UNIVERSITI TEKNOLOGI MARA

AUTOMATIC PLANT MONITORING, WATERING AND SECURITY SYSTEM FOR HOME GARDEN USING IoT

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ABSTRACT

Home planting activity have been longstanding, and increasingly popular when the pandemic hit humans all around the world where people are prompted to stay at home. As the pandemic slowed down, people resumed their regular lives as usual, leaving the plants unattended. However, proper care is necessary for every plant to be healthy, and this has become quite challenging for the owner who works during the day. Therefore, the goal of this project is to design an automatic plant monitoring, watering, and security system for a home garden. The system uses an Arduino Uno microcontroller as its base, and Internet of Things (IoT) technology of WiFi module to display the plant's state to owner's smartphones. Significantly, it is much easier to for the owner monitor the plant's health.

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INTRODUCTION

1.1 Background

Based on the survey which is Houseplant Statistics that have done by Mayers.K, there are 7 in 10 millennials who are calling themselves a plant parent. Planting activity at house have increased due to the pandemic recently since people are staying homes for a long time. It is proved that planting the plant at home can increase one's mental and physical well-being, efficiency, and improve the overall appreciation of an area in a house. However, as the pandemic settled down, the world has come back to normal as it has been before. But the houseplant that has been planted is being left and it needs care such as watering it, give the fertilizer and keep the temperature of plant is stable. Therefore, automatic plant monitoring, watering and security systems for the home garden will be developed in order to keep the plant healthy and away from pest insect that might destroy the plant.

All plants that are being planted require good care by the owners which know all the plants' condition to make the plant healthy. For example, the owner needs to know the right place to put their plant either by direct sunlight or indirect sunlight, the amount of the water and when to water their plant also keep the plant pest-free. The plant can be a huge demand for a busy owner during the day, as they did not have sufficient time to take care the plant. The plant might not be healthy as they are not being taken care of. Like humans, plants need to be fed and monitor it. The moisture of soil needs to be maintained, the plant should be placed at the right spot according to their specification for instance, some plants need sunlight, and some plants can live without sunlight, and the healthy plant are free from pests.

By building this system of automatic plant monitoring, watering, and security for planting at home via IoT, will be easier for the owner to take care of and monitor their plant anytime and anywhere. The system can be designed using Arduino Uno as a microcontroller and the condition of the plant will be displayed using smartphones. The movement around the plant can be detected based on the sensitivity of the PIR Motion Sensor which will protect the