



**BUSITEMA
UNIVERSITY**
Pursuing excellence

FACULTY OF ENGINEERING
DEPARTMENT OF COMPUTER AND ELECTRICAL ENGINEERING

PROGRAM: DIPLOMA IN ELECTRICAL AND ELECTRONICS
ENGINEERING

ELECTRICAL ENGINEERING FINAL YEAR PROJECT REPORT FOR
AUTOMATIC LIQUID LEVEL INDICATOR SYSTEM.

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This report concept submitted to the Department of Computer and Electrical Engineering as partial fulfilment for the award of Diploma in Electrical and Electronics Engineering at Busitema University

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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. We do thank our 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.

DECLARATION

I **MADIRA KIZITO** hereby declare that this information in this report is out of my effort under the supervision of **KIGOZI JOHN** and it has never been presented to any institute of higher education for any award.

Signature

Date

DEDICATION

I dedicate this final year project report to our engineers **ENG. KIGOZI JOHN, ENG. MUGWANYA PATRICK & ENG BUTIME ERIC**, our Dear parents and relatives, friends, mentors and colleagues who have been supportive in all conditions during the academic trek.

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 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 technology 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 project is economic and can be easily accessed by many in need.

APPROVAL

This certifies that ***MADIRA KIZITO*** have successfully submitted the final year Project report to the department of Electrical Engineering and it a true work of our hands under the endorsement of our Project supervisor Eng Kigozi John and who is also the head of department.

Sign

Date

CHAPTER ONE

INTRODUCTION

This project not only indicates the amount of liquid present in the tank but also

gives an alarm when the tank is full and empty. This project uses widely available BC547 transistors acting as a switch, LEDs of different colors representing different levels of water in the tank, resistors.

As the water starts filling up, first the wire in the tank connected to transistor 1 and the + supply are shorted by water. This completes the circuit and turns the LED 1 ON. As the water continues to fill the tank, the LEDs 2, 3 and 4 light up gradually. When the water is full, the base of the transistor BC547 is pulled high by the water completing the circuit hence alarm is heard from the Buzzer indicating that the tank is full.

Now when the water is flowing out of the tank, LEDs4, 3, 2 are seen going off and when it reaches to LED1 the alarm is heard from the buzzer indicating that the tank is empty.

SSCOPE OF THE STUDY

Context scope

The function of the project is to improve people's life by knowing the volume of liquid in the tank or wells without physical checking in the tank.

GEOGRAPHICAL SCOPE

The study will be conducted in any schools, hospitals, homes, business areas, industries, petroleum shells etc. in the world.

PROBLEM STATEMENT

This project is intended to avoid wastage of liquids, because sometimes people forget to switch off/close liquid flow for the case when it is full, because of that liquid can get wasted.

To avoid this we have come up with this project of liquid level indicator

REFERENCES

1. Hegde, Adarsh, et al. "Automated Water flow Control System." National Conference on Product Design (NCPD 2016). 2016.
2. Bhawarkar, N. B., et al. "Literature Review for Automated Water Supply with Monitoring the Performance System." (2014).
3. Vinothini, E., and N. Suganya. "Automated Water Distribution and Performance Monitoring System." International Journal of Engineering and Innovative Technology (IJEIT) Volume 3 (2014).
4. Micro- controller based automatic water control system by Ejiofor Virginia Ebere, Oladipo Onaolapo Francisca.