PLANTACCESS KIT

MUHAMMAD FAHMI SHOLIHIN BIN MOHAMAT SAMIN	**08DPM22F1157**
MUHAMMAD ZULHISHAM BIN HASNAN	**08DPM22F1005**
SYABEIL BATRISH BIN KAMAL BAHAREIN	**08DPM22F1081**
MUHAMMAD ZULHELMI BIN OSMAN	**08DPM22F1036**

DIPLOMA IN BUSINESS STUDIES

DEPARTMENT OF COMMERCE

AUGUST 2024

DECLARATION OF ORIGINALITY

TITLE: PLANTACCESS KIT (PLANTING KIT MADE OF RECYCLED BOX WITH ORGANIC COMPOSE)

SESSION: 1 2024/2025

We,

1. MUHAMMAD FAHMI SHOLIHIN BIN MOHAMAT SAMIN 08DPM22F1157
2. MUHAMMAD ZULHISHAM BIN HASNAN 08DPM22F1005
3. SYABEIL BATRISH BIN KAMAL BAHAREIN 08DPM22F1081
4. MUHAMMAD ZULHELMI BIN OSMAN 08DPM22F1036

We are at final year students of the Diploma of Business Studies in Commerce Department at Polytechnic Sultan Salahuddin Abdul Aziz Shah, Located at Persiaran Usahawanan 40150 Shah Alam, Selangor.

2. We hereby declare that this project submissions is our own work and to the best of our knowledge it contains no plagiarism materials written by another person except due references are made.

Prepared by,

1. MUHAMMAD FAHMI SHOLIHIN BIN MOHAMAT SAMIN

_____

(040903-10-0771)

2. MUHAMMAD ZULHISHAM BIN HASNAN

_____

(040407-14-0969)

3. SYABEIL BATRISH BIN KAMAL BAHAREIN

_____

(040317-10-1763)

4. MUHAMMAD ZULHELMI BIN OSMAN

_____

(040407-10-0107)

In the presences of,

PUAN HARYANTI BINTI

Supervisor of the Project.

( )

LETTER OF AUTHORIZATION

We thus certify that the work contained in this final year project paper was carried out in accordance with the regulation of Polytechnic . it is original and is the result of our own work, unless otherwise indicated or knowledge as referenced work. No other academic or non-academic institution has received this thesis for any kind of diploma or certification .

We hereby acknowledge that the academic rules and regulation for undergraduate , Polytechnic, which govern how any my study and research are to be conducted, have been provided to us.

1. Signature:
   Name: MUHAMMAD FAHMI SHOLIHIN BIN MOHAMAT SAMIN
   Registration number:
   Date:25/11/2024

2. Signature:
   Name: MUHAMMAD ZULHISHAM BIN HASNAN
   Registration number:
   Date: 25/11/2024

3. Signature:
   Name: SYABEIL BATRISH BIN KAMAL BAHAREIN
   Registration number: 08DPM22F1081
   Date: 18/11/2024

4. Signature:
   Name: MUHAMMAD ZULHELMI BIN OSMAN
   Registration number: 08DPM22F1036
   Date:18/11/2024

ACKNOWLEDGEMENT

The final project had been done successfully with all the afford by the team members passionately. We, the members of Plantaccess Kit, wish to express our appreciation to everyone who has played a role in the successful development of this report. However, the group members also would like to express their deep appreciation to the business project lecturer Puan Dr NoorDini Binti Abdullah for his complete guidance and support on this subject.

We also would like to express a special thanks to our supervisor Mrs. Haryanti Binti Abdullah for their support and attention to carried us through all the stages of writing the final report and completing our product Plantaccess Kit.

Furthermore, we would like to express our appreciation and gratitude to all the respondents for their insightful feedback and their willingness to complete the questionnaire within the time frame that provided has a significant impact on how we will conduct this project. However our project can be able to archived without their commitment.

Lastly, we extend our gratitude and appreciation to our beloved family and friends for their moral support during the long hours of work. Their encouragement and support in our abilities motivated us to continue toward for success.

ABSTRACT

This research was done to see to what extent this product called “Plantaccess Kit” gets good acceptance and response from users in order to meet the needs of users and become a solution to user problems. The main purpose of this product is to make it easier for users to plant crops in any area that they live in, whether it’s an apartment house, flat house, terrace house, condominium, or house area that doesn’t have a yard. This product is also suitable for people who don’t have agricultural knowledge to start farming.

The approach that has been made involves a combination of all the materials that are important for farming as well as using sustainable materials, where boxes are used as the main material for making flower pots, or “kit boxes,” because they can recycle waste materials. In addition, for the soil part, it involves a mixture of black soil, organic soil, red soil, and a mixture of compost. With the compost mixture, it can further reduce food waste. This makes the process of farming easier, more environmentally friendly, and also suitable for use in various types of home areas.

As a result, users no longer need to buy fertilisers and pots separately because the “Plantaccess Kit” box is complete with all the materials that only require seeds to be planted and watered. This can save users time, energy, and also costs. Finally, this product is not only created to solve user problems, but also it can provide awareness value to take care of the environment by recycling waste materials such as boxes and food waste so that they can be reused.

ABSTRAK

Kajian ini bertujuan untuk mengetahui sejauh mana produk yang dipanggil "Plantaccess Kit" ini diterima baik oleh pengguna kerana ia memenuhi keperluan pengguna dan menyelesaikan masalah mereka. Produk ini bertujuan untuk memudahkan pelanggan menanam tanaman di mana-mana tempat yang mereka tinggal, sama ada dalam pangsapuri, flat, rumah teres, kondominium atau kawasan rumah tanpa halaman. Selain itu, produk ini sesuai untuk mereka yang tidak mahir dalam pertanian dan ingin memulakan pertanian.

Penggunaan kotak sebagai bahan utama untuk membuat pasu bunga (juga dipanggil "kotak kit," kerana ia boleh mengitar semula bahan buangan) dan kombinasi semua bahan yang diperlukan untuk pertanian telah digunakan dalam pendekatan ini. Untuk bahagian tanah, campuran tanah hitam, tanah organik, tanah merah, dan kompos digunakan. Ia boleh mengurangkan sisa makanan dengan campuran kompos. Ini menjadikan penternakan lebih mudah dan lebih mesra alam, dan ia sesuai untuk pelbagai kawasan rumah.

Akibatnya, kotak "Plantaccess Kit" mengandungi semua bahan yang diperlukan hanya untuk benih untuk ditanam dan disiram, menjadikan pengguna tidak perlu lagi membeli baja dan pasu secara berasingan. Ini mungkin menjimatkan masa dan tenaga, serta kos pengguna. Akhir sekali, produk ini bukan sahaja menyelesaikan masalah pengguna, tetapi ia juga boleh mengajar kita cara menjaga alam sekitar dengan mengitar semula bahan buangan seperti sisa makanan dan kotak supaya boleh digunakan semula.

TABLES OF CONTENTS

Contents

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

This chapter dedicates itself to describing the study's background, problem description, objective, scope, significance, operation definition, and SWOT analysis. To Introduce the Plantaccess Kit. The Plantaccess Kitis a revolutionary invention to makes gardening easier for everyone. With the addition of handmade compost that made out of kitchen wastes like leftover or ruined vegetables such as potatoes skin, onions skin, garlic skin, cucumber skins, and coconut flakes this kit contains three types of soils which is black, red, and organic(serkam) soils into the ideal mixture.

Users may cultivate plants more easily by using this new invention. Gardeners used to have to buy three kinds of soil and separate fertilizers, many of which included dangerous chemicals that may affect the ecosystem and the health of the soil besides the overuse of chemical fertilizers can hardens the soil, reduces soil fertility, pollutes air, water, and soil, and lessens important nutrients of soil and minerals, thereby bringing hazards to environment. Pahalvi, H. N., Rafiya, L., Rashid, S., Nisar, B., & Kamili, A. N. (2021). *Chemical fertilizers and their impact on soil health.* In Springer eBooks (pp. 1–20).

The Plantaccess Kit encourages environmentally friendly and sustainable gardening methods by providing all you need in a single recyclable package that are designated for those who living in limited spaces or in urban area without a need to buy separate types soils and fertilizer just to start gardening in your house.

1.2 BACKGROUND OF STUDY

This Plantaccess Kit was created in response to three problems the growing amount of food waste produced by Malaysian households, the improper use of chemicals in fertilizers that harm the environment, and the need to inspire people to begin growing their own food.

The issue of food waste in Malaysia has become increasingly critical, prompting the search for alternative uses for discarded produce. Food waste, particularly from fruits and vegetables, is a significant problem, with large quantities ending up in landfills. It was reported that in average a household in Malaysia throw away around 0.5-0.8kg uneaten food per day (Chien Bong et al., 2016). This problem is expected to increase in a few years while corresponding to economic development, population growth, and urbanization as Malaysia's population is expected to reach 33.4 million by year 2020 and 37.4 million by year 2030. Ghafar, S. W. A. (2020, July 16). *Food Waste in Malaysia: Trends, Current Practices and Key Challenges.* FFTC Agricultural Policy Platform (FFTC-AP).

Moreover, The Chemical fertiliser overuse can contribute to soil acidification and soil crust, thereby reducing the content of organic matter, humus content, beneficial species, stunting plant growth, altering the pH of the soil, growing pests, and even leading to the release of greenhouse gases. The acidity of the soil reduces crop phosphate intake, raises the concentration of harmful ions in the soil and inhibits crop growth Bisht, N., & Chauhan, P. S. (2020). *Excessive and Disproportionate Use of Chemicals Cause Soil Contamination and Nutritional Stress*. In IntechOpen eBooks.

Traditionally, starting a garden involves a lot of equipment and less essential items like a pot, a hoe, and several soil types. The kit is suitable for apartment because it is small and fits well on windowsills or balconies. It is composed of recyclable materials and promotes eco-friendly gardening practices. This cost-effective choice not only facilitates planting but also encourages people that lives in urban area to start planting their own food at home. Roan, J. (2019, July 2). Grow your own – *why and what are the nutritional benefits of home-grown vegetables.* Check My Body Health Singapore.

The background research for this project explores the growing amount of food waste produced by Malaysian household, the improper use of chemicals fertilizers and to encourage people especially those who lives in urban area to be able to plant their own food at homes.

1.3 PROBLEM STATEMENT

Many obstacles prevent people to start planting and gardening because of the basic ways of planting require a lot or attention, resources and equipment. Furthermore, Soil fertility and quality is the foundation of growing a healthy vegetable garden. Soil can breed pests and disease. Inadequate nutrients, too much nitrogen or imbalanced soil pH can negatively impact plant growth and the entire plant. Whether having a loamy soil or sandy soil, it's important to know what lack of nutrients are in it. Knowing what is in the soil can greatly expose possible causes of why vegetable in the garden is struggling. Gardener, E. (2023, August 7). *8 Gardening Challenges and How to Solve Them*. ECOgardener.

Limited space are the common problem that people that live in the Urbanic area faced it is true that limited space can discourage people from gardening. Urban area refers to the places that characterized by high population density and an infrastructure of built environment. These areas are typically more developed, with a concentration of human structures such as houses, commercial buildings, roads, bridges, and railways. Urban areas can include various types, such as towns, cities, and suburbs. Unlike rural areas, which may consist of villages and hamlets, urban areas are shaped by urbanization and are essential hubs for economic, social, and cultural activities. They play a significant role in shaping modern civilization and urban planning. Regardless, urban area compared to rural area have a limited space to gardening vegetables and plants this leads people that live in that area discouraged to start plantings.

1.4 PROJECT OBJECTIVES

- To design & develop Plant Starter Kit for various urban living spaces.
- To test and evaluate the Plant Starter Kit functionality.
- To determine the level of acceptance of product in market.

1.5 PROJECT QUESTIONS

- How to develop a plant Starter kit.
- What a the level of customer acceptance forward Plant Starter Kit.

1.6 PROJECT SCOPE

The project's goal is to develop a recyclable kit compost that can reduce kitchen waste output and make it easier for those who live in urban areas to produce their own food. Using leftovers from the kitchen, like the skins of potatoes, onions, rotten garlic and, cucumbers, carrots, and radish, which are easier to dry in the sun. Additionally, this study will evaluate the acceptance of the plant starter kit as a product to encourage people to start planting their own food and to a kit to encounter the increasing produce of kitchen waste. This will apply to everyone who wants to grow their own food especially those lives in urban area.

1.7 THE IMPORTANCE OF THE PROJECT

The outcomes of this study can be utilized to decrease the numbers of kitchen waste produce and to encourage people to grow their own food at home, especially those who lives in limited space are. Plantaccess Kit are a renewable alternative to Industrial soils and chemicals fertilizer, which includes chemicals ingredients, and consist pot, hoe and different types of soils. This can help encourage people to start planting and decrease the productions of kitchen waste. Which is on the rise in Malaysia. The results of the research may also be utilized to comprehend why compost fertilizer are much better than chemical fertilizer.

1.8 SWOT ANALYSIS

Table 1 SWOT Analysis

STRENGHT	**WEAKNESS**
• Environmentally Friendly • Easy to use • Compact Design	• High Producing Cost • Kit can be use up to three months • Material is weak
OPPORTUNITIES	**THREATS**
• People get interested with planting in their house • Reduce cost • **Product innovation**	• The kit might get plagiarism • Cost of materials rising • Budget constrains • Resistance to change

SWOT Analysis of Plantaccess Kit

1.9 OPERATIONAL TERMS

These are the terms and its operational definitions:

(a) Urban Area

An urban area is the region surrounding a city. Most inhabitants of urban areas have non-agricultural jobs. Urban areas are very developed, meaning there is a density of human structures, such as houses, commercial buildings, roads, bridges, and railways. *Urban Area*. (n.d.).

(b) Compost

Compost is a nutrient-rich organic material produced through the decomposition and microbial breakdown of organic waste materials, such as food scraps, yard trimmings, manure, and agricultural residues, under controlled conditions. Composting is a natural process that transforms organic matter into a stable, humus-like substance called compost, which can be used as a soil amendment, fertilizer, or organic mulch in gardening, landscaping, and agricultural applications.

Nafzger, A. (2024). *Compost - Agriculture Dictionary*.

(c) Plant Starter

Plant Starter refers to the mixture of three types of soils and a compost. Starter fertilizer is a type of fertilizer that is specifically designed to provide plants with the nutrients they need to get off to a healthy start. Cook, A. C. (2023, January 30). *What Is Starter Fertilizer and Why Do You Need It?*

1.10 CONCLUSION

In conclusion Plantaccess Kit is an invention that combine innovation and agriculture technology that being tailor into fit in the urban area and compact to be use. The designated compact and recyclable packaging encourages environmentally friendly and sustainable gardening methods by providing all you need in a single recyclable package that are designated for those who living in limited spaces or in urban area without a need to buy separate types soils and fertilizer just to start gardening in your house.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

In the modern era, humans are increasingly creating advanced technologies. Therefore, to produce any technology, in-depth research must be conducted. Literature review is a reference and guide used to ensure that the design is created to meet specifications and current user needs so that it can be commercialized both domestically and internationally. This study needs to be conducted to meet the permitted characteristics. At the beginning of the study, planning was done to ensure that the design would be fulfilled. Project scope concept to meet the desired project. Efforts in searching for reference materials are an important factor in ensuring the overall effectiveness of the project and the completion of the report. Therefore, some information related to the project has been searched for and collected so that this project can be recognized and function well. The results of the study will be processed and applied in the design to meet the precise specifications and fulfil the requirements of the diploma project.

2.2 PREVIOUS STUDIES/REVIEW/INVESTIGATIONS

2.2.1 COMPOST

Compost, a soil conditioner for crops, has been studied in carrots. Exposure to compost increased productivity, antioxidant activity, and soil bacterial composition. Structural equation modelling (SEM) showed optimal links between amino acids, antioxidant activity, flavonoids, and carotenoids in plants. The genus Paenibacillus and nitrogen compounds were optimally involved during exposure. This provides insights into compost's role in soil-plant interactions and offers a new perspective for chemically independent sustainable agriculture. Miyamoto, H., Shigeta, K., Suda, W., Ichihashi, Y., Nihei, N., Matsuura, M., Tsuboi, A., Tominaga, N., Aono, M., Sato, M., Taguchi, S., Nakaguma, T., Tsuji, N., Ishii, C., Matsushita, T., Shindo, C., Ito, T., Kato, T., Kurotani, A., . . . Hirai, M. Y. (2023). *An agroecological structure model of compost—soil—plant interactions for sustainable organic farming. ISME Communications, 3(1)*.

2.2.2 CHEMICALS COMPOST

Improper use of fertilizers can lead to several negative consequences for both the environment and plant human health.

When fertilizers and pesticides are used in farmlands, they are transmitted directly or indirectly into the corns and vegetable that affects the human health. Moreover, as pesticides are applied over the vegetable which are directly entered into human or livestock bodies. Excessive use of fertilizers may pollute the underground water with nitrate and it is so much hazardous to humans or livestock. Nitrate concentrated water can immobilize some of hemoglobin in blood. Organophosphate pesticides have increased in application, because they are both less persistent and harmful for environment than organochlorin pesticides. But, they are associated with acute health problems, such as abdominal pain, dizziness, headaches, nausea, vomiting, as well as skin and eye problems. There have been many studies intending to establish cancer – pesticides association. Organophosphate pesticides used in the vegetables gradually get deposit into human body and has a link with cancer. Miah, S.J., Hoque, A., Paul, A. and Rahman, A. 2014. *Unsafe Use of Pesticide and Its Impact on Health of Farmers: A Case Study in BurichongUpazila, Bangladesh. Journal of Environmental Science, Toxicology and Food Technology,* 8(1): 57-67.

2.3 DESIGN THINKING PROCESS

According to Graham Tuttle 2021, Design Thinking is a process for solving problems by prioritizing the consumer's needs above all else. It relies on observing, with empathy, how people interact with their environments, and employs an iterative, hands on approach to creating innovative solutions. Design thinking is "people-centered," which implies it makes use of data on actual consumer (human) interactions with a product or service as opposed to assumptions made by others or by an organization. To be human cantered, designers must observe how users interact with a product or service and adjust enhance the user experience. The "iterative" aspect of design thinking is this. It encourages speedy prototyping and testing as opposed to protracted research or contemplation. Design thinking only functions if it is iterative, as opposed to conventional problem-solving, which is a linear process of recognizing a problem and then brainstorming solutions. It is more of a way to continuously develop your thoughts and respond to customer wants than a way to arrive at a single solution. Design thinking

process involving five phase which is Empathy, Define, Ideate, Prototype and Test. It is most useful to tackle problems that are ill-defined or unknown.

2.3.1 EMPATHY

To better understand how consumers engage with or are impacted by a product or issue, the designer observes them in this initial stage. Empathy is required in the observations, which is refraining from passing judgement and refraining from imposing previous beliefs about the requirements of the customer. The ability to observe with empathy is useful because it can reveal problems that the client was unaware of or unable to express. It is now simpler to comprehend the human need for which you are designing.

2.3.2 DEFINE

In this second stage, you gather your observations from the first stage to define the problem you are trying to solve. Think about the difficulties your consumers are brushing up against, what they repeatedly struggle with, and what you have gleaned from how they are affected by the issue. Once you synthesize your findings, you can define the problem they face.

2.3.3 IDEATE

The next step is to brainstorm ideas about how to solve the problem you have identified. These ideation sessions could be in a group, where your team gathers in an office space that encourages creativity and collaboration, an innovation lab, or can be done solo. Important part is to generate a bunch of different ideas. At the end of this process, you will come up with a few ideas with which to move forward.

2.3.4 PROTOTYPE

This is the stage that turns ideas into an actual solution. Prototypes are not meant to be perfect. The point of a prototype is to come out quickly with a concrete version of the idea to see how it is accepted by consumers. Examples of prototypes include a landing page to test consumer desire for a product or a video that demonstrates streamlined logistic processes.

.

2.3.5 TEST

Once you give a prototyped solution to consumers, you must observe how they interact with it. This testing stage is the one in which you collect feedback on your work. The design-thinking process is an iterative, rather than linear, one. At the end of the fifth stage, you will likely have to go back to one or several of the other stages. Perhaps the testing has shown you need to develop another prototype, for which you had return to the fourth stage. Or perhaps it is shown that you have mis defined the consumer's needs. If so, you would have to return to an earlier stage of the process.

2.4 SUMMARY

This chapter provides an explanation of the progress of the case study and why this project was chosen. Many case stories are mentioned and related to our invention, the Air Purifying Mask. Many case studies discuss about human health caused by air pollutants. As a result, in Chapter 3, there will be an explanation of the project methodology, that is, how the project is organized.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter demonstrate the process of making Plantaccess Kit. It also conceives of project design, method, procedure, project production technique, designing and data analysis. Depending on the nature of the research, there are various data analysis methods available. There are several materials used to produce and to be successfully make this product.

3.2 Project Design

The Plantaccess Kit has determined that using compost soil techniques provides a easier ways and most effective way to start planting in their limited spaces . Additionally, we used a quantitative research approach to create this product, where we gave a questionnaire to 5 respondents and collected their responses to find out what respondents thought of our product's Plantaccess Kit.

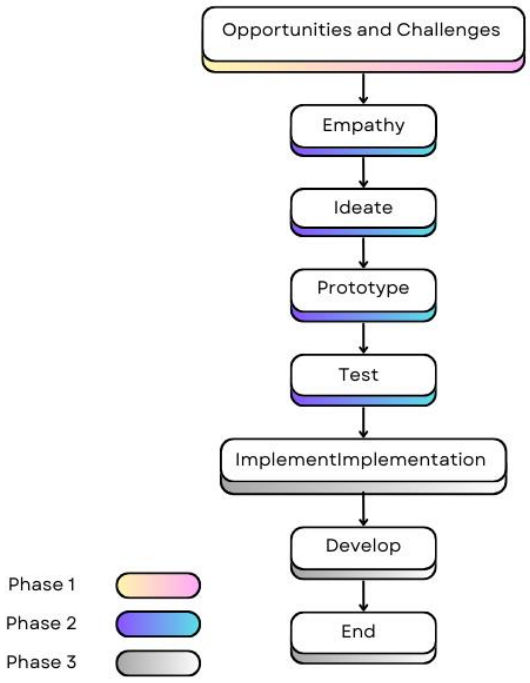


Figure 3.2 Project Design

3.3 Method/ Procedure/ Project Production Technique

In this project, we use design thinking technique for process was used to design the product in this project. It takes a significant amount of time to empathize, define, prototype, and test to guarantee that the product development process follows all the necessary procedures. Next is having clearly defined stages makes it simple to produce excellent flower pots and soil for plants, which in turn help our product follow all the requirements necessary to fulfil the purpose of creating flower pot and soil. This technique is very helpful in building our product.

Figure 3.3 Design Thinking Technique

3.3.1 Empathy

The ability to recognize and understand the issues facing users is known as empathy. Interviewing four clients from a dad's nursery to one of our group members in Bangi to learn more about the challenges they faced while planting trees was one way to show empathy. We asked customers a number of questions, including the difficulty in purchasing goods to take care of the scattering of trees and the difficulty, to plant a tree on different types of dwellings. In order to gather data, a survey was also distributed to Bangi nursery owners. This allowed for the collection of answers based on the questions posed to the clients.

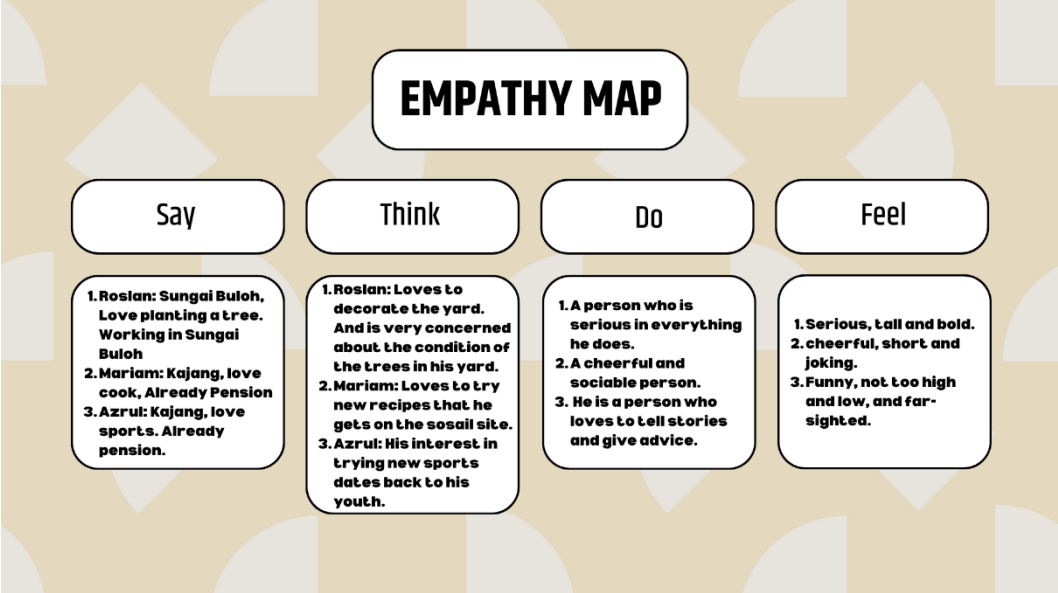


Figure: 3.3.1 Empathy Map

3.3.2 Define

Defina is a method for grouping data into distinct categories. At this point, the data that was gathered during the empathy step will be combined. This step allowed us to pinpoint the issues that tree lovers frequently deal with, such as the challenge of buying three different pieces of property and the challenge of planting trees in small spaces, particularly for those who live in apartments.

I. Expensive cost to buy 3 types of land to plant trees.

II. Space for planting trees is limited.

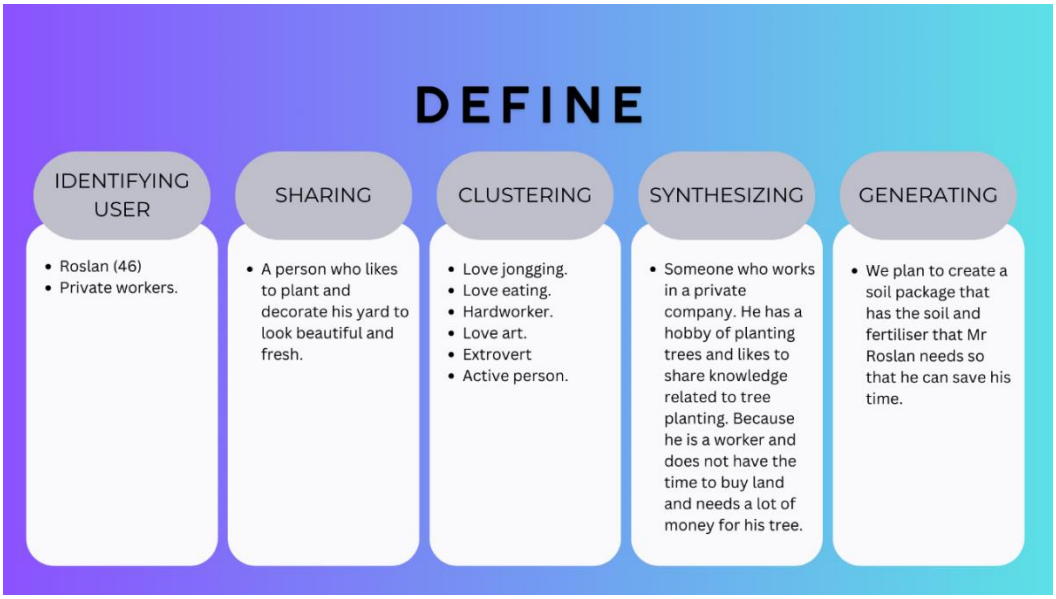


Figure: 3.3.2 Define

3.3.3 Ideate

Various brainstorming sessions were held with various interested parties based on findings from the empathy phase. Many ideas have been generated to make flower pots and soil mixtures with compost easier and save time for planting trees. Therefore, we thought it was necessary to create a flower vase that uses recycled materials in order to reduce the use of plastic and chemical materials. In addition, the strategy to promote the Plantaccess Kit Box to the plant industry audience.

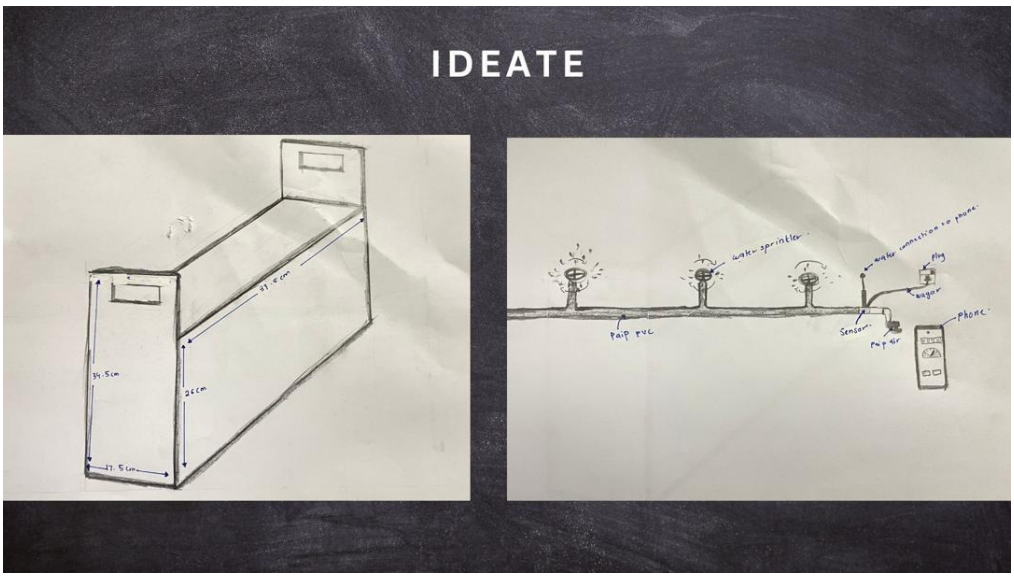


Figure: 3.3.3 Ideate

3.3.4 Prototype

After narrowing down the ideas, a prototype is developed to bring the concepts to life.

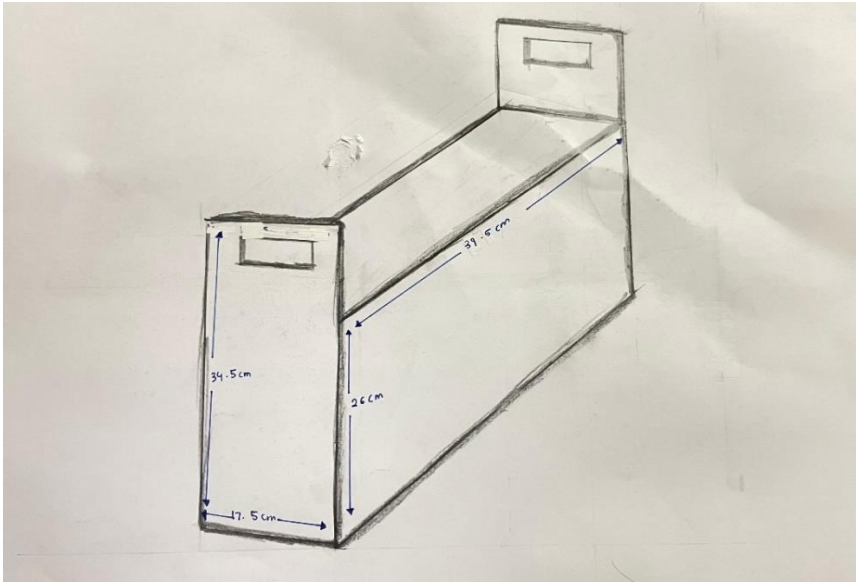


Figure:3.3.4 Prototype

3.3.5 Test

After the prototype stage, tests will be conducted with five customers from nurseries by asking them to try out the Plantaccess Kit Box. We will select two customers who live in an landed house to test the effectiveness of the soil and compost. In addition, three customers living in apartment and flat houses so that they can use flower pots and three soils that have been mixed with compost (Plantaccess Kit Box) to test the durability of the product.

3.4 Material and Equipment

Material (Flower Pots)

MATERIALS	FUNCTION
	• Box • Flower pt wall lining.
	• Masking Tap • Cover the corners and edgaes of the walllayer of the flower pot.

Equipment: (Flower Pots)

	• Hot glue gun • Paste the lining of the box and to cover the holes in the gaps of the box.
	• Cutter knife • Cut the box according to the desired size.

Material (Soil)

	• Black soil
	• Red soil
	• Compost
	• Organic soil

Table 2 Material and Equipment

3.5 Method of Collecting Data

To determine if the product has achieved its goals and objectives, data will be collected from respondents in the community of tree enthusiasts or gardeners using Google Forms. Five respondents were observed at this point in the study to gather their opinions on how to use the Plantaccess Kit Box. Feedback on our Plantaccess Kit items indicates that it will be helpful for future project expansion. As they handle the items, the respondents, who are both users and researchers are observed.

(Link Google Form: https://forms.gle/vuMNMzM8nDdVvPSR7)

The number of respondents at the level is 5 people.

3.5 Data Analysis Method

This section outlines the complete process for gathering data using surveys that are disseminated via Google Forms. The purpose of this strategy is to gather information about Plantaccess Kit Box from five respondents. Respondents will be questioned during this procedure about the product's physical attributes, the materials it is made of, and its usage instructions. In order to decide if the product needs to be enhanced or can remain a finished product, we will next examine the input we have received.

3.6 Summary

This chapter provides an overview of this study's research techniques and methods. The project design for Plantaccess Kit is based on the project implementation method. Several things must be considered when creating a project, including the selection of materials and the project's design concept. As a result, the validity of the research approach used in this dissertation has been explained and supported in this chapter. A questionnaire is one of the most important research methods in this project, and the stratified sample approach plan is a careful selection. The dissertation is another discovery, and the findings are detailed in the next chapter.

CHAPTER 4

RESULT FINDINGS AND DISCUSSION

4.1 Introduction

In this chapter, we will explain the findings of our study and discussion about the project we are implementing, which is the results of our study through a questionnaire that we have distribute through the “google form”. On the average, we find that student and lecturer a giving a good respond of out product. The plant access kit are produced to make sure that’s all people can easily plant a tree without a big space.

4.2 Research/Testing Findings

The total of 31 respondents were obtained from the nursery owner and our customer are conducted through Google Form that our team members have created to do the survey about Plant access kit. Based on the questionnaire that have answered, we got the average answers that exactly same with what have we expected. The demographic profile based on respondents including the personal information such as name, gender, age, and the occupation were also be requested in this study.

4.2.1 Testing

The prototype of Plantaccess kit was conducted to assess the functionality and the ability of the box and overall the prototype are successful without any concern. Our primary goal was to gather the user feedback and identifying the potential improvements before moving to the final implementation phase. Our team member had sent our testing prototype to the nursery near by such as, Nursery Pokok Shah Alam and Nursery Pokok Chuma. Also we have give to our subject lecturers which is Dr Nor Dini to test our ability of product. The feedback that we get from our testing product was good and the box are able to grow the plant healthily. The feedback were categorized using feedback grid as be shown below

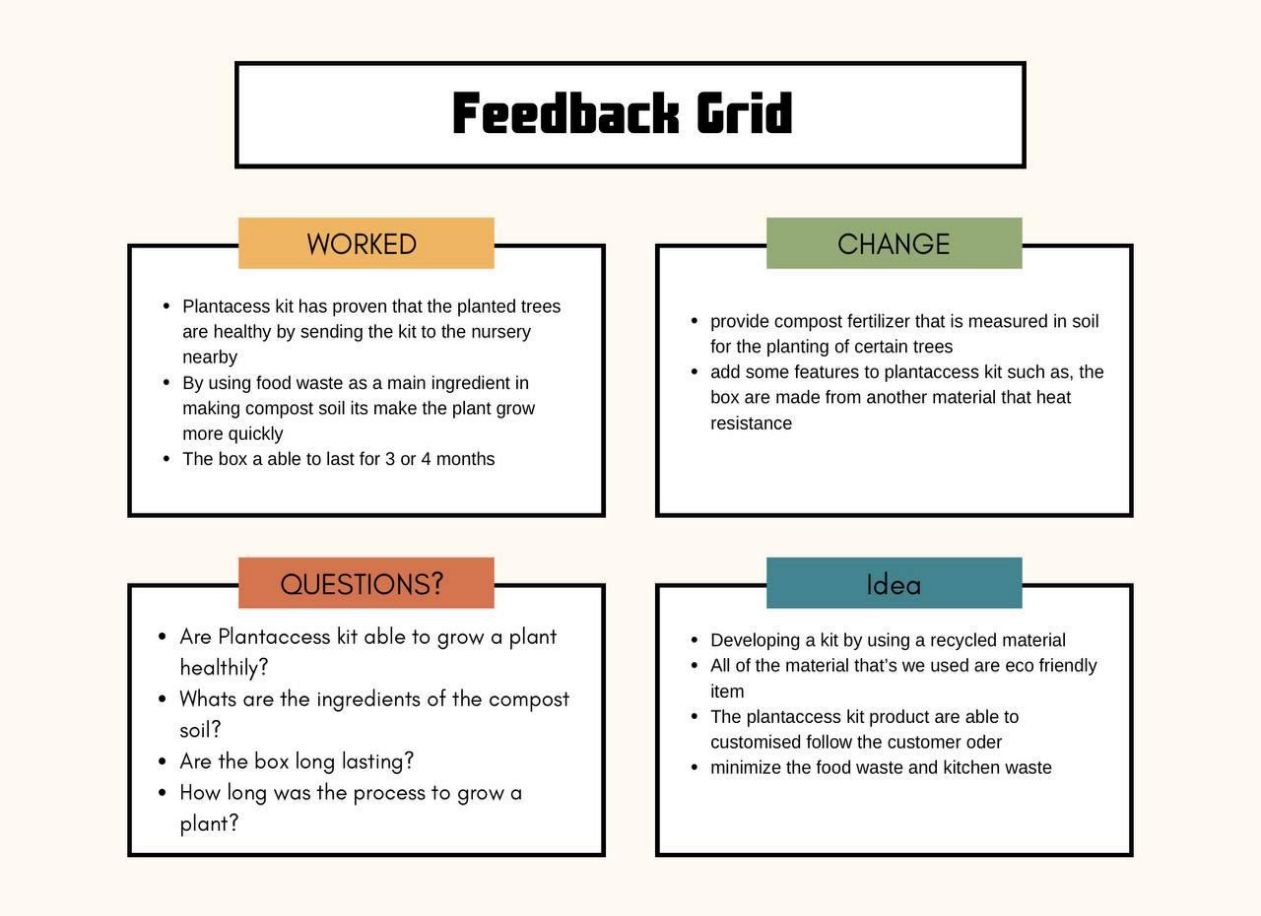


Figure: 4.2.1 Testing

4.2.2 Feedback Grid

The prototype testing that we developed was successful in covering the insights into the user experience. Overall, the prototype are user-friendly and easy to use there is no issue for how to used the Plantaccess kit. Based on the Feedback grid, the participants provided very valuable feedback based on the prototype. Our group are highlighting the both positive and negative aspects and need a improvement for a few things. The feedback grid also include, what worked, what can we improved to the product, getting the new ideas and question from our customer.

4.2.3 Survey Analysis

For this study, researcher used a google form as a questionnaire and distributed 31 people as a sample for the study. Once the researcher knows what the analysis demands, the questionnaire are the most efficient method of collecting data. Questionnaire also can be used for research involving the public, and the number of respondents that's allow individuals to obtain a clear information details required in the questionnaire from current data. The respondents were asked to rate their level of agreement on scale 1 to 5 that's included, strongly disagree, disagree, neutral, agree and strongly agree. Following below are the table of respondents.

Table 3 Respondent

NO	QUESTION	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
1	I support the idea of plants homemade food/vegetable is healthier and safer than buying it at the supermarket.	8	4	7	4	8
2	You familiar with compost fertiliser that made of kitchen waste.	6	7	7	5	6
3	Home gardening can be burdensome because its requires lots of steps such as hoe the ground and identifying the right soils and fertiliser that suitable for the plants.	6	6	5	4	10
4	Food waste can have a negative impact on the environment and contribute to food wastage	5	6	11	3	6
5	A designated kit that contains a blend of three different types of gardening soils and compost fertilizer that can save munch time encourages people to start gardening	3	5	7	11	5
6	The Plantaccess Kit encourages individuals who live in urban areas to plant in their homes because it only takes three easy steps and fits in a small space	4	4	5	8	10
7	Plantaccess Kit Box can be disposed of when the planted tree is sufficiently large.	3	7	9	8	4
8	A designated kit manufactured from food waste is safer a Compared to chemical fertilizer	5	6	9	6	5
9	Plantaccess kit are able to accelerate the process of plant growth	5	4	10	4	8
10	Plantaccess kit are more easier to use because there have a infographics on how to use it correctly	4	8	6	5	8
11	By using box as the main basis in the manufacture of Plantaccess kit is safer in terms of taking care of the environment	6	6	8	4	7
12	By using compost fertilizer plants are more healthier	5	8	7	4	7

13	Compost fertilizer can save costs from buying three types of soil and other fertilizers to plant a trees	8	6	4	3	10
14	Do you think that's for RM 25.00 You will get the Plantaccess Kit box including the compost fertilizers and free spray bottle are reasonable prices?	11	4	5	2	8
15	Plantaccess kit also makes it easier for users to take care of the trees	8	7	1	8	7

Respondent Plantaccess Kit

Table 4 Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Q1	31	1	5	3.00	1.549
Q2	31	1	5	2.94	1.413
Q3	31	1	5	3.19	1.558
Q4	31	1	5	2.97	1.329
Q5	31	1	5	3.32	1.222
Q6	31	1	5	3.39	1.453
Q7	31	1	5	3.10	1.193
Q8	31	1	5	3.00	1.317
Q9	31	1	5	3.32	1.376
Q10	31	1	5	3.16	1.416
Q11	31	1	5	3.06	1.436
Q12	31	1	5	3.13	1.408
Q13	31	1	5	3.13	1.628
Q14	31	1	5	2.84	1.655
Q15	31	1	5	2.97	1.581
Valid N (listwise)	31				

Description Statistic Plantaccess Kit

4.3 DISCUSSION

Based on the findings of the study, a ACP application for Plantaccess kit successfully developed based on the Design Thinking instructional design model. The application was designed and developed as an effort to make sure its became successful in this study., the Design Thinking model was developed to be suitable and effective for use in the development of the prototype products. Beside, researchers must use a suitable model that can achieve their development target. And the results of this study indicate that the ability of Design Thinking model to provides designers with useful, clearly defined stages for the effective implementation of new product. The objective to develop an application to monitor the progress of construction productivity according to the set baseline was achieved.

CHAPTER 5

CONCLUSION & RECOMMENDATION

5.1 Introduction

In this chapter, we will summarise the final results of our project. "Plantaccess Kit,starting from the product testing, conducting research on respondents regarding our project, and incorporating their suggestions for project improvement to make it more appealing, meet user needs, and align with current trends.

5.2 Conclusion

In conclusion, the 'Plantaccess Kit' project sets a new benchmark in the agricultural industry by providing users with a novel experience of gardening wherever they live, without the need to worry about backyards, soil selection, pot choices, and more. Users have been impressed by the uniqueness of this project, as nothing like it has ever been available on the market before.In addition, it can reduce food waste because it can be used as compost. This compost fertilizer can supply more nutrients to the tree because there are humors in it that encourage the growth of the tree as well as an environmentally friendly material that is much better than chemical fertilizers. Which will have a negative effect on plants and also have a negative effect on the health of the human body.

5.3 Recommendations

Based on our survey of the general public, lecturers, and nursery owner, we have received several suggestions to diversify our project. Many have suggested using coconut shells as hanging planters for ornamental plants, considering their smaller size and more attractive appearance. Additionally, there were also suggestions to utilise used plastic bottles as pots to reduce waste and provide added value to discarded items.

5.4 Project Limitations

Based on our research on the suggestions given by the respondents regarding our product, we found that this product has limitations to be improved in terms of all aspects.

1. Changing pots that are not suitable for tree plants

   For example, if the suggestion of using coconut shells to be used as flower pots depends, it is not suitable for most types of plants because it has too much space. Small for the roots to grow and does not have strong resistance if blown by strong wind.

2. Using materials that are not environmentally friendly

   In addition, the proposal to use plastic bottles as a medium for making pots is also not suitable for sale or commercialisation because of the unattractive appearance of plastic bottles.Moreover it will damage the purpose of our project which is to protect the environment and if it is to be sold, it needs to be modified to look more attractive and suitable for sale, which certainly involves more costs.

5.5 Summary

In short, this “Plantaccess Kit” product can help people who want to grow crops without needing an open area with soil and is suitable for planting in all types of home areas. For example, apartment houses, flats and so on. After all, this product can be the first step for the which is docile to cultivate because it is easy to use, just plant the seeds and water the seeds.

REFERENCES

Pahalvi, H. N., Rafiya, L., Rashid, S., Nisar, B., & Kamili, A. N. (2021). *Chemical fertilizers and their impact on soil health.* In Springer eBooks (pp. 1–20).

Ghafar, S. W. A. (2020, July 16). *Food Waste in Malaysia: Trends, Current Practices and Key Challenges.* FFTC Agricultural Policy Platform (FFTC-AP).

Bisht, N., & Chauhan, P. S. (2020). *Excessive and Disproportionate Use of Chemicals Cause Soil Contamination and Nutritional Stress*. In IntechOpen eBooks.

Roan, J. (2019, July 2) Gardener, E. (2023, August 7). *8 Gardening Challenges and How to Solve Them*. ECOgardener.

Gardener, E. (2023, August 7). *8 Gardening Challenges and How to Solve Them*. ECOgardener.
Urban Area. (n.d.).

Nafzger, A. (2024). *Compost - Agriculture Dictionary*.

Cook, A. C. (2023, January 30). *What Is Starter Fertilizer and Why Do You Need It?*

Miyamoto, H., Shigeta, K., Suda, W., Ichihashi, Y., Nihei, N., Matsuura, M., Tsuboi, A., Tominaga, N., Aono, M., Sato, M., Taguchi, S., Nakaguma, T., Tsuji, N., Ishii, C., Matsushita, T., Shindo, C., Ito, T., Kato, T., Kurotani, A., . . . Hirai, M. Y. (2023). *An agroecological structure model of compost—soil—plant interactions for sustainable organic farming. ISME Communications, 3(1)*.

Miah, S.J., Hoque, A., Paul, A. and Rahman, A. 2014. *Unsafe Use of Pesticide and Its Impact on Health of Farmers: A Case Study in BurichongUpazila, Bangladesh. Journal of Environmental Science, Toxicology and Food Technology,* 8(1): 57-67.

APPENDICES

Appendices A Gantt Chart

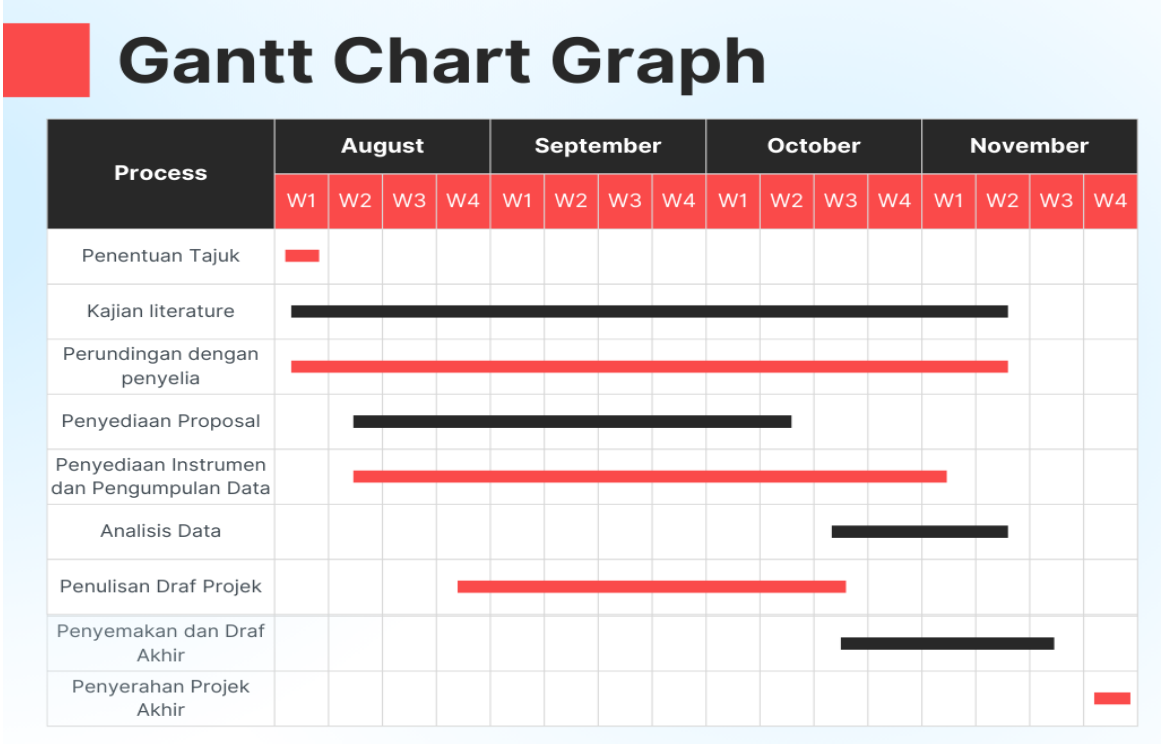
Appendices B Project Total Cost

Appendices C Invoice Print

REFERENCES ATTACHMENT

i. GANTT CHART

Table 5 Show Gantt Chart



Gantt Chart Plantaccess Kit

ii. TOTAL PROJECT COST

Table 6 Project Cost

	Product	**Quantity**	**Price (RM)**
1	Tanah	10	24
2	Bekas pasu	6	14.4
3	Hot glue gun	4	9.6
4	Pokok bayam	1	6
5	Pokok kesum	1	6
6	Pokok cili	1	13
7	Pokok rosemary	1	14
8	Barang buat kompos (sayuran)	1	9
9	Transparent Film	1	1.9
10	Tape putih	3	7.2
11	Kotak	15	18
12	Printing muka depan kotak	1	5.5
13	Print nama tajuk	1	1
14	Poster	1	22
15	Pisau	1	2.4
16	Gam	1	2.5
17	Print report	1	6
18	Glue gun	1	2.4
19	Pokok	1	10
20	Poster stand	1	26
21	Print	3	9.5
22	Print manual	3	2
	Total		212.4

iii. INVOICE FROM HARDWARE & PRINTING SERVICE

R D.I.Y. (M) SDN BHD
(CO.REG : 860671-D)
1851-A & 1851-B, JALAN KPB 6,
KAWASAN PERINDUSTRIAN BALAKONG,
43300 SERI KEMBANGAN, SELANGOR
(JLN BALAPAN, SEKSYEN 13 SHAH ALAM)
-INVOICE-

CACTUS MINERAL WATER 1.5L			
9556135011509	2 X	1.45	2.90
GLUE STICK 10S YLT-2020-205			
9076578	3 X	2.70	8.10

Item(s) : 2 Qty(s) : 5

Total RM 11.00
CASH RM 11.00

24-09-24 21:41 SH01 ZI47 T2 R000322648
OPERATOR S13C - NUR HAZIQAH

EXCHANGE ARE ALLOWED WITHIN
7 DAYS WITH RECEIPT.
(FOR E-INVOICE- ONLY PERMITTED AT THE
ORIGINAL STORE OF PURCHASE)
STRICTLY NO CASH REFUND.

REQUEST FOR E-INVOICE ARE PERMITTED
ONLY UP TO 3rd DAY OF THE
FOLLOWING MONTH AND MUST BE MADE
AT THE ORIGINAL STORE OF PURCHASE

MR D.I.Y. SDN BHD
(CO.REG : 704427-T)
LOT 1851-A & 1851-B, JALAN KPB 6,
KAWASAN PERINDUSTRIAN BALAKONG,
43300 SERI KEMBANGAN, SELANGOR
(BANDAR BARU BANGI)
-INVOICE-

GLUE STICK 10S YLT-2020-205			
9076578	1 X	2.70	2.70
PVC HEAD PIN 40S			
9080905	1 X	1.40	1.40
CUTTER KNIFE SX48-1#			
9088658	1 X	1.80	1.80

Item(s) : 3 Qty(s) : 3

Total RM 5.90
EWALLET RM 5.90
TREF:tdw00267397175 (TNGEWALLET)
Please retain this receipt for
future reference.
Thank you.

15-09-24 19:32 SH02 ZTF3 T2 R000018057
OPERATOR BNGC - MUHAMMAD DANIAL

EXCHANGE ARE ALLOWED WITHIN
7 DAYS WITH RECEIPT.
(FOR E-INVOICE- ONLY PERMITTED AT THE
ORIGINAL STORE OF PURCHASE)
STRICTLY NO CASH REFUND.

FOR E-INVOICE ARE PERMITTED
ONLY UP TO 3rd DAY OF THE
FOLLOWING MONTH AND MUST BE MADE
AT THE ORIGINAL STORE OF PURCHASE

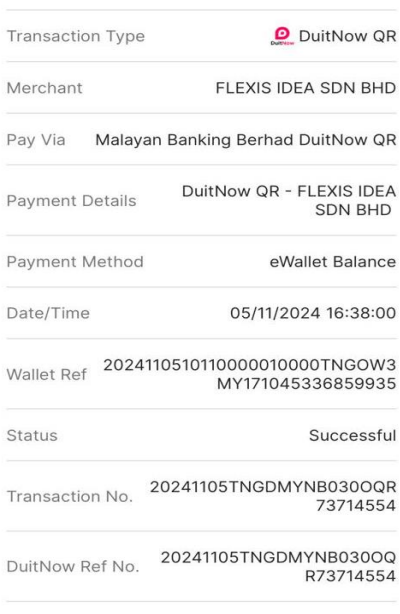
MY ONE SHOP SDN BHD
20100100754B (892169-T)
99, JALAN 8/1 SEKSYEN 8,
BANDAR BARU BANGI,
43650 BANGI,
SELANGOR DARUL EHSAN.

Invoice No : E01-1232156
Date : 18/09/2024 21:09:26 PM
Cashier : CASHIER A (E)

Description	Qty	Price	Amount
1 030WH4810-MASKING TAPE 48MMX10M	2	2.20	4.40

Total Item Discount 0.00
Total Sales 4.40
Rounding Adjustment: 0.00
TOTAL : 4.40
CASH 10.00
Change : 5.60

****Thank You, Please Come Again****
Goods Sold Are Non Refundable, Exchangeable Within 3 Days
Defective Item Are Exchange With Invoice Only.
Of Purchase Date With
No Cash



-RM5.50

Transaction Type	DuitNow QR
Merchant	FLEXIS IDEA SDN BHD
Pay Via	Malayan Banking Berhad DuitNow QR
Payment Details	DuitNow QR - FLEXIS IDEA SDN BHD
Payment Method	eWallet Balance
Date/Time	05/11/2024 16:38:00
Wallet Ref	20241105101100000010000TNGOW3MY1710453368599 35
Status	Successful
Transaction No.	20241105TNGDMYNB030OQR73714554
DuitNow Ref No.	20241105TNGDMYNB030OQR73714554