FACULTY OF ENGINEERING

DEPARTMENT OF ELECTRICAL ENGINEERING

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FINAL YEAR PROJECT REPORT

DESIGN AND CONSTRUCTION OF A SMART SHOE SYSTEM FOR OBSTACLE DETECTION USING ULTRASONIC SENSOR.

By

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The final year project report is submitted to the Department of Electrical Engineering as partial fulfillment for the award of Diploma in Electronics and Electrical Engineering at Busitema University.

AUGUST 2023

ABSTRACT

Sight is considered to be the most important sense and the blind people are observed upon with pity by others. Technology helps the blind people to communicate with the environment, the communication process and the dissemination of information has become very fast on a wider scale to include all parts of the world that greatly affect the human life thus increasing the ways of entertainment and comfort and reduced suffering and hardship in many things.

Technology has to include them too despite the fact that earlier they had been helped by particular hardware devices such as color identification, barcode readers and others. Major challenge experienced was that those hardware devices were expensive and thus few could afford. In this project the main aim is to boost the blind people with a hand, with the aid of this system in order to solve some of their faced problems.

The application results enhance the understanding of the problems facing blind people daily, and may help encourage more projects targeted to help blind people to live independent in their daily lives. The system is economic and can be easily accessed by many in need.

DECLARATION

I MWESIGWA TASSEY hereby declare that this information in this proposal report is out of my effort under the supervision of ENG. MUGWANYA PATRICK and it has never been presented to any institute of higher education for any award.

Signature ....

....

Date ....03rd | 08 | 2023...

....

APPROVAL

This certifies that MWESIWA TASSEY has successfully submitted the final year project report to the department Electrical Engineering and it a true work of my own hands under the endorsement of my supervisor.

Supervisor:

Sign .... ~~MBCRP~~ ....

Date .... 4ᵗ Aug 2023 ....

DEDICATION

I dedicate this final project report to Eng. Kigozi John, Eng. Mugwanya Patrick, my parents and relatives, friends, mentors and colleagues who have been supportive in all conditions during the academic trek.

ACKNOWLEDGMENT

I owe immeasurable debt of appreciation to the department of Electrical engineering for the continued support, unreserved valuable guidance, and commitment towards the development of this final project report in Electrical department. I do thank my parents and all the community of Busitema University faculty of Engineering, for the great work you are doing in us. May God bless you exceedingly.

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CHAPTER ONE

1. INTRODUCTION

This chapter is comprised of the back ground study, problem statement, the scope of the study, and the objectives of the study.

1.1 BACKGROUND

Sight is considered to be the most important sense and the blind people are observed upon with pity by others. Technological systems help the blind people to communicate with the environment, the communication process and the dissemination of information has become very fast on a wider scale to include all parts of the world that greatly affected to the human life thus increasing the ways of entertainment and comfort and reduced suffering and hardship in many things.

Technology has to include them too, despite the fact that earlier they had been helped by particular hardware devices such as color identification, barcode readers and others. Major challenge experienced was that those hardware devices were expensive and thus few could afford. In this project, the main aim is to boost the blind people with a hand with the aid of this system, in order to solve some of their faced problems.

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The main components used in the project are; power source [single cell 5V], Ultra sonic sensor, buzzer and a microcontroller [arduino nano].The cell acts as the main d.c power source, ensuring the whole system gets sufficient power. The arduino board acts as the brain of the project storing the program that runs the system as per instruction .The buzzer is a component that will alert the blind of the ahead obstacle by making sound. The ultra-sonic sensor is the sensor that has ability to sense any obstacle ahead of it.

The cycle of the system is that in case of an obstacle ahead the ultra-sonic sensor will be detected it and will send the information to the arduino which will in turn make the buzzer to make an alarm sound to notify the user on the obstacle.

PROBLEM STATEMENT

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