

4TH EDITION

E-EXTENDED
ABSTRACT

INTERNATIONAL AGROTECHNOLOGY INNOVATION SYMPOSIUM (i-AIS)



COPYRIGHT

INTERNATIONAL AGROTECHNOLOGY INNOVATION SYMPOSIUM (i-AIS)

19 June 2023

Faculty of Plantation and Agrotechnology UiTM Cawangan Melaka Kampus Jasin

Published 2023

Faculty of Plantation and Agrotechnology

Universiti Teknologi MARA Cawangan Melaka Kampus Jasin

77300 Merlimau Melaka.

E-EXTENDED ABSTRACT of the INTERNATIONAL AGROTECHNOLOGY INNOVATION SYMPOSIUM (i-AIS) (4th EDITION)

Mode of access Internet

<https://sites.google.com/view/ais2023/publication>

Perpustakaan Negara Malaysia Cataloguing -in – Publication Data

ORGANIZING COMMITTEE

Program Advisor	:	Ts. ChM. Dr. Wan Zuraida Wan Mohd Zain
Program Director	:	Dr. Noer Hartini Dolhaji
Program Secretary	:	Nurul Izzatiafifi Ismail
Program Treasurer	:	Nur' Amira Hamid
Program Registration	:	Siti Aisha Na'illa Che Musa
Program Judging	:	Nur Atiqah Zaharullil Nur Wajihah Mohd Naw
Program Webmaster	:	Ts. Dr. Siti Fairuz Nurr Sadikan
Program Certificate		Nurul Wahida Ramli
Program Human Contribution		Nur Nabila Huda Aziz
Program Protocol		Siti Nur Atikah Abu Samah
Program Publication		Dr. Mohd Zuli Jaafar
Program Logistic		Muhammad Nuruddin Mohd Nor
Program Technical		Khawarizmi Mohd Aziz

STUDENT COMMITTEE

Mohammad Ali Kamaruddin
Nurul Huda Nabilah Ramlee
Siti Nor Arifah Abd Halim
Nuraliah Aqilah Ayuni Mohamed
Mohamad Khairul Haziq Mohamad Fauzi
Nur Wajihah Mohd Nawawi
Mohammad Hafis Ayub
Aiman Haziq Arifin
Amyra Hazwani Ghazali
Mohamad Syamil Mohd Nor
Mohammad Najmuddin Suriani
Nur Syafiqah Aina Azmi
Muhammad Aidil Ikhwan Kamarudin
Nur Muhammad Ameiriqwan Ahmad Faiza
Muhammad Faiz Zulazmi
Mohd Azri Aiman Zulkifli
Diana Asykin Kamaruddin
Nor Elin Balqis Ismail
Nursyasya Razalil
Muhammad Ismadanial Rozi
Muhammad Amir Asyraf Azman
Mohamad Zairy Zailan

EDITORIAL BOARD

Patron

Prof Ts Dr Azhan Hashim @ Ismail

Advisors

Prof Madya Ts. Dr. Fazleen Abdul Fatah

Ts. ChM Dr. Wan Zuraida Wan Mohd Zain

Dr. Noer Hartini Dolhaji

Editors

Dr. Mohd Zuli Jaafar

Dr. Wan Zuraida Wan Mohd Zain

Dr Noer Hartini Dolhaji

Muhammad Aidil Ikhwan Kamarudin

Abdul Quddus bin Puteh

Nurul Izzatiafifi Ismail

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>

TABLE OF CONTENTS

1.	COPYRIGHT	i
2.	ORGANIZING COMMITTEE	ii
3.	STUDENT COMMITTEE	iii
4.	EDITORIAL BOARD	iv
5.	ABOUT FACULTY OF PLANTATION AND AGROTECHNOLOGY	v
6.	PREFACE	vi
7.	TABLE OF CONTENTS	vii
8.	GOLD AWARD	1
9.	VACUUM LOOSE FRUIT COLLECTOR	2
10.	3 IN 1 COCOA POST-HARVEST MACHINE	6
11.	THE UTILIZATION OF GREEN BANANA (MUSA ACUMINATA X MUSA BALBISIANA) FLOUR IN THE DEVELOPMENT OF KEROPOK LEKOR	9
12.	THE UTILIZATION OF DATE PALM FRUITS POWDER IN THE DEVELOPMENT OF PASTA	18
13.	THE UTILIZATION OF JACKFRUIT SEED FLOUR IN THE DEVELOPMENT OF MALAYSIAN FISH CRACKER	25
14.	THE USE OF BAMBOO SHOOTS IN THE DEVELOPMENT OF PLANT- BASED PATTIES	38
15.	SMART FERMENTATION SHALLOW BOX	44
16.	PHYTOCHEMICAL AND BIOLOGICAL ANALYSIS OF MEDICINAL PLANT, <i>Apium graveolens</i> (CELERY): A REVIEW	48
17.	CALCIUM BIOFORTIFIED SCHIZOPHYLLUM COMMUNE AND ITS RELATION TO STUNTED GROWTH AMONG CHILDREN	51
18.	REAL-TIME TEMPERATURE AND HUMIDITY MONITORING OF STINGLESS BEE COLONIES USING IOT TECHNOLOGY	59
19.	THE ANTIBACTERIAL PROPERTIES OF SCHIZOPHYLLUM COMMUNE AND THEOBROMA CACAO L	63
20.	PALM OIL CARTON PACKAGING	69
21.	SILVER AWARD	73
22.	COCOA SOLAR DRYER	74
23.	SUSTAINABLE PLANT WASTE MANAGEMENT (BANANA PEEL POWDERED FERTILIZER)	77
24.	ANANAS COMOSUS SMART SENSOR GRADING	79
25.	FRUIT SANITIZE POSTHARVEST	82
26.	LOOSE FRUITS REMOVER	87
27.	PADDY-TECH MACHINES	93

28.	OIL PALM CREAMPUFF	96
29.	BUD-KIT AS A CLASSROOM LEARNING TOOL.....	101
30.	PORTABLE PEPPER COLLECTER	105
31.	SOLAR RICE THRESHER.....	107
32.	THEOBROMA TECHNOLOGY (DRYER).....	113
33.	BRONZE AWARD.....	116
34.	SOLAR SEED DRYER WITH AUTOMATIC TRACKING	117

ANANAS COMOSUS SMART SENSOR GRADING

Eunice Dyane anak Rudy¹, Samantha binti Fredric², Vanieda Rose anak Franky³

^{1,2,3}*Faculty of Plantation and Agrotechnology, Universiti Teknologi Mara (UiTM), Malaysia*

Corresponding author e-mail: eunice.dyane00@gmail.com

ABSTRACT - Smart farming is a concept that refers to managing farms using technologies to increase quantity and quality of products simultaneously optimizing human labor required by production. For instance, technologies used for smart farming are AI, drones, IoT and robotics. Previous research has shown that using technologies is proven to increase the productivity of yield as it is convenient and faster. However, the drawback of smart farming is the use of chemicals increased, water distributed to plants is uneven, increase in the distance of food transported and dependency on organic fertilizers. Simultaneously, there are several public institutions that publish the open data, where the privacy of a person must be guaranteed under condition. We use the research from UAF Times to indicate the increase of yield productivity on account of smart farming. Contrary to what has been presumed, agricultural technology is a collection of methods and gadgets used in the production. We discover that smart farming reduces the ecological footprint of farming, where it minimizes the application of inputs. To be precise, agriculture systems will reduce leaching problems as well as the release of greenhouse gas. The smart farming future may unravel in 2 different scenarios, where farmers are a part of a highly integrated food supply chain or farmers collaborating with stakeholders in the chain network are flexible in choosing business partners.

Keywords: Smart farming, technologies, production, food, privacy, gadgets, farmers, collaborating, business partners.

INTRODUCTION

Smart farming is an evolution that highlights the use of communication and information technology in the modern farm management cycle. Farming activities are becoming increasingly dependent on data with the existence of modern devices and machineries. Our smart sensor grading can ease the grading process, reduce work-force, improve productivity, and is accessible on remote devices and it is more efficient. Smart farming can reduce the ecological footprint of farming, meaning it minimizes the application of inputs.

Innovation is the process of creating products from new ideas, which are faster and more efficient. With the development of smart farming, farmers are either a part of a highly integrated food supply chain or farmers collaborating with stakeholders in the chain network are flexible in choosing business partners.

MATERIAL AND METHOD

Our group does the innovation for the grading machine for pineapple crop ananas comosus. The objective of why we want to do this innovation for grading machines is to increase the quality of crops, save time and ease the work of workers.

The methodology technique that we used is by observation and document screening. We have made observations based on how the basic grading machine works and found out that no technology or improvement has been made and we decided to apply some of the new technology that usually people used and applied into this agriculture machine. After that, our group does document screening based on online reading and articles that help us to do this innovation.

Hence, the innovation grading machine that we do will be inserted by a smart sensor into the machine. This smart sensor will detect automatically based on the fruit size and quality. Our technology innovation not only focuses on the grading activities but also includes the field activities. The smart sensor is also able to connect with software technologies such as smartphones, tablets, computers and many more. The worker will be able to monitor grading activities at any time and anyplace. We also emphasize the aspect of being environmentally friendly by using solar energy to operate, especially in the field.

RESULTS AND DISCUSSION



This is the outcome of our innovation that we called as Ananas Comosus Smart Grading Machine. Before this, the basic grading machine had not improved so we decided to apply some new technology devices that we called smart sensors and applied it into the grading machine. The objective of this machine is to ease the worker grading activities more efficiently, improve productivity and reduce workforce.



Figure 1 : Traditional method to grading pineapple fruits.



Figure 2 : Smart sensor that applied on the machine.



Figure 3 : A new innovation for pineapple grading machine,



Figure 4 : Farmers currently monitor the farm activities using software technology.

CONCLUSION

Our innovation is called Ananas Comosus Smart Grading Machine, where it is applied with some new technology devices, which are smart sensors and applied to the grading machine. Our machine serves the purpose of making the grading activities more efficient, improving productivity and reducing the workforce.

REFERENCES

- [1] What are the Advantages and Disadvantages of Technology in Agriculture? (n.d.). UAF Times. Retrieved January 10, 2023, from https://www.uaftimes.com/what-are-the-advantages-and-disadvantages-of-technology-in-agriculture/#7_What_are_the_types_of_Agricultural_Technology
- [2] Big Data in Smart Farming. (2017, February 7). Agricultural Systems. <https://www.sciencedirect.com/science/article/pii/S0308521X16303754>

E-EXTENDED ABSTRACT of the INTERNATIONAL AGROTECHNOLOGY INNOVATION SYMPOSIUM
(i-AIS) (4th EDITION)



FAKULTI PERLADANGAN DAN AGROTEKNOLOGI UiTM JASIN

(online)



UNIVERSITI
TEKNOLOGI
MARA

Fakulti
Perladangan dan
Agroteknologi

