

“Fridge in a Cooler”

In Built “Thermo Effective Fridge (Without Compressor)” In A “Dc Fan Operated Cooler”



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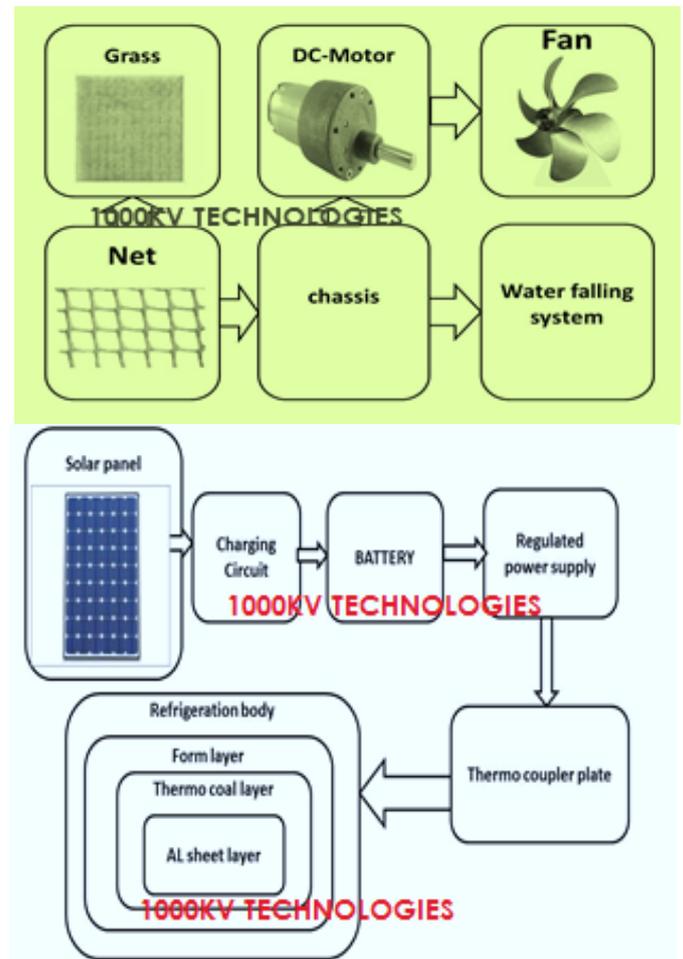


ABSTRACT:

Naturally fridge and cooler are the separate equipment's which we are using in home, this concept reveals the new designing methods to save place and increase fridge capacity. The main idea of this project is “refrigeration (Cooling) and air cooler using solar power based on Thermocouple effect. With respect an idea fridge in a cooler. This project mainly consists of two sections. Solar refrigeration and solar DC fan operated cooler. Here we are using 12v solar panel for generation of power this energy has to charge to 12V DC battery. Battery connects to DC motor includes horizontal fan of cooler and saved energy using for thermo effective peltier fridge. The converted energy is used to run the centrifugal fan.

KEY WORDS: fridge, compressor, without compressor, solar fridge, cooler, dc cooler, solar cooler, thermocouple, thermocouple effect, thermocouple fridge, peltier plate, peltier plate fridge, electrical fridge, fridge in a cooler, peltier cooler, peltier fridge cam cooler, 1000kv technologies, kartheekkandhi.

BLOCK DIAGRAM



This fan covered with cooling pads, through which water is passed at a specific rate. As the fan sucks the hot air through cooling pads, heat transfer occur between air and water thus generated cool air enters into the room. Peltier plate is cooler, heater, or thermoelectric heat pump is a solid-state active heat pump which transfers heat from one side of the device to the other, with consumption of electrical energy, depending on the direction of the current.

Peltier cooler can also be used as a thermoelectric generator. When operated as a cooler, a voltage is applied across the device, and as a result, a difference in temperature will build up between the two sides. Using of metal mild steel L shape M.S Patti welding to one rectangular box shape arrange i.e., chassis.

INTRODUCTION

The present air cooling and fridge methods are evaporative coolers, air conditioning, fans and dehumidifiers. But running these products need a source called electricity. The producing of electricity is ultimately responsible for hot and humid conditions i.e. global warming.

In hot and humid conditions the need to feel relaxed and comfortable has become one of few needs and for this purpose utilization of systems like air-conditioning and refrigeration has increased rapidly. These systems are most of the time not suitable for villages due to longer power cut durations and high cost of products.

Solar power systems being considered as one of the path towards more sustainable energy systems, considering solar-cooling systems in villages would comprise of many attractive features. This technology can efficiently serve large latent loads and greatly improve indoor air quality by allowing more ventilation while tightly controlling humidity. Despite increasing performance and mandatory energy efficiency requirements, peak electricity demand is growing and there is currently no prevalent solar air cooling and fridge technology suited to residential application especially for villages, schools and offices.

SOLAR PANEL:

Solar energy is radiant light and heat from the sun harnessed using a range of ever-evolving technologies such as solar heating, photovoltaic, solar thermal energy, solar architecture and artificial photosynthesis.

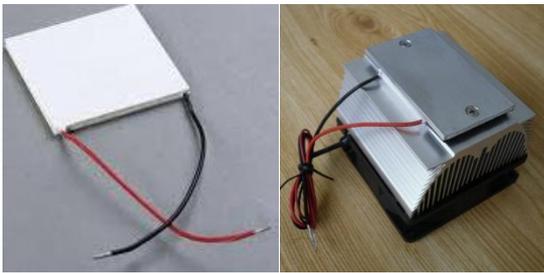


It is an important source of renewable energy and its technologies are broadly characterized as either passive solar or active solar depending on the way they capture and distribute solar energy or convert it into solar power. Active solar techniques include the use of photovoltaic systems, concentrated solar power and solar water heating to harness the energy.

Passive solar techniques include orienting a building to the Sun, selecting materials with favorable thermal mass or light dispersing properties, and designing spaces that naturally circulate air.

THERMOELECTRIC COOLING

Thermoelectric cooling uses the Peltier effect to create a heat flux between the junctions of two different types of materials. A Peltier cooler, heater, or thermoelectric heat pump is a solid-state active heat pump which transfers heat from one side of the device to the other, with consumption of electrical energy, depending on the direction of the current. Such an instrument is also called a Peltier device, Peltier heat pump, solid state refrigerator, or thermoelectric cooler (TEC). It can be used either for heating or for cooling,^[1] although in practice the main application is cooling. It can also be used as a temperature controller that either heats or cools.



A Peltier cooler can also be used as a thermoelectric generator. When operated as a cooler, a voltage is applied across the device, and as a result, a difference in temperature will build up between the two sides.^[3] When operated as a generator, one side of the device is heated to a temperature greater than the other side, and as a result, a difference in voltage will build up between the two sides (the Seebeck effect). However, a well-designed Peltier cooler will be a mediocre thermoelectric generator and vice versa, due to different design and packaging requirements.

APPLICATION:

- 1) Less space occupies
- 2) Portable device
- 3) Low cost design
- 4) Home based application project
- 5) Charges from sunlight

ADVANTAGE:

- 1) Low cost
- 2) No power cut
- 3) This is solar product appeals better and affordable by common people.

CONCLUSION:

Comparing the cost of this product with the existing products in the market is solar product appeals better and affordable by common people. This solar product perfectly suits for villages, schools and offices and thus an alternate to the power cut problems. It comprises of many attractive features such as usage of solar energy, cooler and cooling cabin at lower cost. It is ecofriendly and natural, electricity savers. Durability of the product is more thus minimizing the cost. No

electricity is used so this product saves the energy and saves environment from getting polluted.

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