



REUSE OF WASTE ELECTRICAL ENERGY IN HOME/INDUSTRIAL WIRING

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ABSTRACT This project aims to develop a circuit system to reuse wasted electrical energy most of household appliance and small scale industries. This is wiring method including with a circuit with help of an inverter technology. Circuit system working with passive and active component. This circuit system will allows reuse the wasted electrical energy in household appliance and also small scale industries by storing battery. Reused electrical energy can be used for lamp, charger, electronic equipments. Electrical energy converted to Dc with the help of a bridge rectifier and stored Electrolytic capacitors. Final output can be used in various electronic equipments.

KEYWORDS : electro-magnetic induction ,ferrite torroid

INTRODUCTION

In household and small scale industries whenever there is fluctuation or load change electrical energy is wasted. We can use this wasted electrical energy into use by storing this energy through a special electric circuit by magnetic induction into a dc battery .This is wiring method including with a circuit with help of an inverter technology. Working with passive and active component

In daily life people Electronic equipment consume 20% more energy when it's maintained poor way. Frequently opening refrigerator causes 50 to 120 kWh a year which is enough for washing machine to work 50 times. How many times you opening refrigerator without any idea what you do next after opening. After doing that the compressor starts working hard to maintain temperature inside the refrigerator. Didn't know that there are wasting lots of energy.

People uses lots of energy for their electronic appliance and also waste energy by using some electronic gadgets they don't need it. To reduce energy wastage [1] we must have our own Energy Conservation plan. Long term energy waste causes permanent problems in electric energy. Here we introduce new wiring methodology to reuse the wasted electricity in household appliance and industrial wiring. This wiring methodology Reuse the wasted 70 % of the current. This project gives overload protection (circuit primary section act as a fuse) to the circuit. With low cost, our project designed a circuit with low maintenance and long life. Our approach to reuse the electrical energy have many advantages when comes power cut time also.

This project aims to develop a circuit to reuse wasted electrical energy into use by storing this energy through a special electric circuit by magnetic induction [2] into a DC battery. Reused electrical energy can be used for lamp, charger, other electronic equipments.

The relevance of this project is The extremely high current induces a magnetic field deflects of a solinoid coil. Coil impulse an electromagnetic field and receive as an electric energy (ac current) [3][4]. This energy converted to dc with the help of a bridge rectifier and stored electrolytic capacitors.

- The extremely high current induces a magnetic field deflects of a solinoid coil
- receive and transmit by electromagnetic introduction
- Winding method as a step up transformer but working as a step down transformer
- Reuse 70 % wastage current

- overload protection (circuit primary section act as a fuse)
- low cost
- low maintenance
- long life
- Power cut time (using for powering emergency lamps)
- Home wiring using in a primary section (ferrite toroid core transformer) Parallel winding (primary) serial winding (secondary)
- include also earth wiring
- device also have primary and secondary section

working also in 3 phase etc :

- This circuit working only with any high voltage appliances (water heater , mixer grinder , wet grinder , water pump etc)

EXISTING SYSTEM

In day-to-day life people uses lots of energy for their electronic appliance and also waste energy by using some electronic gadgets they don't need it. To reduce energy wastage we must have our own Energy Conservation plan. Long term energy waste causes permanent problems.

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DISADVANTAGES

Electrical energy wasting most of household appliance whenever:

- Leaving Electronics Plugged In - One of the most obvious energy-wasting habits is leaving the lights on, and it's also one of the easiest habits to fix
- Setting the Thermostat Too High - In many households, water heater temperatures are set too high. Even though many water heaters are set at 140 degrees by default.
- Not Programming Your Thermostat -Heating and cooling consume nearly half of a home's energy. A programmable thermostat helps cut down on unnecessary heating or cooling when you aren't home.

PROPOSED SYSTEM

Here we introduce new wiring methodology to reuse the wasted

electricity in household appliance and industrial wiring. This is wiring method including with a circuit with help of an inverter technology. Working with passive and active component. This method not only saves approximately 60% of the wasted energy but also protects the household[13]. By using this circuit the cost of electrical energy can be reduced thus making it an effective tool for households and small scale industries.

CIRCUIT DIAGRAM & SYSTEM ANALYSIS

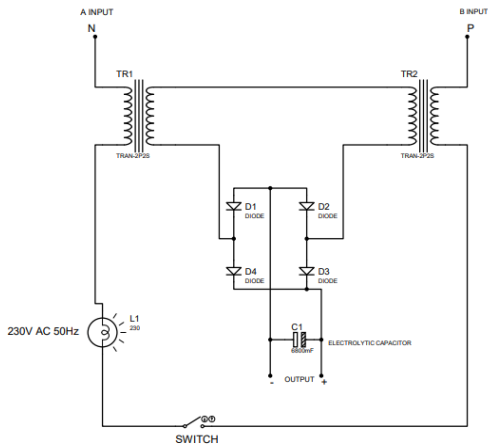


Figure 1: Reused electrical energy circuit diagram

Under normal working condition current flows through the terminal A and passes through ferrite toroid core and through load to terminal B. When a high current is drawn for the working of any equipment a wasted electrical energy signal receive through input A,B. It energizes the ferrite toroid core secondary[5][6], thus a current is produced in the secondary of minute range and it is passed through rectifier circuit for rectification and filtered through capacitor filter. It pass through Transistor(2N3055) for switching and amplification. Final output gets from the C1 capacitor. In order to boost output voltage DC-to-DC boost converter is used[9][10][11]. It steps up voltage (while stepping down current) from its input (supply) to its output (load).

COMPONENTS USED

- Ferrite toroid core
- Copper wire- 18 gauge & 34 gauge
- Diodes –HER 107
- Transistors – 2N3055
- Resistors – 10e, 100e, 1K, 3.3K, 270e
- Ac coupled capacitors- 2.2mF 400V, 100pF
- Electrolytic capacitors-6800mF 25V
- Farad Super Capacitor Ultra Capacitor-100f 2.7V
- 6V Dc Battery
- 3MM ACP (aluminium composite panel) Sheet
- 3Pin ac socket
- On/off switch
- DC to DC boost step-up converter

HARDWARE

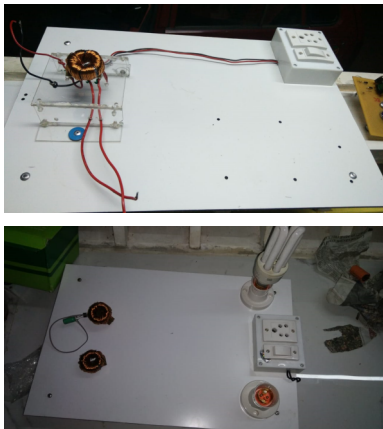


Figure 2: Hardware circuit diagram

RESULT

A voltage of minute range 2.7 V is obtained after completing the circuit. It can be amplified up to value of 12-230 V by DC-DC boost converter. Current of 0.2 Amp is obtained. Long duration time to obtain a usable value of current. In order to increase the value of current we can add super capacitor to circuit. We have to consider one month for the production of bulk amount of energy. By this we can reuse of 60% of waste current. Primary section of ferrite core can act as a fuse. During power failure it can be used for lighting emergency lamp.

CONCLUSIONS

This method not only saves approximately 60% of the wasted energy but also protects the household. By using this circuit the cost of electrical energy can be reduced thus making it an effective tool for households and small scale industries.

Electricity is essential for living comfortably, but there are simple ways you can reduce your energy use, save money, and improve your home's sustainability without hindering your daily life. Proposed system shows how energy can be reuse in a useful way. It has Low cost, Low maintenance, Long life, much more advantage to use in the system.

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