SOLAR BASED VEGETABLE CART

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Abstract

The idea behind the project is that in today's scenario of modern technology everything is empowered by technology. Now a day we see about ourselves the vegetables and fruit vendors face the problem of rotten their item. To avoid this problem a solar based vegetable vending cart offers the total refrigerant system powered by solar energy. It has an auto sensor for appropriate cooling. This special cart also provides a eco-friendly system. The freshness and life of vegetables and fruits increased saliently after storage in the cart.

INTRODUCTION

Urban poor people are involved in vending with low living condition due to low income incurred due to loss of quality of product. Generally vendors used gummy bags/ sprinkles. This may cause to spoilage or rotten particularly vegetables due to direct water sprinkling.

About the Technology used:

a) Storage fruits and vegetables by controlling moisture.
b) Provision of extra storage space of 4.8 cubic feet below main platform.
c) Provision of an effective and uniform evaporators cooling arrangement with forced air circulation with fan power by solar panel.
d) Further provision of portable energy bank of W with the charger controller and protection devices to meet energy requirement of domestic gadgets.

Application of Technology

a) It is used for reducing temperature of storage chamber by 10-12℃ and increase in relative humidity by 15-25%.
b) Enhance storage life of fruits & vegetables up to four days provided consumer satisfaction.
c) Maintain freshness of the product in term of physical properties.
d) It is very useful in also in winter when condition is dry which cause deterioration in appearance of fresh vegetable.

2. FEATURES

The solar based vending carts have different features are as follow:-

a) Solar panel will produce electricity to charge the battery with fan refrigeration system work.
b) If the charge remain in the battery can use it has inverter in his house which will his current bills.
c) According to the survey there are 3% vendors in India, so if all the corers of vendors use. It will indirectly save the fossil fuel electricity consumption.
d) It has a solar power system approximately 500W.
(e) It also cover the iron sheets of _____ thickness for hardware.
(f) It content tubeless tyre for convenience.

3. HARDWERE DESCRIPTION

3.1 SOLAR ROOF:

The roof of this special cart consist of solar plate component .Normally roof is plated as iron sheet which circuited or connected with solar plate rating around 500KW power. This power capacity give power supply to the AH battery placed in bottom of cart.

The power capacity give power supply or reliable power supply to the AH battery placed in the bottom of cart .The solar plate are of consist of soalar photovoltaic cell which work on the principle of photovoltaic operation of semi conductor photodiode. In photodiode the light strike through diode and electron become able to produce current.

3.2 IRON SHEET

In the hardwere design of project soalr based vending cart , the iron sheets plays a very important role such that it covers the whole periphery of cart in which food item such as vegetables, fruits etc are kept. The iron sheet of the thickness 2 mm and of dimension are . These are coated with silica gel and oil painted by primer.

3.3 ALUMINIUM SHEET

Aluminium sheets or aluminium glass are so widely used for the manufacturing of door gates and windows .due to their flexibility and strength gates are powered. In project necessity of cooling enclosement is fulfilled with this aluminium sheet as these are vaccum tight space no cooling get outside from these sheets. So it provides extra strength and air tight system to convenience according according to project.

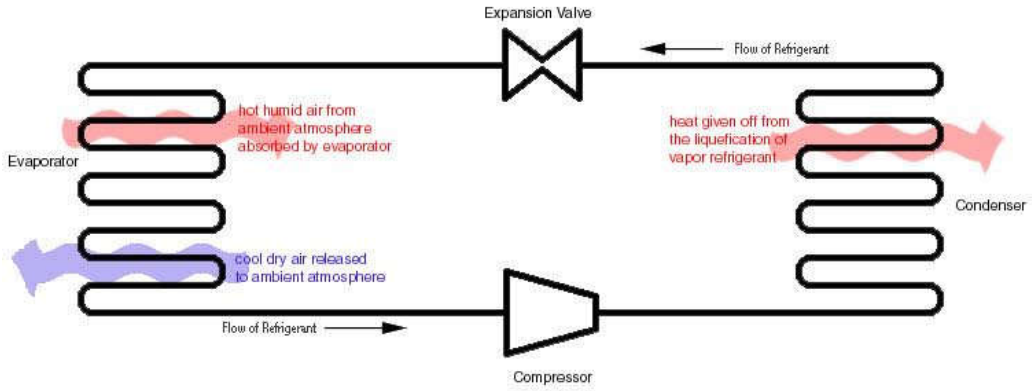
3.4 WHEEL ALIGNMENT AND MOVING MECHANISM

In the very bottom part of this special cart have strong wheel alignment. These wheel have troubles tyre mechanism, in which there is no risk of wear tear, so these are specially designed. These wheel are jointed with a horizontal rod of two same lane wheel and one single rod is kept between four wheel.

3.5 REFRIGERATION SYSTEM AND COMPRESSOR

Refrigerant flows through the compressor, which raises the pressure of the refrigerant. Next the refrigerant flows through the condenser, where it condenses from vapor form to liquid form, giving off heat in the process. The heat given off is what makes the condenser "hot to the touch." After the condenser, the refrigerant goes through the expansion valve, where it experiences a pressure drop. Finally, the refrigerant goes to the evaporator. The refrigerant draws heat from the evaporator which causes the refrigerant to vaporize. The evaporator draws heat from the region that is to be cooled. The vaporized refrigerant goes back to the compressor to restart the cycle.

3.6 EVAPORATING COIL



4. OUR'S APPROACH

The main purpose of our project that it is mainly for rural low level people or vendors. By this project we will give plateform to our upcoming technocrats to build their unique idea over it, for benefit of society. By this they can perform their task and interference. Basically this project have wide expansion in future scope ,such that it can be automatic with electrical motors and best temperature sensor. Finally non-invasive utilisation of the system is considered as a property of system.

4.1 ADVANTAGE:

- Low design time
- Low production coast
- Setting the destination very easy.
- It is dynamic nature.
- Less space.
- Maximum efficiency.

5. RESULT CONCLUSION AND FUTURE SCOPE

5.1 RESULT

Thus we have built a soar based special vending cart in which we see its working .

5.2 CONCLUSION

A simple cheap in coast, configuration, easy to access special cart has been made.the system is designed, implemented, tested and verified. The real time result of the system are encouraging . The system or cart is able to preserve bakery and food item with good level of nutrition.

Student and researcher will find this solar based system very useful for the practical application of project for society and common people .Although a lot of effort and time has gone into the design of the special cart is still in a stage where future work needs to be done .Major effort was done on the hardwere and other design related component.

5.3 FUTURE SCOPE

The further work in this thesis may include the manufacture of this thesis may include the "cart" and performiong the automation of this vending cart by special motors. Universities ,Engineering colleges etc, to include soalar project in their curriculam.Solar based project have very wide range of application .this special cart will lead automation in modern society . It will serve as a base for student to work on the difference solar projects.