

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

**SCHOOLACCESS AND ATTENDANCE
REGISTRATION SYSTEM BASED ON SCHOOL
FEES STATUS**

BY

**LULE STEVEN
BU/UG/2012/71**

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DECLARATION

I, LULE STEVEN Reg No BU/UG/2012/71 hereby declare that this project report 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.

Sign

Date/...../.....

APPROVAL

I certify that the project report entitled “*school access and attendance registration system based on school fees status*” has been drafted under my supervision and is submitted to the board of examiners with my approval.

University project Supervisor

Name: Mr. Lusiba Badru

Signature:.....

Date:

Busitema University,

Faculty of Engineering,

Department of computer Engineering.

DEDICATIONS

To my family, friends and my supervisor who worked tirelessly to ensure my education and success of this project.

ACKNOWLEDGMENT

I extend my thanks of appreciations to the following people, my parents; thanks a lot for your support through all the struggles during my education, my friends, and Special thanks go to all the staff of the Busitema University particularly the Department of Computer Engineering and most importantly, Mr Lusiba Badru who was my project supervisor.

ABSTRACT

School fees status monitoring and student attendance registration are some of the most vital issues tackled by schools in Uganda. Though, establishing efficient and reasonable method of fees monitoring and attendance registration in schools is still a challenging responsibility of school organizations. Schools have been coming up with different methods of registering students' attendances, and monitoring of fees dues especially day-schools that allow fees payment in installment. This report includes the steps and procedures involved in coming up with a system that is able to monitor and registers students school attendances using fingerprint biometric technology. Biometrics refers to automatic Recognition of an individual based on their behavioral or physiological characteristics. Biometrics removes human error from the security equation. Fingerprint identification is one of the method in biometrics. Biometrics can be seen as a solution to a lot of the user identification and security problems in today's life. Reliable personal recognition is critical to many business processes.

A school access and attendance registration system based on school fees status. Uses fingerprint biometric technology that relies on the algorithm that; it captures the fingerprints of the student stores them to be used for matching. The gate opens automatically on correct matching of fingerprints being scanned and closes after the student passes to enter into the school. This system improves the technology of the existing systems in fees monitoring and students' attendance registration.

I designed the system in Linux environment and the code was written in python in python (also included in appendix A.1). Furthermore the user interfaces were designed in html5 and css3 using dream waver and the database was designed using MySQL. Php was used to connect the use interface to the database.

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LIST OF ACRONYMS

AJAX	Asynchronous JavaScript and xml
GPIO	General Purpose Input Output
GUI	Graphical User Interface
HTML	Hypertext Markup language
IDE	Integrated Development Environment
ID	Identification
SQL	Structured Query Language
WAMP	Windows Apache MySQL and PHP
DFD	Data Flow Diagram
PHP	Hypertext pre-processor
JSON	JavaScript Object Notation
IR	Infrared

CHAPTER ONE: INTRODUCTION

1.1 Background

School fees status monitoring and student attendance registration are some of the most vital issues tackled by schools in Uganda. Though, establishing efficient and reasonable method of fees monitoring and attendance registration in schools is still a challenging responsibility of school organizations. Schools have been coming up with different methods of registering students' attendances, and monitoring of fees dues especially day-schools that allow fees payment in installment.

Schools have used methods such as keeping fees records of each student and following the students accordingly (manual way where the bursar normally go class to class looking for fees defaulters), sending reminder letters and text message to parents or guardians, the methods have been used by most schools in the country both on primary and secondary levels but they proved to be inefficient and less effective in terms of fees collection and monitoring.

Some schools in Uganda also adapted the idea of using gate passes as a method of fees motoring. With this method, students are issued with gate passes in form of printed paper card that bear the students name, date, photo and expiry date of the school dues. The expiry date is given basing on the percentage of the portion of the fees a student has paid. When the student clears, he is issued with a cleared card. This card must be carried by the student each time he comes to school and it serves as a gate-pass. The student must always have to reveal this card to the gateman and he checks whether the student's school fees date is still valid, if the date is expired, the student is not allowed to enter into the school till he pays to the required amount and his card is renewed by the bursar or any other authorized school official. This method has a disadvantage that students tend to forge or loose these cards and this makes the method inefficient [1].

Due to the need to keep track of students attendances, schools also employ a manual book method of registration where every student that enters the school must sign in a book placed at the school gate [2] ,and some schools use the Check Teacher Attendance (roll call registers), where attendance registration is done by teachers on a daily basis (or several times per day), a method is required to make sure all attendance has been entered by teachers before reports are generated [3]. However, in Uganda some schools like Mengo senior school in Kampala and Jinja s.s in Jinja have come up with a more advanced method of registering student attendances by using e-registration method where students are given swipe cards. It works in such a way that, students must swipe these card through the system placed at the school gate whereby, whenever a student swipes through this system, it captures the time and the date he entered into the school premises [4]. But this system has limitations

of students carrying other students' cards and register them when they actually haven't come to school, cards are also easily lost and hard to adopt by the students [1].

Considering the above methods, I realized that the methods being used in the present are less effective, inefficient, costly and tiresome, this made me to come up with a project to develop a system that records the students' attendance and keeps track of the student's fees status on a finger press using a fingerprint biometric technology.

The system will use a fingerprint biometric technology because, Fingerprint authentication has been in use for the longest time and bears more advantages than other biometrics. It has been verified through various applications. In 1924, Federal Bureau of Investigation (FBI) was already known to have maintained more than 250 million civil files of fingerprints for the purpose of criminal investigation and the identification of unknown casualties. It now is being used in numerous field including financial, medical, e-commerce and customer application as a secure and effective authentication method [5].

1.2 Problem statement

A lot of recurring costs in terms of time and money are still incurred by school organization in printing students' entry cards, register books, making roll calls, students waiting at the gate to be checked and employing gatemen. This shows a need for a student that will help to cut down these costs by only requiring purchasing cost and able to monitor the students' fees status and register the students' attendance.

1.3 Project Objectives

1.3.1 Main objective

To design and develop a school access and attendance registration system based on school fees status that will be able to monitor the student's fees status and register student's attendance from the school gate using fingerprint biometric technology.

1.3.2 Specific Objectives

- i. To review the existing literature on current related systems used by schools and analyze the information obtained in order to identify the requirements needed for the development of the above stated system.
- ii. To design a fingerprint based identification and authentication school access and attendance registration system based on school fees status.
- iii. To implement the system
- iv. To test and validate the modules in the system to be implemented.

1.4 Justification and significance of the project

1.4.1 Justification of the project

According to research conducted by the ministry of education and sports on Uganda education statistical abstract 2009, it revealed that 45% of schools were day schools, 24% were partly boarding and partly day schools. In addition, while only 7% of schools were fully boarding. Over 24% of the schools' boarding status was unknown. Basing on this fact, it implies that approximately, 93% of the schools in the country use the above methods of fees monitoring and attendance registration. Hence revealing a need for the proposed system [6].

1.4.2 Significances of the project

When system is implemented it going to be of greater significance to the school organization in the following ways.

The school organization will now be required to buy only a single system do the students attendance registration and fees monitoring tasks hence incurring minimal costs.

Secondly, students will saved from the task of carrying the gate entry and the attendance registration cards.

1.5 Scope

1.5.1 Content scope

This project focused on using the student's fingerprint as a means of identifying the student and searches the school database against that identity to view the student's fees records and provides authorization to enter the school basing on the results from the records (database) and the database.

Fees payment will only be made with mobile money, bank and cash.

1.5.2 Geographical scope

For the geographical area, the system is developed for day schools and it is meant to be used at the students' entry gate.

1.5.3 Time scope

The system was designed and implemented in a period of 8 months.

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