

THE DESIGN OF A SOLAR HYBRID FOOD DEHYDRATOR

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ABSTRACT

This report presents the process of creating or designing a solar hybrid food dehydrator. First of all, the group members have set up the objective and scope for the project work. Then, research on the current system that how people dry up food or methods to preserve them. From the current system, all of us analyze and figure out what is the problems that people faced in the current system. To solve the current problems, some research have been done or studied on more details of the dehydrator and its solar system. After that, the group found out that there must have 2 solutions to solve the current problems. First is to design a dehydrator box which enable the sunlight directly heat up the food in the box, then design a collector unit which enable to release heat during night time. Finally, the outcomes of this study are Solar Hybrid Food Dehydrator is primarily uses solar power to dehydrate food products to preserve them. The dehydrator is designed to work even in the rainy season using a method of storing heat. Electrical heating system is also used as backup system to keep the dehydration process continues. The food dehydrator is expected to be able to trap heat so as the temperature in dehydrator unit reach up to 70°C. Rate of air flow and heat transfer by thermosyphon are important factors to this dehydrator. Moreover, electrical heating element is required to be turned on if the temperature drops till below 30°C.