



اَبُو سَيِّدِي تَيْكُو لُو كِي مَارَا
UNIVERSITI
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**UNIVERSITI TEKNOLOGI MARA
CAWANGAN JOHOR KAMPUS PASIR GUDANG**

FINAL YEAR PROJECT (EEE368)

**WATER QUALITY AND QUANTITY MONITORING SYSTEM USING
PH AND WEIGHT SENSORS**

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ABSTRACT

People usually associate hydration with thirst. This is actually the worst way to determine human are properly hydrated. When one feels thirsty, this is actually an indicator human are already dehydrated. Human body is made up of almost 60 percent water, human might not feel the need to drink water because human is abundant with it. At the same time, human body needs constant refill since we use it in every process and activity inside our body. However, regarding water pH nowadays is the increasing occurrence of water resources with imbalanced pH levels, including both excessively acidic and alkaline waters, which can pose risks to human health and the environment. The drinking water alert system presented in this project addresses the critical issue of ensuring water quality and safety. The system uses a weight sensor and a pH sensor as input devices and an Arduino microcontroller as the central control device. The system continuously monitors water volume and pH levels and provides alerts to users using an LCD display, LED indicators, and a buzzer, ensuring timely notifications of potential water quality issues. In addition, this project is to create an automated system and reliable drinking water alert system that validly detects and notifies users about variation from safe water conditions. The Arduino microcontroller operates as the system's brain, processing data from the weight and pH sensors and producing the appropriate outputs based on predefined thresholds. The alert mechanism contains of an LCD display, LED indicators, and a buzzer. LCD display, which also shows important information such the pH level and amount of water that is currently present. The LED indicators offer visual cues, signalling the problem of the water quality issue. The buzzers induce audible alerts, ensuring that users are quickly notified even in situations where visual notifications may be missed. Nevertheless, this project shows the effectiveness of using a weight sensor and a pH sensor with an Arduino microcontroller to produce a drinking water alert system. The combination of the input sensors and the output devices give users with real-time monitoring and timely notifications regarding potential water quality issues, enhancing the safety and well-being of individuals consuming the water supply.

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CHAPTER ONE

INTRODUCTION

1.1 Research Background

A human being is capable of surviving without water for just a few days of time because it is very important to life. The human body consists of approximately 75 percent water, is essential for sustaining life and the health and balance of the body. Water plays a crucial role in numerous bio-chemical reactions within the body, actively or inactively participating in these processes. Water consumption is important for enough hydration, body function and health. Increase plain water intake highlights as an important issue in many weight losses programs. According to the Malaysian Dietary Guidelines, it is advised to consume 6-8 glasses of plain water per day

Lack of access to adequate sanitation not only creates an environment conducive to the spread of disease, but also deprives individuals of their fundamental human rights. It is because drinking water systems are not fit for human use, waterborne diseases are easily disseminated. According to research, 829,000 people lose their lives every year from diarrhea caused on by drinking of contaminated water, poor sanitation, and poor hand hygiene. Diseases like dengue fever are transmitted in many parts of the world by insects that live in or breed in water sources. Certain insects, referred to as vectors, have the tendency to breed in clean water. As a result, these insects can breed in home drinking water containers. Covering water storage containers is a simple solution that can successfully reduce vector breeding and might even reduce contamination of domestic water.

This project aims to implement an Arduino-based drinking water alert system using weight sensor and pH sensor, to create a system capable of gathering, monitoring and storing the water quality. The design and implement a drinking water alert system using an Arduino microcontroller, and to test the functionality and accuracy of the system in providing water contamination alert in real time. Also, this project aims to provide safe drinking water for