UNIVERSITI TEKNOLOGI MARA

IOT BASED VERTICLE PLANTATION

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Thesis submitted in fulfillment
of the requirements for the degree of
Diploma of Electrical Engineering (power)

Faculty of Electrical Engineering

February 2024

ABSTRACT

Agriculture plays an indispensable role in developing a nation, and water is the primary resource for agriculture. So, using IoT, properly utilizing adequate water in the irrigation process is possible. Besides, most farmers does not use or less use of modern farming equipment. They follow some primitive cultivation methods. Despite no shortage of efficient equipment and machinery, there is little use of modern equipment as most farmers don't have lands huge enough to use advanced instruments, and heavy machinery. To act effectively if the possibility of the problems occurs. This study proposed farming plantation and agriculture system by IoT technology. The aim of this study is divided into two parts. The first part is hardware development that consists of 2 sensors which are capacitive soil moisture sensors, humidity temperature sensors that will activate water pump to irrigate soil by incorporating with Nodemcu ESP8266 as the main controller. The second part is to display the information about the soil moisture, soil temperature and water level using OLED display. Here, this system will help the plantation monitoring to be more effective to the farmers and at the same time can improve crop yields.

ACKNOWLEDGEMENT

To begin with, I would like to express my gratitude to my supervisor, Dr. Zakaria Yusuf, for his invaluable advice, constant support, and patient during my studies. Throughout my research and everyday life, I have been encouraged by his extensive knowledge and wide experience. Furthermore, I would like to thank all my colleagues from the Electrical Engineering department. I have enjoyed studying and living at the university because of their kind help and support. As a final note, I would like to express my gratitude to my family and siblings. It would have been impossible for me to continue my studies without their support and understanding over the past few years.

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INTRODUCTION

Project Overview

Plantation has been done in every country for ages. Plantation is the science and art of cultivating plants. Plantation was the key development in the rise of sedentary human civilization. Plantation has been done manually for ages. As the world is trending into new technologies and implementations it is a necessary goal to trend up with agriculture also. IoT plays a very important role in smart plantation. IoT sensors can provide information about plantation fields.

Among the frequent problems that farmers always faced are the soil problem. The problem of soil in plantation or farming such as using improper chemical fertilizers can destroy the soil quality. [1]The soil problem is a very important issue in the plantation sector and must take note. The soil fertility is decreasing day by day due to the use of more chemical fertilizers. An insufficient amount of any necessary nutrient will lead to poor crop or pasture growth and limit of production. Thus, it also reduces profit for growers. Other than that, most farmers do not use or use of modern farming equipment. They follow some primitive cultivation methods. Despite no shortage of efficient equipment and machinery, there is little use of modern equipment as most farmers don't have lands huge enough to use advanced instruments, and heavy machinery.

In the line in the advanced technology development, the IoT system technology can be implemented to overcome this problem. [2]The application of IoT is to assist in developing the system for measuring and sending information to the farmers which is users. In this study, the quality of the soil based IoT system will be implemented to predict the data of soil moisture, humidity and temperature of soil and notify the users(farmers) in the early stage and the precautions could be considered. Therefore, in the study, the proposed vertical farming plantation based IoT technology can help the farmers be more motivated and at the same time can save energy.