

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

“JNANA SANGAMA”, BELGAVI - 590018.



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Project Report On

***“DESIGN AND FABRICATION OF SOLAR ASSISTED
REFRIGERATION SYSTEM”***

Sponsored by

KARNATAKA STATE COUNCIL FOR SCIENCE AND TECHNOLOGY

**INDIAN INSTITUTE OF SCIENCE,
BANGALORE - 560012**

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‘BACHELOR OF ENGINEERING’

IN

MECHANICAL ENGINEERING

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ABSTRACT

The project aims to solve the challenges encountered in the refrigeration and agricultural sector. It provides a sustainable and an easy refrigeration system that can be easily adopted by agriculturists, fisheries and among others to reduce waste and increase productivity.

The absorption fridge is unique type of refrigerator that uses thermal energy instead of conventional mechanical energy. It uses heat energy obtained from kerosene lamp, solar collector and conventional electric heaters to provide heat energy to the refrigeration system. The refrigerant (ammonia) is alternatively absorbed in the absorber and liberated from an absorbent medium in the generator.

This project presents a refrigerator that runs on two sources of heat: solar collectors and electric heater. In this model the heat is harvested by using solar evacuated vacuum tubes that consequently heats the refrigerant. Electric heating is used in the system act as a backup, increasing accuracy, reliability and sustainability.

A simple system, comprising of an absorber, evaporator, condenser and generator is introduced to explain the principle of operation and the absorption refrigeration cycle.

Construction parameters, both electrical and physical are considered for optimum performance.