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FACULTY OF ENGINEERING

DEPARTMENT OF COMPUTER ENGINEERING

FINAL YEAR PROJECT REPORT

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Project Title:

WEB BASED ARTIFICIAL INTELLIGENCE SYSTEM FOR BREAST CANCER DETECTION THROUGH IMAGE ANALYSIS.

SUPERVISOR: DR. GODLIVER OWOMUGISHA

PROJECT REPORT SUBMITTED TO THE DEPARTMENT OF COMPUTER ENGINEERING IN PARTIAL FULFILLMENT FOR THE AWARD OF A BACHELOR'S DEGREE IN COMPUTER ENGINEERING OF BUSITEMA UNIVERSITY

DECLARATION

I **KASOMA EMMANUEL**, BU/UG/2019/2315 a student of Busitema University, hereby declare that the presented proposal report is uniquely prepared by me at Busitema University. I also confirm that this proposal report has been written by me and has never been submitted to any academic institution in Uganda.

SIGNATURE.....

DATE 02/10/2023

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APPROVAL

This final year project report under the title "WEB BASED ARTIFICIAL INTELLIGENCE SYSTEM FOR BREAST CANCER DETECTION THROUGH IMAGE ANALYSIS.

" is under my guidance and is now ready for examination

Signature .....

Date ....26th / March / 2024.

for **SUPERVISOR: DR OWOMUGISHA GODLIVER**

Department of Computer Engineering

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With gratitude, I thank the almighty God for his love towards me and the unending guidance and protection he has provided me throughout the entire duration of my study while at Busitema University. I also continue to thank him for his support which has enabled me to carry out this project successfully.

Appreciation also goes to my Supervisor Dr. Godliver Owomugisha for her help and continued support while carrying out my research.

My appreciation also goes to my fellow students for the help and ideas offered.

DEDICATION

I dedicate this proposal report to my mother and family members, my friends and course mates. I also dedicate it to everyone who has been there for me since the beginning up to now; my teachers, my lecturers, internship trainers and my fellow students who have been with me from the start of the course.

ABSTRACT

The AI Disease Diagnosis System for breast cancer is a project that leverages artificial intelligence (AI) techniques to improve the early detection of breast cancer. This system aims to address the challenges associated with timely diagnosis, ensuring early intervention and effective management of this disease.

By harnessing the power of machine learning algorithms and advanced data analytics, the system analyzes various medical data points, including patient history, laboratory test results, and clinical symptoms, to accurately identify potential cases of breast cancer. The system utilizes a diverse dataset comprising anonymized patient records, epidemiological data, and other relevant medical information to train the AI models.

The primary objective of this project is to develop an AI-driven diagnostic tool capable of accurately identifying breast cancer cases at an early stage. The system will be designed to detect patterns, anomalies, and risk factors associated with the disease, enabling healthcare professionals to intervene proactively and initiate appropriate treatment plans. The system's algorithms will continuously learn from new data, improving their accuracy and adaptability over time.

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1 CHAPTER ONE : INTRODUCTION

1.1 BACKGROUND

Cancers have been known to mankind since ancient times. Cancer begins when cells in a part of the body start to grow out of control. Different parts of the body may be affected by cancer. The study of cancer is termed oncology.

Some of the earliest evidence of cancer is found among fossilized bone tumors in human mummies in ancient Egypt, and references to the same has been found in ancient manuscripts.

Although the word cancer was not used, the oldest description of the disease is from Egypt and dates back to about 3000 BC.

AI disease diagnosis refers to the application of artificial intelligence (AI) techniques in the field of medical diagnosis. It involves the use of machine learning algorithms, deep learning models, and other AI technologies to analyze medical data and assist healthcare professionals in diagnosing various diseases and conditions.

The concept of using AI for disease diagnosis has been evolving over the past few decades. With the increasing availability of electronic health records (EHRs), medical imaging data, and other patient information, researchers and developers have been exploring ways to leverage AI to improve the accuracy and efficiency of diagnostic processes.

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