UNIVERSITI TEKNOLOGI MARA

CAWANGAN JOHOR KAMPUS PASIR GUDANG

FINAL YEAR PROJECT (EEE368)

ADVANCE GARBAGE MONITORING SYSTEM

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DIPLOMA IN ELECTRICAL ENGINEERING (POWER)

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ABSTRACT

The Advanced Garbage Monitoring System is a real-time solution for monitoring garbage bin levels to tackle waste management issues. It uses ultrasonic and infrared sensors as inputs, with the Arduino UNO microcontroller to process and interpret data. User-friendly outputs like an LCD display, LEDs, and a buzzer communicate the trash condition to users.The LCD offers a friendly interface, and LEDs change colors to indicate different trash levels. The buzzer alerts both management and users when the garbage reaches a critical level. Before implementing the system, detailed hardware simulation in Proteus helped identify and solve potential issues. Despite challenges with coding and hardware compatibility, the project succeeded through the guidance of the project supervisor, thorough research, and ongoing testing. The Advanced Garbage Monitoring System proves to be a practical and effective solution for enhancing waste management and promoting a cleaner environment.

ACKNOWLEDGEMENT

I would like to express my sincere appreciation to Madam Siti Musliha Ajmal binti Mokhtar, my supervisor, for her patient and kind assistance. Her wise advice, constantsupport, and direction were crucial in helping me finish this thesis. I would especially like to thank my other classmates whose unwavering support and direction during my senior year project were invaluable.

I would like say my gratitude to the Faculty of Electrical Engineering Coordinators forgiving up their time and effort to set up both in-person and online meetings, which werea huge help for the final year projects of the students.

Lastly, I would want to show my gratitude to my parents, siblings, and many friends who helped me during this difficult path even though they were far away from me. Alhamdulillah

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INTRODUCTION

1.1 Research Background

In Malaysia, the management of trash in crowded cities is challenging. Currently, waste is gathered based on a schedule, but usually, bins become too full before the designated pickup day. This results in untidy streets and environmental harm. To overcome this issue, the Advance Garbage Monitoring System utilizes intelligent sensors to consistently assess the fill levels of bins and notifies us when they are nearing overflow level.

The existing method of garbage collection is not providing satisfactory results. It is harmful tothe environment, our well-being, and tarnishes the appearance of our cities. The aim of the Advance Garbage Monitoring System is to bring about improvements by enhancing waste collection, thereby providing cleaner and greener cities.

The primary objective of the project is to optimize waste collection in our cities, making it more effective and efficient. By resolving this issue, we aspire to improve the aesthetic scenery and cleanliness of our cities for all residents.

1.2 Problem Statement

Living in crowded cities results in a huge amount of waste generated daily. The current wastemanagement method has weakness, leading to overflowing trash cans and creating a messy environment. The concept of the Advance Garbage Monitoring System is similar to having a helpful assistant that keeps watch on the trash cans and informs us when they are approaching full capacity, contributing to maintaining cleanliness in our cities.

Presently, cities follow a scheduled routine for collecting trash from bins. However, this gives challenges as bins tend to fill up rapidly before scheduled routine. Overflowing bins negatively impact us, the environment, and our communities. The Advance Garbage Monitoring System aims to overcome this issue by continuously monitoring bin contents using smart sensors and