



**BUSITEMA
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Pursuing Excellence

FACULTY OF ENGINEERING

DEPARTMENT OF COMPUTER ENGINEERING

FINAL YEAR PROJECT REPORT

**TOPIC: EXAMINATION TRANSMISSION SECURITY MONITORING
SYSTEM: A CASE OF UGANDA NATIONAL EXAMINATIONS BOARD**

(UNEB)

BY

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DECLARATION

I, **TINKAMANYIRE AMON**, Reg No. **BU/UG/2016/1799** hereby declare that this project is my original work except where explicit citation has been made and it has not been presented to any Institution of Higher learning for any academic award.

Signature  Date 27th Jan, 2021



APPROVAL

I certify that the project entitled "exam transmission security monitoring system: a case of Uganda national examinations board (UNEB)" has been done under my supervision and is submitted to the board of examiners with my approval.

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Sign:

Date:

LIST OF ACRONYMS

UNEB	Uganda National Examination Board
KCSE	Kenya Certificate of Secondary education
KCPE	Kenya Certificate of Primary Education
NECTA	National Examinations Council of Tanzania
UCE	Uganda Certificate of Education
UACE	Uganda Advanced Certificate of Education
PLE	Primary Leaving Examination
IoT	Internet of Things
RFID	Radio Frequency Identification
CBT	Computer-Based Test
RTC	Real Time Clock
GPS	Global Positioning System
GSM	Global System for Mobile Communication
LCD	Liquid Crystal Display
SIM	Subscriber Identity Module
ERD	Entity Relationship Diagram

ABSTRACT

Examination malpractice is a problem in most parts of the world and a serious problem in African countries like Uganda, Kenya, Tanzania and so many more countries. Examination leakages is an example of such actions that threaten the integrity of examinations and damage the authority of those responsible for conducting them. This means the content of the examination or part of it is disclosed prior to taking the examination.

My main scope is Uganda and the most critical examinations are the national examinations that are done at every end of a level i.e., Primary leaving examinations at the end of the primary level, Uganda certificate of education examinations done at the end of ordinary level of secondary school and Uganda Advanced certificate of education examinations that is done at the end of advanced level of secondary school.

I focused on protection of examination boxes in which the exams are packaged and transported. The current way of transportation and protection is done by using two padlocks of which the keys are distributed to the Area supervisor and the Scout who are chosen by the examination body. The security personnel are in charge of the safety of the room where the boxes are stored. Detail is in chapter 1.

My system is designed to automate the current structure and the process by using keypad to provide authentication to open the examination boxes at the right time and also time is set to lock the examination boxes after examination packages have been removed. Time can be set by the administrator and only him or her can do this.

I used interviews and questionnaires to collect data.

Though faced a lot of short comings like limited time, limited expertise on hardware setup and more is detailed in chapter 6 plus the recommendations, further areas of study, conclusion and references of the sources of some information

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CHAPTER 1: INTRODUCTION

1.1 Background

An examination is an assessment of the understanding of the syllabus and concepts taught in school[1]. An examination can be conducted via oral, written or digital medium. However, it can be a stress to students, and some students get afraid and anxious just by hearing the word “exams”[2].

To date, examinations still remain the best tool for an objective assessment and evaluation of what learners have achieved after a period of schooling. Hence, any action that undermines examinations poses a great threat to the validity and reliability of examination results and certification[3]. Examination leakages is an example of such actions that threaten the integrity of examinations and damage the authority of those responsible for conducting them[4].

According to [4], examination leakage refers to the illegal accessing of the examination question paper by a candidate before the paper is officially opened in the examination room. This can occur anywhere between the setting of the examination paper and the opening of the examinations question papers in the presence of the candidates in the examination rooms.

In Uganda, examinations play a key role in the education system, as their results determine educational opportunities for millions of students[5]. Using the examination timetable, question papers are delivered from UNEB offices in Kampala to storage stations, often at police stations. On arrival, they are received by the area supervisor[6].

Despite the high pressure these examinations place on students, they are considered the fairest, objective, unbiased, and efficient way to decide who passes to the next educational stage. Many examinees would want to pass by any means. Many school authorities and parents would want to explore all the means of getting good grades for their students. Hence, they end up doing any kind of examination malpractice[5].

In 2017, Social media was flooded with images of Biology, Chemistry and CRE leaked examination papers. Uganda National Examination Board (UNEB) was dealing with reports that Senior Four papers leaked hours before candidates entered the examination rooms[7]. On 4th November, 2019, one person was arrested by the Police in Mpigi over theft of Primary Leaving

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