



**BUSITEMA
UNIVERSITY**
Pursuing Excellence



FINAL YEAR PROJECT REPORT

**BODA-BODA RIDER SAFETY AND ACCIDENT
AVOIDANCE SYSTEM**

by

GABULA PIUS

BU/UP/2015/335

gabulapius.dev@gmail.com

+256757376248

Supervised by:

Mr. BWIRE FELIX

A final year project proposal submitted to the Department of Computer Engineering at Busitema University in partial fulfilment of the requirements for the award of the Degree of Bachelor of Computer Engineering of Busitema University.

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Abstract

The increased adoption of the boda-bodas in Uganda has created employment opportunities to many people in Uganda especially the youth, thus enabling them meet their standards of living. But this has exponentially contributed to bigger statistics of road accidents in Uganda. This has led to mainly fatality and trauma. The accidents are mainly caused by not wearing helmets, drinking alcoholic substances before operating a motorcycles careless riding.

This research is focused on reducing on the fatality rate, trauma and other effects that arise from boda-boda accidents and also ensure that boda-boda riders avoid them. This happens through using technology by developing an intelligent system to ensure that riders always wear their helmets.

The system achieves its objective through the use of sensors (alcohol sensor, infrared sensor) inside the helmet, GSM and GPS to ensure that boda-boda riders wear helmets at all times before operating a motorcycle and also to alert paramedic or relative in case an accident occurs.

Declaration

I **GABULA PIUS** hereby declare this project proposal my original work with exceptions of where citations have been made and this paper has not been presented to any higher institution of learning for the award of academic paper.

Signature *Gabula Pius*

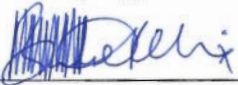
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Approval

This is to certify that the project proposal entitled "BODA-BODA RIDER SAFETY AND ACCIDENT AVOIDANCE SYSTEM" has been under my supervision and has been submitted to the board of examiners with my approval

Signature: 

Date: 27/01/2021

Mr. Bwire Felix

Department of Computer Engineering.

List of Acronyms

GSM	Global System for Mobile Communication
GPS	Global positioning System.
PIR	Passive Infrared
IR	Infrared
RF	Radio Frequency
ICCU	Injury Control Centre Uganda
IDE	Integrated Developers Environment
LCD	Liquid Crystal Display
BAC	Blood Alcohol Level

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Chapter 1: Introduction

This chapter includes the background, problem statement, objective and specific objectives, significance of study and the scope of the study.

1.1 Background

The growing population of African countries has led to a higher increase in demand of a reliable means of transport for carrying goods and passengers to distant places [1][2]. This has given birth to a motorcycle mode of transport in Uganda commonly known as boda-boda. The word Boda-boda is "a type of motorcycle or bicycle with a space for a passenger or for carrying goods, often used as a taxi". The term originates from the Busia district of Uganda that borders Kenya in the east some 50 years ago when innovative Ugandans provided a way by using Bicycles for bus passengers who had to disembark on one side of the border and walk a long distance to the other [3]. Since then the boda-boda taxi service which was introduced in the 1970s has upgraded from bicycles to motorcycles in major cities of Uganda like Kampala, Jinja, Mbale etc. Research shows that Nigeria is the largest importer of motor cycles from India followed by Angola with Uganda coming in at third position [4].

The increased adoption of the boda-boda has exponentially contributed to bigger statistics of road accidents in Uganda. The number of motorbike accidents has increased exponentially. According to the Injury Control Centre, there are up to 20 boda-boda related cases at Mulago National Referral hospital in Kampala every day. Road Traffic Crashes are the leading cause of trauma and two wheelers were involved in 41% of all trauma patients according to Mulago hospital [5]. The impact when a motorcyclist involves in a high-speed accident without wearing a crash helmet is very dangerous and can cause fatality.

A study conducted by the Injury Control Centre Uganda at the national referral hospital shows a decline in the use of crash helmets. In 2011, 30.5 per cent of riders used crash helmets, while 0.8 per cent of crash helmet use was recorded among passengers. A previous study done by the ICCU and the World Health Organization in 2006 registered 42.6 per cent crash helmet use by riders and 0.26 per cent among passengers [6]. Two patients die on average every week at Mulago hospital as a result of boda-boda accidents. Between 10 and 20 victims of boda-boda accidents are received at Mulago hospital on a daily basis and 20 per cent of the victims are left disabled. The 2011 annual traffic report showed that a total of 1,762 serious accidents involving motorbikes occurred in the capital city during that year. The traffic commander of

6.5 Referances

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