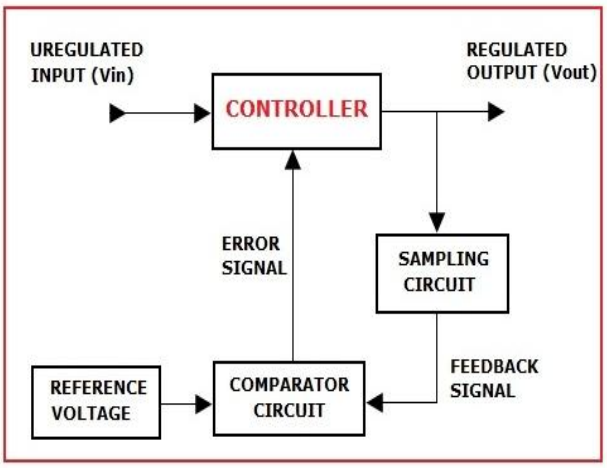


Figure 6. Voltage Controller to convert fixed voltage to variable voltage

5. GENERAL USES

The produced and controlled dc voltage is utilized by the selector mechanism to perform or device / gadget connected. Sake of user practicality utilized for guests, only five local services like DC fan, LED lights, mobile set, battery charger and (Amplitude Modulation) AM and FM (Frequency Modulation) radio set have been used here. It is possible to connect many more household devices as the load or a utility.

6. APPLICATIONS

- It is possible to operate AM / FM radio sets as real time load.
- May be used different devices as controlled power supplies.
- May be used in remote locations utilizes electrical supply for emergency.
- DC fans and low voltage motors can be driven Power supply.
- May be utilized as slightly modified variable supply.

REFERENCES

[1] Sawney A. K, Electrical and electronic measurements and instrumentation, Dhanpat Rai & Sons publication, Delhi.

[2] Donald G. Fink, H. Wayne Beatty, Standard Handbook for Electrical Engineers Eleventh Edition, McGraw Hill, 1978, ISB:N 0-07-020974-X.

[3] William H. Yeadon, Alan W. Yeadon, Handbook of small electric motors, McGraw-Hill Professional, 2001.

[4] Linear & Switching Voltage Regulator Handbook of Semiconductor; 2002; HB206/D. (Free PDF download is available).

[5] Markande S. D., Rao P. C., Sutrave D. V., Applied Electronics, Nirali Publication, Pune, India.

[6] Theraja B. L., Basic Electronics, S. Chand and Company Publications, Delhi.

[7] Wajire G. S., Dr. Gandole Y. B. (2015); Obtaining the Potential Difference from Prickly Pear Plant, International Journal of Informative and Futuristic Research, ISSN: 2347-1697.

