

**DEVELOPMENT OF A SOLAR OVEN INCORPORATING  
THERMAL ENERGY STORAGE APPLICATION (BOXLIKE  
TYPE)**

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**A PROJECT REPORT TO BE SUBMITTED TO THE DEPARTMENT OF  
PHYSICS IN PARTIAL FULFILMENT OF THE REQUIREMENT  
LEADING TO THE AWARD OF THE DEGREE OF BACHELOR OF  
SCIENCE EDUCATION OF BUSITEMA UNIVERSITY.**

**JUNE 2022.**

**DECLARATION**

I Murenga Brian, hereby declare that this research is my original work and has never been presented to any institution of learning for any academic award.

Signed..... date.....

**MURENGA BRIAN**

**APPROVAL**

This is to certify that study entitled the development of a solar oven incorporating thermal energy application (boxlike) has been done by Murenga Brian under ~~e~~lose supervision.

**SUPERVISOR:**

Signed..... Date.....

**Dr ANGELA KARORO**

## **DEDICATION**

This research is dedicated to Almighty God for His love, divine mercy, divine health, divine protection and divine direction from the time of birth up to date and forever and ever Amen.

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## **ABSTRACT**

Therefore this study endeavors to combat the above mentioned problem by introducing a solar oven technology which relies on the solar radiations, to the community of Nagongera town council and other parts of Uganda

In every chapter there is necessary information that one can read independently and in turn construct a solar stove that requires local and cheap materials. A simple standard measurement was applied in the construction of a solar oven.



## **CHAPTER ONE: INTRODUCTION**

### **1.1 Background of the study**

Solar power refers to the energy created when solar radiation is converted into heat (thermal processes) or electricity (electric processes). Solar energy describes several energy creation techniques that use the sun's radiation. It has been used in traditional construction for centuries though in developed countries interest has fluctuated with the price of fossil fuel.

The traditional use of solar energy as passive heating has influenced the design of homes and public buildings in many parts of the world: the most efficient dwellings historically have been designed, in the northern latitudes, with large windows facing south and small windows in the walls oriented toward the north. This simple building technique has for centuries reduced the need for other sources of energy to generate heat. The industrial growth and economic prosperity during the 20th century caused a massive abandonment of this type of construction and a simultaneous increase in the use of electricity and fuel to moderate home temperatures. The 21st century could signal a return to this type of passive energy use. Solar energy is used in several different applications: To generate electricity through photovoltaic or solar electric as the last option is particularly useful in regions of poor countries without traditional power sources.

Solar radiation can be used directly or indirectly. Direct radiation originates directly from the solar focus, without intermediary reflectors or refractors, though it can be reflected and concentrated for use. It can't be controlled, though it can be used as a passive system, for example, in the orientation and characteristics of a building with respect to the sun.

A solar oven uses sunlight to heat meals or drinks. Today's solar ovens are cheap and popular solutions to prepare meals in parts of the world where access to electricity is limited. These devices are only reliant on sunlight to work. Sunlight is converted to heat energy that is retained for cooking. Solar cooking is done by means of the solar UV rays.

### **1.2 Problem statement.**

Solar oven generally solely depending on the sun radiation which is not consistent variable from the effect of changing weather and this situation will directly cause the oven not to function at optimal efficiency. Cooking with the sun has become a potentially variable substitute for fuel

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