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Free Energy Air Cooler

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Abstract: **Nowadays use of electricity is increasing day-by-day in order to reduce the consumption of electricity and also to use wasted mechanical energy at output of cooler motor supplied by AC supply system we have created Free Energy Air Cooler. Which is basically based on the principle regeneration of energy. In this free energy air cooler we used generator motor coupling on same shaft.As motor start rotating the fan also start rotating. Which supply the flow of air .To cool the flow of air we use cooling system. In the Cooling system we use water as coolant .We flow the water through the fins of radiator .So we get the cool air.**

Keywords*:* DC Motor, DC Generator, Fan, 12V DC Water pump**.**

I. INTRODUCTION

An air cooler is a device that cools air the evaporation of water The evaporation cooling is different from air conditioning system evaporative cooling works by utilizing waters total heat of vaporization the temperature of dry Air can be decreased through the state transformation of liquid water to vapor air cooler is one of the appliance that is used to maintain the surrounding atmospheric conditions.

The working differs from air-conditioning system which uses vapors compression or absorption cycles. The evaporative air cooler requires water for cooling the air and water has large enthalpy of vaporization which helps in cooling the dry air.

Air conditioners have high initial and running costs, which cannot be afforded by all the people in a developing country like India. Air coolers are relatively cheap, but provide unsatisfactory results; there is a need for developing a cheaper room cooling system.

In today's scenario, it is difficult to starts air cooler in without electricity. The air cooler use only light available in some places to use this cooler. And this air cooler not saving electrical energy.

The high electricity demand for cooling purpose increase the electricity bills, which will lead to increase in living cost. In order to utilize the electricity efficiently, the need to design an alternative cooling system is inevitable.

The development of Evaporative Air Cooler System is a reasonably good solution to provide low power and low cost cooling system for domestic sector.

Using the mechanical energy wasted from the motor by turning the generator and charging the battery.

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II. LITERATURE REVIEW

BACKGROUND STUDY

PROBLEM DEFINITION

Air cooler continuously operate with main Electricity supply to consume more electrical energy**.**

In today's scenario, it is difficult to starts air cooler in without electricity.

The air cooler use only light available in some places to use this cooler. And this air cooler not saving electrical energy.

SCOP OF WORK

Using the mechanical energy wasted from the motor for mechanical input to the generator we can produce electrical energy and this electrical output of generator given to charge the Battery.

The motor runs on the electrical input current while the generator creates the electrical output current

III. METHODOLOGY OFPROPOSED WORK

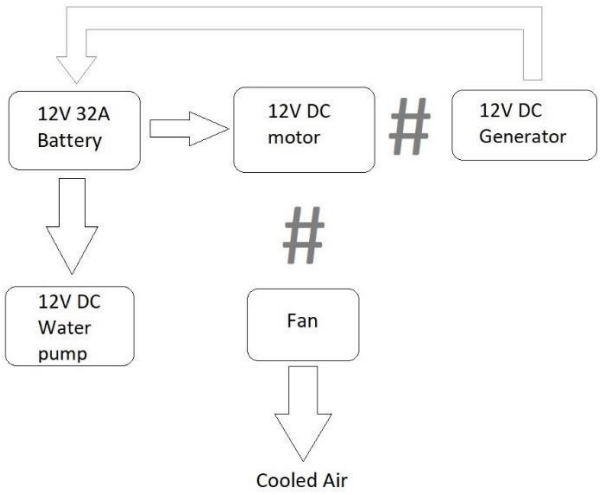

Fig.1 Block Diagram

Initially the battery is charged .The supply through battery is connected to the dc motor. The fan is connected to the shaft of dc motor .Also on same shaft dc generator is also coupled to dc motor.

When supply is connected to dc motor starts rotating also mechanical input to dc generator .As dc generator start rotating the electrical energy is produced which is feedback to battery. This process is known as Regeneration system.

As motor start rotating the fan also start rotating. Which supply the flow of air .To cool the flow of air we use cooling system. In the Cooling system we use water as coolant.

The principle on which the air-cooler works is as follows- Water, when evaporates it needs heat called 'latent heat of evaporation'.

In the cooler the water that is sprayed over the aspen cooling pads when evaporates takes the required latent heat from the atmospheric air surrounding them which on losing its heat cools down.

The high electricity demand for cooling purpose increase the electricity bills, which will lead to increase in living cost. In order to utilize the electricity efficiently, the need to design an alternative cooling system is inevitable.

The development of Evaporative Air Cooler System is a reasonably good solution to provide low power and low cost cooling system for domestic sector.

Using the mechanical energy wasted from the motor by turning the generator and charging the battery.

SCHEMATICDIAGRAM

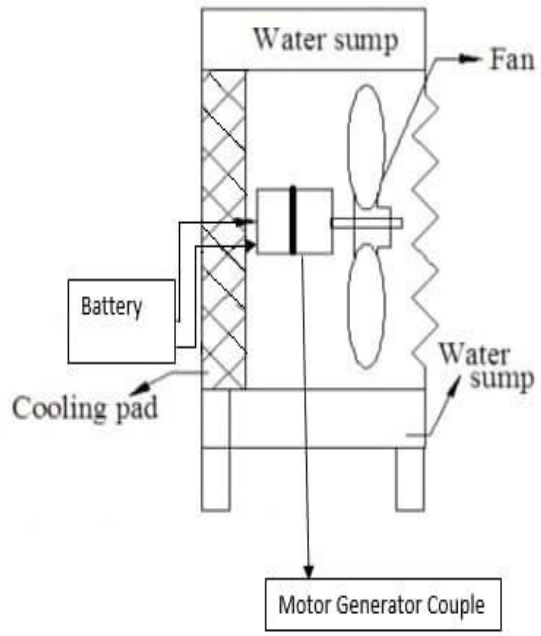

Fig.2Schematic diagram

EXPERIMENTAL / WORING SETUP

Fig.3 Experimental / Working Setup

RESULTS& CALCULATIONS

1. Motor Specifications:

A] No load Motor Specification

12V DC Motor

5000 R.P.M - No load speed

0.8 Amps -No load current

B] With Load Motor Specification

12V DC Motor

3000 R.P.M -With load speed

1.3 Amps -With load current

C] Load on Motor 27.6 Watt

2. Generator Specification:

Out Put Voltage of Generator – 10V

Out Put Current of Generator– 2.5 Amp

3. Battery Specification:

Voltage of Battery - 12V

Current of Battery – 32AH

Battery discharge time

Load – 27.6 watt.

Battery voltage – 12V

Battery power – 32 AH

Discharge current $=\frac{w}{v}=\frac{27.6}{12}=2.3$ Amp

Hours (Time): $\frac{\text{AH}}{\text{A}}=\frac{32\text{AH}}{2.5\text{ Amp}}=13.91$ H

13 Hours 12V DC motor run on 32 AHBattery.

Battery Charging time:

Output voltage of generator –10V.

Output current of generator – 2.5 Amp.

Battery Amp – 32 AH

Charging time = $\frac{\text{Battery Amp}}{\text{Charging Amp}}=\frac{32\text{AH}}{2.5\text{A}}=12.8$

In this regeneration process battery charge 93% in 12 Hours.

V. CONCLUSIONS

The high electricity demand for cooling purpose increase the electricity bills, which will lead to increase in living cost. In order to utilize the electricity efficiently, the need to design an alternative cooling system is inevitable. The development of Free Energy Air Cooler System is a reasonably good solution to provide cooled air without electricity.

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