



UNIVERSITI TEKNOLOGI MARA

**DEVELOPMENT OF REAL-TIME MONITORING
SYSTEM FOR AQUACULTURE FARMING
USING IOT**

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ABSTRACT

This project presents a real-time monitoring system for aquaculture that using Intel® Edison as a microcontroller to interface with the cloud storage. Sensors that have been implanted are the input which provides the microcontroller measurement from the fish pond. The aim of this project is to design and develop a system that monitors the rate of nutrition contains in the commercial freshwater fish pond.

The project is divided into the following scopes; a) interface connection between Intel® Edison with IBM Cloud and b) develop a way for the end user to get the information that in the database. All controls are centralized using the Intel® Edison as a microcontroller and the data are obtained from the temperature, Dissolved Oxygen and pH sensor. Then the data is stored in the cloud storage and make the user accessible using their personal computer and mobile phone. The user can monitor the data at anywhere as long there is Internet connection on their mobile phone. This project is the new technology in the fish farms industry and will counter problem occurs nowadays.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Aquaculture sector in Malaysia has continuously attracted interest among local people to involve in this industry. Since the 1990s, the aquaculture sector has been growing at an annual rate of about 11%, surpassing that of all other agricultural commodities in the region [1]. With this increasing growth, the freshwater fish breeding company developed rapidly after the involvement of various stakeholders from the private sector, government agencies, and individuals. Factors that promote freshwater fish farming is that there is a significant potential market both inside and outside the country.

This fish farming industry sector might contribute to the increasing the income and improve local food production, thus it going to increase the export earnings. The technologies used in nowadays aquaculture may look very simple as it is based on the on-site innovations. Based on this innovation, it has improved the growth and lifetime of the species, for examples, the feeding method, nutrition content, oxygen level, water temperature and pH levels contained in the water.

Internet of Things (IoT), generally refers to the scenarios where the network connectivity and computing capability extends to sensors, objects and everyday items that are not normally considered as computers and allowing these devices to generate,