SKR ENGINEERING COLLEGE

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Department of Mechanical Engineering

PROJECT TITLE	DESIGN , DEVELOPMENT AND PERFORMANCE ANALYSIS OF NATURAL PRESERVATOR
STUDTENT NAMES	SRINIVASAN.R ARUL.K S.RAMSUNDAR
SUPERVISOR	V.CHANDRAN, ASST. PROFESSOR
OBJECTIVE	1. To preserve the food naturally without use of electricity. 2. To reduce the energy consumption. 3. To protect the ozone layer depletion and reduce global warming.
ABSTRACT/IDEA	Various preserving systems are used across the world, normally; Refrigerators are used to store food for long time and protects the food from microbes.They keep the objects cool and thus protects the food from heat and direct sunlight.They stop the spoilage of food and they also protect them from insects and rodents.But, they uses large amount of electricity and Freon(a harmful pollutant gas) is used in the refrigerators which causes global warming.The food which is stored in the refrigerator,when kept outside for long time helps for the multiplication of microorganisms.The main purpose of implementing the natural preservator is to preserve the food naturally without the help of any external energy sources. This natural preservator does not emit any type of harmful gases like Chloro-flurocarbon(CFC), Hydro-flurocarbon(HFC). Other reason for implementing the natural preservatoris to focus the lower middle class people, who are really not having refrigeration system.In this, natural preservator is achieved by means of fabricating thethree layers.Outer layer is made up of fiber glass material because fiber glass is thermal insulating material and intermediate layer is honey comb structure made up of polypropylene material where polyurethane foam or jute is used to test the heat transfer coefficient. Vegetables and fruits are placed in racksand surrounded by the inner layer which is made up of thin aluminium

	sheet because it is good thermal conductivity. Fabrication process was done by water jet machining and other conventional manufacturing processes. Performance analysis was carried out by placing the three thermometers in vegetable container and intermediate layer as wet and dry bulb conditions. Tests carried out by changing the two intermediate layers to determine better heat transfer coefficient. Results showed that, polyurethane foam layer showed good heat transfer coefficient compared to other layers used.
TECHNOLOGY USED	Hurdle Technology
WORKING STEPS	Objective – identification of model – identification of materials and parts – identification of performance and calculation and fabrication – performance analysis with different layer - validation
REQUIREMENTS	Fibre Glass, Polyyurethane Foam, Honey Foam structure, Jute
BENIFITS	Due to emission of CFC gases from old refrigerator which is harmful to atmosphere which destroy the ozone layer, and in modern refrigerator emit HFC leads to increase the global warming