DEVELOPMENT OF pH-METER MONITORING SYSTEM USING ARDUINO

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ACKNOWLEDGEMENT

“IN THE NAME OF ALLAH AL-MIGHT, THE MOST GRACIOUS AND MOST MERCIFUL”

I would like to thank Allah S.W.T for the blessings that been bestowed upon me and also for giving me the strength and ability to complete the thesis successfully. First and foremost, I would like to extend my greatest gratitude to my family for their constant support and encouragement in completing my study.

I am deeply in debt to En Azrif Manut, for his patience, understanding, assistance and his constructive criticism in preparing dissertation. Thank you so much for all the thought, encouragement, knowledge and experiences. I will use it wisely for future endeavors.

I will never forget the experiences and the assists in finishing my thesis. I highly regard the knowledge and the encouragements.

And to all my colleagues, classmates and relatives: thank you for being such a great bunch. There are no others I would rather spend my time with more than all of you. Thanks a lot Universiti Teknologi Mara.

WITH ALL OF THE SINCERITY THAT I POSSES, THANK YOU

ABSTRACT

This paperwork presents the complete circuit used to interface a pH-meter using Arduino. The objective of study is to investigate the accuracy of the pH-meter using Arduino as a microcontroller. This project has been implement and simulated using OrCAD Tool v10.5. This pH-meter will be able to be monitored using computer via USB connection. Besides that, this pH-Meter are designed to open source that mean this pH-Meter can be install additional function depend on users requirement. In experimental procedure, this project focused on the accuracy of pH-Meter when tested to specified pH buffer. The pH-meter is tested to 4 difference pH buffer to determine the accuracy of this pH–meter. The result shows that this pH-meter has an accuracy of 97% compare to an average pH meter that is about 99% of error. In conclusion, this pH-meter is very good because the accuracy is above 90%.

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INTRODUCTION

1.1 INTRODUCTION

This project is about designing pH meter using Arduino as microcontroller. Where we want to have the best system wish can provide accurate and precise output. A pH meter is an electronic instrument used for measuring the pH (acidity or alkalinity) of a liquid though glass probes are sometimes used to measure the pH of semi-solid substances.

In this project, we use Arduino because it is a small, complete, and breadboard-friendly board based on the ATmega328 or ATmega168. In order to sense the acidity or alkalinity of a solution, a glass electrode is connected to the ADC of the Arduino through a fairly circuit. It may not be cheaper than or as accurate as some commercial models, but it is an open project and can be interfaced with a computer via USB.

This pH meter can be controlled and programmed by using computer via USB cable. Arduino can sense the environment by receiving input from a variety of sensors such as pH sensor, temperature sensor, humidity sensor, moisture sensor and many more, that mean we can add one or more sensor to Arduino. The goal is to use this design in order to develop an application for performing smart metering and monitoring for pH measurements.