UNIVERSITI TEKNOLOGI MARA

THE INFLUENCE OF TEMPERATURE AND PH LEVEL FOR AQUACULTURE BY USING COMMERCIAL SENSORS

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ABSTRACT

Aquaculture is also known as fish farming. It involves the growth, development and multiplication of flora and fauna which are found to grow in aquatic environment. It is also involved in the production of seafood. Aquaculture nutrition has a vital contribution in the sustainable development of the ecosystem. The main objective of aquaculture nutrition is to certain the balanced food portions which should composed of fishmeal and marine oils at an average rate. In aquaculture pond, quality of water always the main issue for the organism. The increment of fish production, temperature and pH level are the main parameters need to be optimized. By utilizing commercial sensors, parameters can be monitored and water quality is in a good condition for the continuity of the organism. The objective of the project is to monitor the parameters such as pH level and temperature in a fish pond in order to increase the fish population. The system and circuit design of the project were developed in order to measure the parameters. This project was used Arduino Board to connect with pH and temperature sensor. By using Arduino Board, C programming language was chosen because of it compatible and easier to use. PH and temperature sensors that used in this project have the ability to submerge in water to get an approximate reading from fish pond. Sensors should be able to read the input and send the data to microcontroller for data processing before the output were displayed through laptop as results. The results of this project showed that sensors are able to measure the parameters precisely and with no major noise included. The results were plotted in graphs and the relationship between temperature and pH level were obtained. When the temperature reaches its peak value of 32°C at 2 pm, pH level decreases to its minimum peak of 6.9 pH level. The temperature reaches its minimum peak of 24°C at 4 am while pH level reach its maximum of 7.06 pH value.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OVERVIEW

The market of seafood are known wide world as a second major food source after animal meat. This market is growing rapidly, but the source of this market is dropping drastically due to pollution, diseases and other human impact. To overcome this problem, it might take a lot of time because people are still lack of responsibility in order to ensure the source to keep produce for future use. Therefore, this project is only covered for monitoring fish pond as to ensure the source will grow rapidly. This system can be used for people who want to maintain their fish pond at optimum environment. To create a system that can monitor the water quality of fish pond, it involves parameters such as temperature and pH level. This project can be achieved by using temperature sensor and pH sensor that can be submerged in water in order to get the precise reading of the output from the sensors. These sensors will be interfaced with Intel Edison as microprocessor of the system. The language that will be used is C language because this language is universal and easy to understand by the programmer. These parameters have been chosen because the temperature and pH level may have major influence in sustaining the aquaculture. Sensors that will be used are commercial and can easily exchange if any malfunction happen and the price are