

A WEB-BASED HOSPITAL RECORDS MANAGEMENT SYSTEM

CASE STUDY: BUKWO MAIN HOSPITAL-UGANDA

SOYEKWO HOSTA

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**A PROJECT REPORT SUBMITTED TO THE DEPARTMENT OF COMPUTER STUDIES IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF
BACHELORS OF SCIENCE AND EDUCATION.**

SUPERVISOR: MR OBOH ANDREW

DECLARATION

DECLARATION

I hereby declare that this report is my own work. It is being submitted in partial fulfillment of a Bachelors degree of science education at Busitema University. And has not been submitted before for any degree or examination to any University or Institution.

STUDENT

Signature: 

Date: 24th Oct 2022

SOYEKWO HOSTA.

APPROVAL

APPROVAL

This report is being submitted to Busitema University for the award of a Bachelors degree of science education, under the research supervision of Mr. Oboth Andrew.

Supervisor

Mr. OBOTH ANDREW

Signature

[Handwritten Signature]

Date:

21st May 2020

Department of Computer Studies,
Busitema University

DEDICATION

I dedicate this research report to my beloved parents Mr. Soyekwo Joram Stephen and Mrs. Yapchelimo Joyce Soyekwo for their support towards my studies from day one.

This research work is also dedicated to my lecturers who have guided me throughout the study time at university, and put in their time and more so to be noted, Mr. Andrew Oboth, my supervisor. A thank you note goes to all my colleges who always gave me their time through the research duration and the study time.

My the Almighty bless you all.

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I would also like to acknowledge my class mates who have been with me in every step of the journey. And above all my parents who have endlessly sacrificed so as to see everything accomplished.

ABSTRACT

This report is a representation of the web-based hospital records management system at Bukwo main hospital. The major aim of the project was to develop a web-based (online) hospital records management system to store patient records so that they can easily be used in the future.

The rapid application development (RAD) approach was employed in developing the system as it was the only convenient system to me.

The system was tested and further observed to see its validity to society and found useful in the hospital. I also believe that the system can still be upgraded to allow for shearing of information among the hospitals in a particular region to avoid duplication of patient information in other health facilities.

The major languages used in developing the system are PHP and MySQL.

In my conclusion hospitals in Sebei region and Uganda at large should invest more in electronic medical records system to ease handling of patient information.

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CHAPTER ONE

1.0 Introduction.

The health of a community is of great priority to their government and also plays a great role in the development of the community and the people's life and activities at large.

The internet offers a great deal of resources that our project will make use of, the system will allow a user (member of staff) to create a patient's account and populate it with the patient's data and be able to update this account with whatever developments the patient has in relation to their illness and health.

Hospital management systems have been developed for various reasons, some have been developed to store patients' information while others to store inventory of medical supply such as AfyaServe the longest serving Kenyan medical records management system, others to store the day to day running expenses of medical facilities such as Stre@mline in western Uganda according to <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6334711/> an article written about stre@mline and yet others to manage the staff. And such as said hospital records management systems play a great role in the medical facilities.

Hospital management systems have been developed to carry out various functions for example AfyaServe is a Hospital management system that manages patients and clinical resources based in Kenya's capital Nairobi. In Uganda the HMIS (Health Information Management System) is used to store all medical transactions in the country such as pharmaceutical inventory, epidemics and others and such information can be used by the government health agencies in planning according to the daily nation, a Kenyan online paper.

1.1 Background.

Bukwo main hospital is a government public hospital in Uganda located about one kilometer away from Bukwo town. The hospital is located behind Bukwo town council offices.

Bukwo main hospital also commonly referred to as (kap-sistan) to mean home of the sisters literally, was started by the missionaries and later adopted by the government through the ministry of health.

REFERENCES.

<https://www.afyaserve.com>

<https://www.iapb.org/news/health-management-information-system-in-uganda/>

<https://www.nextgen.com>

www.epic.com/software .

<https://dhis2.org/about/>

<https://emrportal.mets.or.ug/about-emr/>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6334711/>