

2ND EDITION

E-EXTENDED
ABSTRACT

**INTERNATIONAL
AGROTECHNOLOGY
INNOVATION
SYMPOSIUM (i-AIS)**



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INTERNATIONAL AGROTECHNOLOGY INNOVATION SYMPOSIUM (i-AIS)

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ABOUT FACULTY OF PLANTATION AND AGROTECHNOLOGY

The Faculty of Plantation and Agrotechnology was established in 2010 at Universiti Teknologi MARA (UiTM). The mission of the faculty is to play the vital role of producing well-trained professionals in all areas of plantation and agriculture-related industries at national and international levels.

Bachelor of Science (Hons) Plantation Technology and Management is a three-year program that strongly emphasizes the various aspects of Production Technology, Management, and Information Technology highly sought after by the agricultural and plantation sectors. Students in this program will be fully trained to serve as professionals in the plantation sector and related industries. They will have ample opportunities to fulfill important positions in the plantation industry such as plantation executives. This program provides a strong balance of technology and management courses essential for the plantation industry such as management of plantation crops, soil fertility, plantation management operation, plantation crop mechanization, and agricultural precision. As an integral part of the program, students will be required to undergo industrial attachment to gain managerial skills in the plantation industry.

The faculty is highly committed to disseminating, imparting, and fostering intellectual development and research to meet the changing needs of the plantation and agriculture sectors. With this regard, numerous undergraduate and postgraduate programs have been offered by the government's intention to produce professionals and entrepreneurs who are knowledgeable and highly skilled in the plantation, agriculture, and agrotechnology sectors.

PREFACE

International Agrotechnology Innovation Symposium (i-AIS) is a platform to be formed for students/lecturers/staff to share creativity in applying the knowledge that is related to the world of Agrotechnology in the form of posters. This virtual poster competition takes place on the 1st of December 2022 and ends on the 8th of January 2023. This competition is an assessment of students in determining the level of understanding, creativity, and group work for the subject related to agrotechnology and being able to apply it to the field of Agrotechnology. The i-AIS 2022 program takes place from December 1, 2022, to January 8, 2023. The program was officiated by the Dean of the Faculty of Plantation and Agrotechnology, namely Prof. Madya Ts. Dr. Azma Yusuf. The program involves students from faculties of the Faculty of Plantation and Agrotechnology (FPA) and HEP participating in i-AIS 2022, namely, the Faculty of Education and Pre-Higher Education. This program involves the UiTM student and some of the non-UiTM students which come from the international university and the local university. Two categories are contested, namely UiTM and non-UiTM. To date, students from these programs have shown remarkable achievements in academic performance and participation in national as well as international competitions.

This competition is an open door for the students and lecturers to exhibit creative minds stemming from curiosity. Several e-content projects have been evaluated by esteemed judges and that has led to the birth of this E-Poster Book. Ideas and novelties are celebrated, and participants are applauded for displaying ingenious minds in their ideas.

It is hoped that such an effort continues to breed so that there is always an outlet for these creative minds to grow.

Thank you.

Dean
On behalf of the Organizing Committee
Conference Chair
Universiti Teknologi MARA
Faculty of Plantation and Agrotechnology
<http://fpa.uitm.edu.my>

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BEE HIVE HEATER

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ABSTRACT - Stingless bees are a species of insect that is extremely sensitive to environmental changes, particularly extreme temperature. According to one account, goal of this study is to examine a new approach for managing hive temperature. In this study, the heating pad was used to warm the bee hive and automatically will make the colony of bee will survive during the moonson season.purpose of the research, methods, research finding and conclusion.

Keywords: Stingless bees, bee hive, moonson temperature, bee hive heater.

INTRODUCTION

Due to the climate in Malaysia, stingless bee activity decreases during the monsoon season. For farmers of stingless bees, flooding and the monsoon season present many challenges. The production of stingless bee honey among the proprietors of this industry has been impacted by the constant rain that fell over the entire nation throughout the monsoon season. Due to the weather restrictions that prevent these bees from venturing outside in search of food sources, stingless bee growers are concerned about the production of stingless bee honey during the monsoon season. The temperature of the area, including the stingless bee nest, has decreased due to the monsoon season's arrival. As a result, stingless bee honey production outout has slowed to ensure the survival of their colony.

MATERIALS AND METHOD

Shorea Wood Plates

This project will used shorea wood plates as the trap of the hives. The shorea wood plate will not contact any chemical. It is because the stingless bees are sensitive to the pesticide and the usage of any chemical substances.



Figure 1: A picture of Shorea Wood Plates

Polystyrene

Figure 1 show that the polystyrene will be applied in the stingless bee's hive. Polystyrene and plastic foam are both used as insulators as they have small air bubbles trapped inside them. This makes them very good insulators because heat energy can't flow through them. The same idea is used to keep the inside of buildings warm.



Figure 2: A Picture of Polystyrene

Jumper wire

Figure 3 show that jumper wire that use in this research. The jumper wire will be used as the connector between the battery and the heating pad.

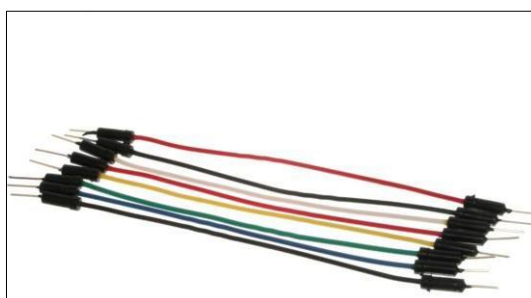


Figure 3: Jumper Wire

Heating Pad 12v

The heating pad are using 12v of electric. This heating pad will be heating the trap of the stingless bees hives in figure 4 show the heating pad used.

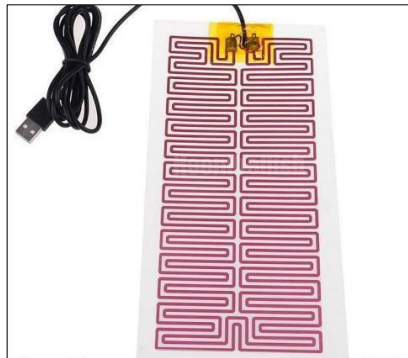


Figure 4: Heating Pad

DHT11

The DHT11 is a basic, ultra low-cost digital temperature and humidity sensor. It uses a capacitive humidity sensor and a thermistor to measure the surrounding air and spits out a digital signal on the data pin. It's fairly simple to use but requires careful timing to grab data.

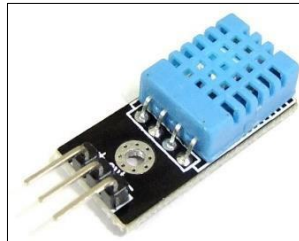


Figure 5: DHT11

Power Adapter

A 12V DC power supply is an adapter designed to supply precisely 12 Volts of direct current to a device. The voltage supplied must precisely match the requirements of the equipment.



Figure 6: 12V Power Adapter

Arduino Uno Board

Arduino is an open hardware development board that can be used by tinkerers, hobbyists, and makers to design and build devices that interact with the real world.

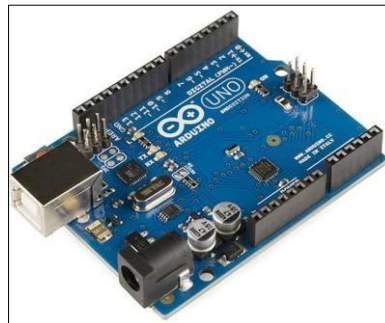


Figure 7: Arduino Uno Board

Single Relay Module

The 1 Channel 5V Relay Module provides a single relay that can be controlled by any 5V digital output from your microcontroller. The relay is accessible using screw terminals and can handle up to 2A of current. A handy LED indicates the status of the relay.



Figure 8: 5V Single Relay Module

Battery 20v

Every one of the cells in an 18v or 20v battery has maximum rating of 4 volts which translates to maximum 20 volts when put together. In essence the manufacturers of the 18v battery makes use of the nominal rating while the manufacturers of the 20v max battery make use of the maximum rating.



Figure 9: 20v Battery Supply

In this project, the new monitoring stingless bees hive were having the gap between the wall. It is because to give some space when put the polystyrene and also the heating pad. It also provided us the easiest ways to do the maintenance if there are some part that need to be change. Besides, this design also provides an extra box to protect the components from rain and hot weather.

RESULTS AND DISCUSSION

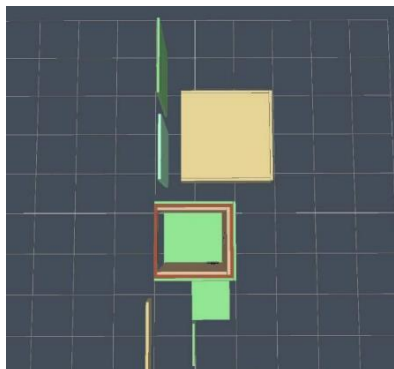


Figure 10: Upper Vision

As a result of this innovation maximum, minimum, and average temperatures inside the honey cassette can be controlled. The temperature of the area, including the stingless bee hive, can be controlled when the monsoon seasons arrive. As a result, stingless bee honey production output has slowed to ensure the survival of their colony.

CONCLUSION

In conclusion, bee hive heater can produce a warm condition for stingless bee during the moonson season. it is because their colonies cannot survive during an extreme temperature. as we know, stingless bee honey have many benefits to the human. lastly, an innovation for this product can increase the kelulut honey production.

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