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FACULTY OF ENGINEERING

DEPARTMENT OF COMPUTER ENGINEERING

FINAL YEAR PROJECT REPORT

School bus tracking and pupil safety enhancement system.

BY

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Declaration

I, **NDEKERA GEOFFREY** do hereby declare that this Project Report is original and has not been submitted for any other degree award to any other University before.

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Dedication

I dedicate this report to my family for the financial, moral, motivational and encouraging support you have given me in my years of study. May the almighty GOD bless you.

Acknowledgement

I would like to express my gratefulness and most heartfelt thanks to the almighty GOD for giving me strength to finish my project.

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LIST OF ACRYNOMS

DB	Database
DBMS	Database Management System
EPC	Electronic Product Code
GSM	Global System for Mobile Communication
GPS	Global Positioning System
HF	High Frequency
LAN	Local Area Network
LED	Light Emitting Diode
LF	Low Frequency
MMS	Multimedia Messaging Service
RFID	Radio Frequency Identification
SIM	Subscriber Identity Module
SMS	Short Message Service
SMSC	Short Message Service Centre
UHF	Ultra High Frequency
WLAN	Wireless Local Area Network

Abstract

The education sector is one of the key sectors in Uganda and the world at large. For education to be passed on effectively, a number of things have to be put into consideration among which is the transportation and safety of children. In relation to this, a number of schools employ shuttles to aid in the transportation of kids to and from school. This method of using shuttles has also been embraced by parents since it saves them a number of things that is rush driving, inconvenience's etcetera.

Therefore, as a way to enhance on the safety of the shuttle business (school vans and buses) and providing notifications to parents and school authorities about the location of the students, a school bus tracking and pupil safety enhancement system was suggested as explained in the different chapters of the study. In conclusion, the system serves a great deal to the schools and parents, reducing on the mental strain since it provides real time location of the school van/shuttle at any point in time.

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CHAPTER ONE

INTRODUCTION

1.0 Introduction

This chapter basically gives an overview of what the study is about and how the chapter is organized. It briefly talks about the outline of chapter one. It comprises of the background, problem statement and the main objective of the study as well as its significance and scope.

1.1 Background

Over the years, schools have adopted shuttles (buses and vans) as a means of transporting children to and from school and school related-activities for example school trips starting with little children (5-12 years), middle school students (12-18 years) and high school students. This mode of transportation originated in the United States of America in the state of California way back in 1930 [1] invented by "Wayne Works". Many districts in Canada and the United States use specially built and equipped school buses, painted yellow and equipped with various forms of warning and safety devices specific to them. The color was chosen because studies had shown yellow was the most eye-catching to human beings and because it was especially visible in the early morning and evening light, when school buses usually operate. It marked 50 years of pupil transportation in 2006 [2] and new developments together with technological advancements are being made to these buses for easy monitoring and tracking thus enhancing the safety of pupils.

In other parts of the world, buses used for transporting students tend to be more general-purpose type buses, Countries like Argentina, Finland, Australia, Germany, Netherlands etcetera. This has also been the case in most African countries as there isn't an organized form of student transport on a large scale, both buses and vans are used to transport pupils. Uganda in particular has quite a big number of private schools of which 2,000 are located in Kampala [3], each with an average of 500 students. This presents a potential market of a million students on carrying out the mathematics making the school van business a future prospect. School vans became very popular in Uganda between the years 2005-2007 and have ever since become a necessity for schools in Uganda although the ministry of education does not have a policy on school buses/vans. Therefore, most schools go by the policy on when school should begin and end 8:00am to 5:00pm [4] for the

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