BUSITEMA UNIVERSITY

FACULTY OF ENGINEERING

DEPARTMENT OF COMPUTER ENGINEERING

THE SPEED LIMIT VIOLATION DETECTION AND AUTOMATED FINING SYSTEM

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DECLARATION

I, **Ojok Rogers**, do hereby declare that this project proposal is my original work and has never been published and/or submitted for any other degree award to any other university or institution of higher learning.

Signature……

Date……

Bachelor of Computer Engineering

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APPROVAL

This is to certify that the project proposal titled “the speed limit violation detection and automated finning system” has been done under my supervision and is now ready for examination.

Signature ……...

Date.……...

Mr. ODONGTOO GODFREY.

Department of Computer Engineering

DEDICATION

I dedicate this project report to my beloved parents Mr. Ojok Billy and Mrs Kabalangira Grace for the love and support they have provided to me throughout this project period, my brothers Odong Sylver and Ojok Elly for the advice and financial support they rendered to me during the research period.

I also dedicate it to my project supervisor Mr. Odongtoo Godfrey for his tremendous effort and guidance in relation to my project report, the courage, and the moral & support he offered to me during my research period MAY the almighty God bless him.

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Special thanks to my family for their never ending financial and advisory support. May GOD reward them abundantly.

Above all, I acknowledge the Almighty GOD for the gift of life, wisdom and guidance for without Him, I would not have been able to accomplish this project report.

LIST OF ACRONYMS

IEEE: Institute of Electrical and Electronic Engineers

GSM: Global System for Mobile communication

LCD: Liquid Crystal Display

PC: Personal Computer

RF: Radio Frequency

Wi-Fi: Wireless Fidelity

DB: Data Base

RFID: Radio-frequency identification

MPH: Miles Per Hour

AIDC Automatic Identification and Data Capture

PCB Printed Circuit Board

SMS Short Message Service

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ABSTRACT

The main objective was to design and develop a speed limit violation detection and automated finning system. In Uganda, speed limit violation fines are issued to drivers in case of traffic rule violation. However, some traffic officers take bribes which is usually small money, as a negotiation with the drivers who are found over speeding instead of issuing them express traffic tickets. This has led to an increasing rate of accidents because it encourages over speeding, therefore I have designed such a system which automatically fine drivers on speed limit violation detection hence reducing bribing cases and hence reduce on the accidents caused due to over speeding.

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CHAPTER ONE
INTRODUCTION
1.1 Background

In Uganda, when you violate any traffic rule, you are issued an Express Traffic Ticket falling in the category of the offence you have committed [1]. The traffic police officer will issue you a penalty ticket which you are supposed to pay at the bank of your choice after processing a URA payment registration number (PRN) or to be taken to the courts of law or both.

Traffic management on the road has become a severe problem in today's society due to the growth of the urbanization, industrialization and population; there has been a tremendous growth in the traffic. With growth in traffic, there is occurrence of a bundle of problems too; these problems include traffic jams, accidents and traffic rule violation at the heavy traffic signals [2].

Uganda is one of the countries with the highest rate of roads accidents [2]. The major cause is over speeding mainly by public transport vehicles. Attempts to control this include use of radar speed guns which are used by police traffic officers on roads to track over speeding vehicles. it is used in law-enforcement to measure the speed of moving vehicles. However, this is still a challenge because of the insufficient number of police officers and radar speed guns. However, these traffic officers cannot be assembled in all spots of the roads to control the traffic and there is a rise in the issue of corrupt traffic officers. This has left the lives of very many people using road transport especially public transport at the mercy of irresponsible drivers [3].

There is also an increasing rate of corruption of some traffic men which has greatly led to loss of the country’s revenue, in terms of the money which is supposed to be collect from the fines got from the drivers got over speeding. This also encourages most of the drivers to continue over speeding due to the weakness of traffic law enforcement and corruption among some traffic police officers, hence increasing accidents [2, 4].

1.2 Problem statement

In Uganda, speed limit violation fines are issued to drivers in case of traffic rule violation. However, some traffic officers take bribes which is usually small money, as a negotiation with the drivers who are found over speeding instead of issuing them express traffic tickets. This has led to an increasing rate of accidents because it encourages over speeding [4].

It is against this background that I propose to design an automated fining system on speed limit violation detection which is to be installed in vehicles and will be able to monitor the vehicle in all places and at any time hence solving this problem.

1.3 Objectives of the study

1.3.1 Main Objective

To design and develop a speed limit violation detection and automated finning system.

1.3. 2 Specific Objectives

i) To study the weaknesses of existing speed limit violation detection systems and gather system requirements for the speed limit violation detection and automated finning system.

ii) To design an inbuilt vehicle system to detect speed limit violation. iii) To design an automated finning system using appropriate tools. iv) To test and validate the speed limit violation detection and automated finning system.

1.4 Justification

The speed limit violation detection and automated finning system reduce on the rate at which bribes are taken as a negotiation for over speeding by traffic officer. It also monitors the vehicle speed anywhere. The finding of similar research in South Australia led to use of speed cameras in urban areas, however these are not a viable and feasible solution to developing countries and cannot be implemented all over an e similar research entire country, therefore the proposed system is cheaper.

1.5 Scope of the study

This project is focus on detecting speed limit violation on high ways based on RFID technology. The project will utilize ATMEGA328P-PU microcontroller, an RFID based system which is embedded in the vehicle that communicate to the RFID tags or card which is on the traffic speed sign posts, in case of speed limit violation the system sends information to the webserver which consists of the bank database. The charge is deducted from the vehicle's registered bank account and transferred to URA bank account which are on the bank database. It is the vehicle being finned not driver because drivers change any time most especially for taxi's in Uganda.

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