UNIVERSITI TEKNOLOGI MARA
CAWANGAN PULAU PINANG

THE DEPLOYMENT OF THE WSN IN SUPERVISING THE WATER QUALITY FOR PRAWNS' INDUSTRY

MOHAMAD HAIZAN BIN OTHMAN

BACHELOR OF ENGINEERING (HONS) ELECTRICAL AND ELECTRONIC ENGINEERING

July 2020

UNIVERSITI TEKNOLOGI MARA
CAWANGAN PULAU PINANG

THE DEPLOYMENT OF THE WSN IN SUPERVISING THE WATER QUALITY FOR PRAWNS' INDUSTRY

MOHAMAD HAIZAN BIN OTHMAN

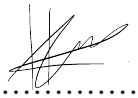
Faculty of Electrical Engineering

July 2020

AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations, Universiti Teknologi MARA, regulating the conduct of my study and research.

Name of Student	:	Mohamad Haizan bin Othman
Student I.D. No.	:	2016263762
Programme	:	Bachelor of Degree (Electrical and Electronic Engineering) – EE200
Faculty	:	Electrical Engineering
Thesis	:	The Deployment of WSN in Supervising the Water Quality for Prawns' Industry
Signature of Student	:	 ……..
Date	:	July 2020

ABSTRACT

Water quality plays an important role in aquaculture industry especially prawn industries in Malaysia due to the unpredictable weather and saltwater environment. The important parameters such as potential of hydrogen (pH) and temperature need to be monitored and controlled continuously from time to time to maintain the quality of the prawns. Currently, most breeders are still applied the traditional methods that rely on collecting water samples manually, testing and analysing that are lack of capability for real time monitoring and fast dissemination of information for making any decision. Thus, this project aims to develop a wireless sensor network that is capable to monitor and control the quality of prawns in saltwater automatically and accurately. This system can continuously monitor, measure and control the water quality for prawn's industry for pH level and temperature in real time monitoring system via internet of things (IOT) technology. In this system, NI DAQ is used to capture and collect the data and LabVIEW is act as a graphical user interface (GUI) that displays all the relevant data and measurement of the system. Furthermore, the performance of the system such as pH level and temperature can be viewed and monitored via a mobile phone through a ThingSpeak software for the IOT platform. Fuzzy logic controller is developed to control the valves of the acidic and alkaline motor, so that the pH level of the system can be maintained at the desired value. This system uses two types of internet connection to measure the performance of this system in dissemination of data. First method is wirelessly connected which is using mobile hotspot. Second is using mobile phone itself to monitor the data through ThingSpeak's mobile apps. All the methods state above have significant good result with more that 90% accuracy. but it still shown a very good result and performance.

ACKNOWLEDGEMENT

First and foremost, praises and thanks to the God, the Almighty, for His showers of blessings throughout my research work to complete the research successfully.

I would like to express my deep and sincere gratitude to my research supervisor, Dr. Nor Salwa Damanhuri. for giving me the opportunity to do research and providing invaluable guidance throughout this research. Her dynamism, vision, sincerity and motivation have deeply inspired me. She has taught me the methodology to carry out the research and to present the research works as clearly as possible. It was a great privilege and honour to work and study under her guidance. I am extremely grateful for what she has offered me. I would also like to thank her for her friendship, empathy, and great sense of humour.

I am extremely grateful to my parents for their love, prayers, caring and sacrifices for educating and preparing me for my future. Also, I express my thanks to my sisters, brother, sister in law and brother in laws for their support and valuable prayers. My Special thanks goes to my friend for the keen interest shown to complete this thesis successfully.

I would like to say thanks to my friends and research colleagues, for their constant encouragement. Finally, my thanks go to all the people who have supported me to complete the research work directly or indirectly.