

**BUSITEMA UNIVERSITY
FACULTY OF ENGINEERING
DEPARTMENT OF COMPUTER ENGINEERING**

**DESIGN AND IMPLEMENTATION OF AN AUTOMATIC SANITIZER
DISPENSER AND CONTACTLESS INFRARED THERMOMETER WITH
DISTANCE COMPENSATION FOR COVID-19 PREVENTION**

BY

**NAME: NYERO LOUIS ABRAHAM MICH
REG.NO.: BU/UP/2020/1776
TEL: 0777226829
EMAIL: abramlouie@gmail.com**

And

**NAME: NABUKA JOEL
REG.NO.: BU/UP/2020/0665
TEL: 0787176203
EMAIL: nabukajoel@gmail.com**

SUPERVISOR: MR. ALUNYU ANDREW

**A FINAL YEAR PROJECT REPORT SUBMITTED TO THE
DEPARTMENT OF COMPUTER ENGINEERING IN PARTIAL
FULFILLMENT FOR THE AWARD OF A DIPLOMA IN COMPUTER
ENGINEERING OF BUSITEMA UNIVERSITY DECEMBER, 2022**

ACKNOWLEDGEMENT.

We thank the almighty god for life and knowledge that help us through this project.
Appreciation is rendered to our colleagues for their support through group discussion.

Supervisor, lecturer Mr. ALUNYU ANDREW and the Department of Computer Engineering for guidance and insight into concepts of research and project management as well as technical knowledge applicable in the design of the system

DECLARATION

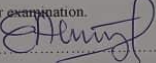
We *NYERO LOUIS ABRAHAM MICH* and *NABUKA JOEL* declare that this project proposal is original and has not been published or submitted before to any university or higher institution of learning.

Sign.....Date.....

Sign..... Date.....

APPROVAL

This final year project titled "DESIGN AND IMPLEMENTATION OF AN AUTOMATIC SANITIZER DISPENSER AND CONTACTLESS INFRARED THERMOMETER WITH DISTANCE COMPENSATION FOR COVID-19 PREVENTION" is under our guidance and is now ready for examination.

Signature..... 

Date..... 02/02/2023

MR. ALNYU ANDREW
DEPARTMENT OF COMPUTER ENGINEERING

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1.0 CHAPTER ONE:

2.0 INTRODUCTION

1.1 Background

Covid-19 is a communicable respiratory disease caused by an extra strain of coronavirus that causes illness in humans. Since December 2019 the world has been under tremendous tension, as the number of infected are increasing day by day, and till date no vaccine has proved perfect against the pandemic agent, Corona Virus. COVID-19 pandemic has changed the world's economic outlook. For the first time in recent years many countries were under lockdown, causing some businesses to shut down, decreasing the Gross Domestic Product of nations. The use of Alcohol-based hand sanitizers as a means of controlling the transmission of infectious disease has increased significantly as governments and public health agencies across the world advocated hand hygiene as a preventative measure during the COVID-19 pandemic. Alcohol based hand sanitizers are used by pressing the sanitizer cap with your hands. This causes people to touch the cap surface, which increases the infection chances. Pressing the pump handle is a manual process, and many pass-by without disinfecting themselves. Sanitization has been one of the fundamental pillars of combat and is the most efficient method along with use of face masks to prevent the escalation of Covid-19 virus. Most modern methods of sanitization are relying on foot operated sanitizers and sanitizer dispensers for this purpose. However, the majority of these are not contactless, which defeats the purpose of sanitizing multiple people. Due to this, the true use of hand sanitizers is drastically reduced, which does not aid in preventing the spread of Covid-19. The infrared thermometers have become more popular during the ongoing covid-19 pandemic. Infrared thermometers are used for measuring the surface temperature without direct contact, which is through detecting the amount of thermal or black-body radiation emitted by the object. Additionally, these thermometers are now commonly used in clinical practices, as well as routinely during the pandemic for self-monitoring and screening at the entrances of public places. Many IR thermometers, especially self-assembled ones, can be inaccurate as they lack ambient temperature and distance sensors for compensation. The IR temperature sensor used for contactless temperature measurement in most IR thermometers can only read the temperature of the surface of the human body accurately if the body's distance is less than 5 cm from the sensor as per manufacturer's recommendations. Above 5cm away, there's the possibility of an error and inaccurate reading. To help alleviate the above problems, the design and implementation of an automatic sanitizer dispenser and contactless infrared thermometer with distance compensation is being proposed.

VI. REFERENCES

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