

“USE OF SOLAR ENERGY TO KEEP FOOD DELIVERY ITEM WARM”

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Abstract

In this century, the rate of online food delivery is increased rapidly. For delivering the food to customer requires at least 20 to 25 minutes from the time of making. Meanwhile the food gets cooled and its quality loses.

The present innovation tackles this problem by providing an arrangement which will keep the food item warm up to the time of delivery. The basic principle of working for this arrangement is transferring heat of solar energy.

This innovation will be useful mainly for the online food delivery. This can be also use to transfer food from one place to another without losing its quality.

Introduction

Now days, the online food delivery like Pizza, Burger etc. has been increasing rapidly. But to deliver the ordered food requires time of about 20-25 minutes. Meanwhile the foods get cooled. So either customer needs to heat it or to eat as it is. To avoid this loss of food quality, some arrangement should be made which will solve this problem. If the delivered food is warm then customer gets more satisfaction and this will attract more customers to order online food which will ultimately increases the business.

For attracting the more customers, we need a device which will solve this problem. We have two options either make more effective insulated box or some device which will maintain the temperature of that box.

History

1. Domino's Pizza Box (1960)

Since the 1940s pizza take-out was done with the pizza sitting on a round cardboard base and covered with a paper bag. It is believed Domino's developed the modern corrugated flat square pizza box in the early 1960s, but they never patented it. Patent designs for pizza boxes date to at least 1968. Innovations since have included various venting configurations; built-in holders for extra sauces; designs for easier recycling; perforated tops so wedge-shaped pieces of cardboard can be used as plates. The lid of the box is often supported by a disposable plastic tripod on top of the pizza.

2. Ingrid Kosar, Delivery Bag (1984)

Bags used to keep pizza hot while being transported are commonly referred as hot bags. Hot bags are thermal bags, typically made of vinyl, nylon that passively retains heat. Heated bags supply added heat through insertion of externally heated disks, electrical heating elements, or pellets heated by induction from electrically generated magnetic waves. Innovations in delivery bag designs have allowed without the usage of a fixed box for

bike delivery, such as a hard frame, back straps, and waterproofing. These systems proved to be cheaper, more efficient and faster to use.

Working principle

The project works on the basic concepts of heat transfer, where the heat from the solar energy is convected to the food chamber and so the inside box temperature is maintained.

Construction

The setup consists of following parts-

1. Delivery Box
2. Copper sheet
3. Mirror

The conventional delivery box is modified by adding copper sheet at bottom side and mirror at top side.

Conclusion

The set up performance is well when the solar energy is maximum. But in rainy and winter season, there is variation of temperature on copper sheet, this affects the heat transfer coefficient. Thus the plate thickness has more importance as it is required to have optimization of strength of plate and heat transfer coefficient.

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