CHAPTER 1
INTRODUCTION

1.1 Background

Caisim (Brassica juncea L.) is a vegetable plant with a sub-tropical climate but is able to adapt well to a tropical climate. Caisim is generally planted in the low-lands but can also be planted in the highlands. Caisim is a plant that is tolerant of high temperatures (heat). At present, the need for caisim is increasingly increasing along with the increase in the human population and the benefits of consuming it for health. Caisim itself has a high economic value after crop cabbage, flower cabbage and broccoli[1].

Ongoing advancements in ICT offer tremendous possibilities for farm-level data management. Farmers can monitor their farms with unprecedented levels of preci-sion, in a variety of dimensions, and in near real-time, thanks to sensing technolo-gies, at least in theory. This opens up the intriguing possibility of developing farm-specific models that individual farmers can use to plan their activities in response to changing circumstances, allowing them to explore the various trade off inherent in any decision making process while also addressing the problem of information overload. For the rest of this paper, we'll look at how modeling has progressed, as well as the technology required to build farm specific models[2].

The Internet of Things (IoT) could be the secret to keeping caisim nurseries running smoothly. The DHT-22 humidity and temperature sensors, the YL-69 soil moisture sensor, the BH1750 light intensity sensor, the ADC ADS1115, and relays are all utilized in conjunction with a Raspberry Pi 3B+. The sensor will record room temperature and humidity, as well as soil moisture, light intensity, and water availability in the event of irrigation. If the available water supply is insufficient, the watering procedure may be performed using an automated manner based on the dataset. The information will then be saved on a website, enabling for real-time monitoring over the internet.

The purpose of this thesis is to create an atmosphere that is favourable to the plant development parameters listed. The author concludes by constructing a smart farm using a sensor-assisted automated system to aid farmers and the residential sector in plant growing practices. This instrument will be assembled in a greenhouse using soil moisture sensors, room temperature and humidity sensor, light intensity

sensor, relay, water pump, and a Raspberry Pi 3B+ functioning as the device.

1.2 Problem Formulation

Caisim output is increasing marginally as one of the food and medicinal plants. If available supply is not equal to market demand, this can lead to a supply shortfall. One of these challenges stems from a lack of complete knowledge and comprehension. Farmers have major hurdles in developing superior seeds that influence celery quality and quantity. Celery market demand, on the other hand, remains high due to its usage in both home and medicinal cookery. There are currently no criteria for creating projections that affect the farmer's surroundings.

1.3 Objectives And Contribution

The benefits and objective of this thesis are as follows:

1. The purpose of the author is to make this tool by making it easier to control the temperature and also to the next author goal is to reduce human error in monitoring temperature and also to monitor the humidity in the greenhouse
2. To generate the prediction based on the dataset in the seeding

1.4 Scope Of Thesis

The scope of thesis are as follows:

1. Sensors that must be checked everyday
2. Need Connection Internet for Send the result to local data
3. Location of tools must be proper
4. The farmer must use website for monitoring
5. MYSQL for type database
6. Using Raspberry PI for small computer board
7. Parameters measured using DHT22, YL-69, GY-302 and BH1750
8. Programming method using models Python 3.7
9. Machine learning used for a matrix and classification report

10. Wireshark for controlling the way of traffic signal network
11. Security Network for maintain transmission data

1.5 Research Methods

This Thesis divided into 3 packages are as follows:

1. Journals data from several journals about related works
2. Design Process, describing the methodology for the design of the tool to be made perfect control the temperature and humidity
3. Analyzing which aspect can be compared

1.6 Bachelor Thesis Organization

The systematics of report writing is as follows:

- Bab 2 BASIC CONCEPT
  This chapter contains an explanation of the basic theory, application, and tools.
- Bab 3 PROPOSED CAISIM GROWTH MODEL AND SYSTEM
  This chapter contains the flowchart, algorithm, experimental diagram and the method.
- Bab 4 RESULTS AND ANALYSIS
  This chapter contains work steps, test conducted, test result and analysis of the result of the test gained.
- Bab 5 CONCLUSION AND SUGGESTION
  This chapter contains the conclusion and suggestion of this final assignment