

**UNIVERSITI TEKNOLOGI MARA**



**TEMPERATURE AND HUMIDITY  
MONITORING FOR FARMER**

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## ABSTRACT

Humidity and temperature monitoring is essential in agriculture to optimise crop growth and maintain ideal environmental conditions. This project proposes a resolution for monitoring humidity and temperature in agricultural environments by utilising the DHT11 sensor, Blynk cloud platform, NodeMCU ESP8266, and Arduino Uno microcontroller. The suggested system facilitates the collecting, processing, and visualisation of data in real-time, empowering farmers to make well-informed decisions for efficient crop management. The DHT11 sensor accurately measures humidity and temperature, which it subsequently transmits to the Blynk platform using the NodeMCU ESP8266. Blynk enables remote monitoring and analysis of environmental variables, providing farmers with the ability to store, analyse, and visualise data. The technology provides a cost-efficient and user-friendly method, enabling farmers to optimise irrigation schedules, regulate ventilation, and mitigate potential crop illnesses resulting from unfavourable humidity and temperature conditions. The amalgamation of the DHT11 sensor, NodeMCU ESP8266, and Arduino Uno offers a proficient and expandable resolution for monitoring humidity and temperature in agriculture, hence enhancing crop yields and promoting sustainable farming approaches.

**Keyword** – *DHT11, Agricultural, Arduino Uno, Humidity, Temperature*

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# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

The farmer's responsibility entails choosing an appropriate agricultural site to ensure optimal growth circumstances and the well-being of plants. Areas characterised by optimal temperature and humidity conditions encourage plant growth by supplying ample nutrients and fulfilling the plant's requirements. Therefore, this initiative will enable the farmer to economise both time and money in their quest for a good agricultural site. Currently, we reside in an era where advanced technology exists, offering numerous advantages to our daily existence. This project is highly recommended for individuals in the agriculture industry because to its ability to deliver precise and reliable data on humidity and temperature, while also promoting a sense of gratitude. Additionally, it decreases the farmer's expenses as they are not required to employ an individual for the purpose of identifying a good site. At a scheduled time, the device autonomously transferred the data to ThingSpeak, allowing the farmer to remain up to date on the agricultural site. The device is outfitted with a DHT11 sensor that accurately monitors levels of humidity and temperature in real-time. Additionally, an ESP8266-01 is employed to transmit the data collected by the sensor. This project receives a constant supply of electricity and will consistently upload data to ThingSpeak as long as the battery remains capable of powering the device and the ESP8266-01 maintains a steady Wi-Fi connection for regular data uploads.

### 1.2 Project Overview

Utilising a specialised system to monitor temperature and humidity in agriculture provides numerous essential advantages for enhancing crop productivity and sustainability. Through the careful monitoring of these environmental factors, farmers get essential knowledge about the complex requirements of different crops. With this knowledge, individuals are able to establish and sustain optimal circumstances for growth, resulting in increased growth rates and greater agricultural yields. Moreover, this approach facilitates