



**UNIVERSITI TEKNOLOGI MARA CAWANGAN
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SELF-CARE PLANT SYSTEM

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ABSTRACT

Houseplants are a type of plant that grows indoors. Not only do these plants enhance the overall appearance of a space, but also boost moods, increase creativity, and eliminate air pollutants. People also grow houseplants to reduce the stress they get from working or other daily activities. Even though houseplants have many benefits, they are still plants that need to be watered and taken care of. This is going to be a problem for people who work a lot or have a busy schedule. Thus, to overcome this problem, an automatic watering system is created so that the plants don't need constant human attention. This research proposed a self - watering plant system with environmental monitoring. The objective of this research is divided into 2 parts. The first part is the hardware development that consists of three sensors which are Soil Moisture Sensor, temperature, and humidity sensor (DHT11) and an ultrasonic sensor for measuring water tank levels. These sensors are used to monitor the condition of the plant's soil by combining with a microcontroller like the ESP32. The second part is to provide the plant with water by using a small watering pump and to display the measured value of the DHT11 using LCD. This system also uses IoT technology to transfer data from the DHT11 and the Ultrasonic sensors to the owner's mobile phone using features ESP32. Therefore, this system will help those who love plants and flowers but doesn't have the time to take care of it.

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CHAPTER ONE

INTRODUCTION

This chapter will discuss the starting of the project, including what the project is about. Additionally, this chapter will also discuss what can be accomplished through the goal.

1.1 Background Study

Houseplants, also known as indoor plants or potted plants, have been part of human life and home décor for centuries. The practice of growing plants indoors dates to ancient civilizations, where plants were cultivated for their aesthetic appeal, symbolic meanings, and sometimes practical uses. Today, houseplants continue to cultivate people with their beauty, health benefits and their ability to transform spaces to green sanctuaries. Because of these benefits, a lot of people nowadays love to decorate their place with houseplants. Other than that, people also grow houseplants to provide food for themselves, for example vegetables. Growing your own vegetables are always better than buying them at stores because homegrown plants are often fresher and more flavourful than store-bought ones.

Although houseplants come with various advantages, they also present challenges and potential issues. Some of the problems are overwatering or underwatering. This problem frequently occurs to those who love to grow houseplants for their benefits but don't have the time to take care of it because of their busy schedule. To overcome this challenges, self-watering devices are created so that the plants can be watered without constant human attention. For example, an automatic watering device that uses a timer. The timer can be set to when the plants will be watered. Unfortunately, this device could