



TEAM TROJAN

User Experience Engineering (SE3050) -2022

Topic : Life on Land

Group ID: SER028

App Name: Eco Bash

Group Details:

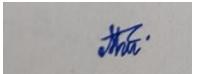
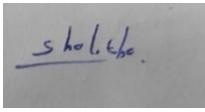
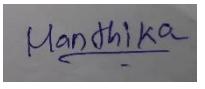
Student ID	Student Name
IT20125066	Chandrasena. A.P.M
IT20147082	D.H.S.V. Dhanapala
IT20258030	Gunawardhana H.P.M.N
IT20136710	Kariyapperuma K.M.K.R

User Experience Engineering SE3050

Department of Computer Science and Software Engineering, Faculty of Computing, Sri Lanka
Institute of Information Technology (SLIIT)

Declaration

We declare that this is our own work, and this report does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any other university or institute of higher learning, and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgment is made in the text. Also, we hereby grant to Sri Lanka Institute of Information Technology the non-exclusive right to reproduce and distribute our report in whole or part in print, electronic, or another medium. We retain the right to use this content in whole or part in future works (such as articles or books).

Student No.	Name	Date	Signature
IT20125066	Chandrasena. A.P.M	11/06/22	
IT20147082	D.H.S.V. Dhanapala	11/06/22	
IT20258030	Gunawardhana H.P.M.N	11/06/22	
IT20136710	Kariyapperuma K.M.K.R	11/06/22	

Abstract

This is the final phase of the project done under our User Experience Engineering module. This project consists of 7 major milestones. All the details we have done in the respective steps are summarized in this report. In addition, the A-z design of the project and the necessary information up to the final development are included in this document. Basically, an introduction about the app has been made here. A competitor analysis has been done in other segments. There, advantages, disadvantages and our app have been compared with that app. Apart from that, a requirements specialization has been done. This document contains information about the design principle and how the project was managed. Basically, the information related to the documents related to each milestone is also included in this document.

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List Of Abbreviations

UI	User Interface
UX	User Experiences
API	Application programming interface
SDG	Sustainable Development Goals
UN	United Nations

1 Introduction

Due to the various bad actions of man and the lack of knowledge to use agricultural activities correctly, the chemical damage to the soil has increased today. The land is desolate because people are least engaged in agriculture. Under this situation, the people of the world focus on agriculture, but they do not have proper knowledge and experience.

As a successful solution to all these challenges, this Eco Bash app can be introduced as an easy-to-use mobile application for providing environmentally friendly agricultural methods and agricultural knowledge. In terms of soil type, soil conservation, soil animal and organic farming, this app has been designed according to people's needs and very creatively.

2 Background

2.1 SDG selection

Here we carried out this project based on the Goal of **Life on Land** which comes under the UN Sustainable Development Goals. According to the United Nations, its main objectives are to protect, restore and promote the sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and biodiversity loss. Thus, we focused on the chemical damage caused to the soil today due to the various bad actions of man and the lack of knowledge to use agricultural activities correctly. People focus on agriculture but they lack proper knowledge and experience. As a successful solution to all these challenges, we aimed to create an easy-to-use mobile application to provide environmentally friendly agricultural methods and agricultural knowledge.

For one or two decades, farmers began to farm using chemical fertilizers and used versions of unpractical and harmful farming actions. As a result of that, the micro lives like bacterizes began to die or destroy. They are the natural help for the plants to grow. As they no longer exist the soil became useless. As much as environmental activists explain this farmer did not want to listen because the chemicals and other harmful tricks brought them more harvest and money so far. Also, people did not realize the harm because the harm did not bring out in a short period. Not only for the soil but also harms the health of the people in various ways.

Primarily, the SDGs aim to protect, restore and promote the conservation and sustainable use of terrestrial and other ecosystems to conserve biodiversity on land. Soil is a very important element in discussing the land there. Currently, we do not pay much attention to the conservation of this soil. Also, soil conservation and related issues are not discussed so much. Therefore, we chose this topic to socialize details and more tips and tricks on how to engage in daily gardening and agricultural activities without damaging the soil.

2.2 Design Purpose

Mainly we wanted to design a clean and clear UI. The main reason for this is that this app is used by different age groups and is mostly used to gain knowledge. Therefore, we were mainly more concerned about the UI goals of user friendliness, usability and efficiency than attractiveness.

2.3 Team Members

List the team members and their role.

2.4 Contribution Table

IT number	Name	Contribution
IT20125066	Chandrasena. A.P.M	<ul style="list-style-type: none">• Equally contributed to the document creation• Developed Own functionality of the app• Make own millstone documents
IT20147082	D.H.S.V. Dhanapala	<ul style="list-style-type: none">• Equally contributed to the document creation• Developed Own functionality of the app• Make own millstone documents
IT20258030	Gunawardhana H.P.M.N	<ul style="list-style-type: none">• Equally contributed to the document creation• Developed Own functionality of the app• Make own millstone documents
IT20136710	Kariyapperuma K.M.K.R	<ul style="list-style-type: none">• Equally contributed to the document creation• Developed Own functionality of the app• Make own millstone documents

3 Design Process

3.1 User Involvement

Since the beginning of the designing part we try to always get to involve the users to have a better user-friendly application for the user and our requirements. At the beginning of the designing, we conduct an interview with users and describe our plans for the mobile application. To have better information and requirements we conduct interview with different persons who we thought the application would use in the future. For example, we assume that our application will surely use farmers and specialists of farming and the soil. So, we contact them and get the ideas and requirements to the application. Not only them we assume that some people would use this application who does not have an enough understanding about farming but wants to build a farm and to know about the different type of soil in Sri Lanka. So, when we are selecting users, we focus on all those points and get feedback. Not only that we have created a google form to get more data to analyse the system.

In the UI designing part of the application, we contact the users and get their feedbacks about them. There we mainly focus of the user friendliness about the system. To have a better understanding to the user we have design a prototype version of our system and present it to the user to get their feedbacks. According to their feedbacks we have re-design according to what they mentioned. So throughout the design process we have got a closer interaction with the users to build a better product.

4 Milestone 1: Identify user groups

4.1 Persona(s) – 04 personas from a group

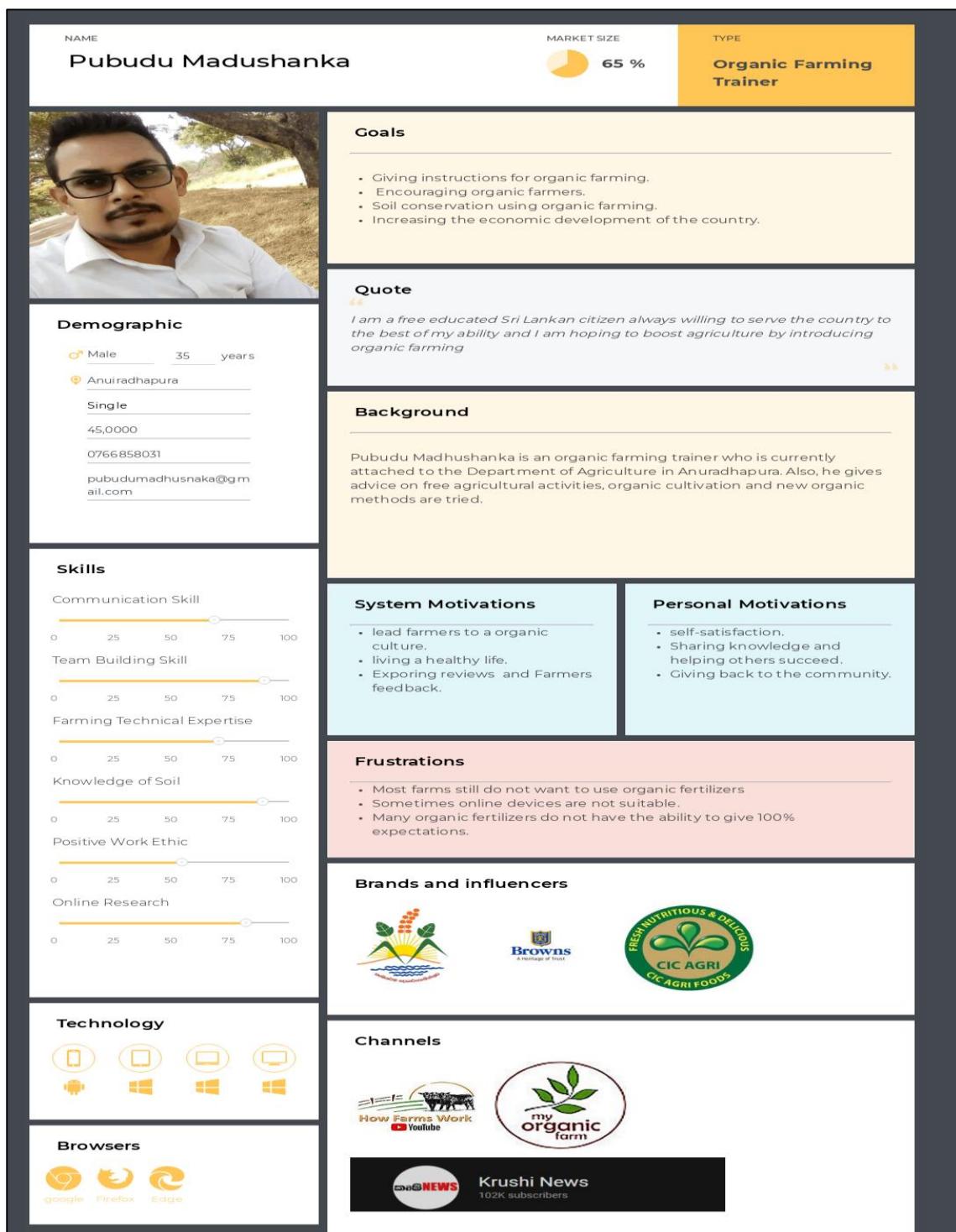


Figure 1-IT20125066.persona

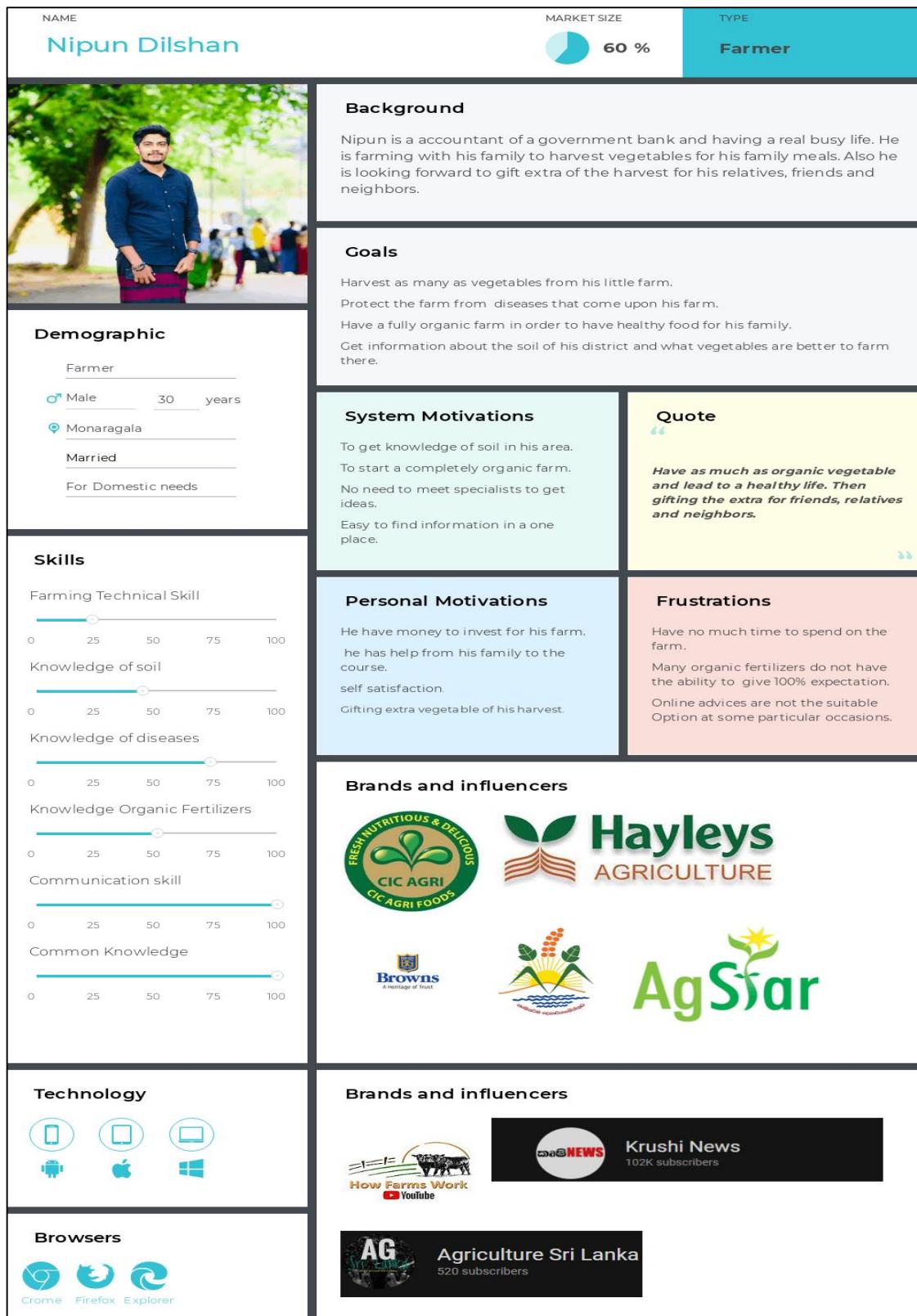


Figure 2-IT20147082.persona

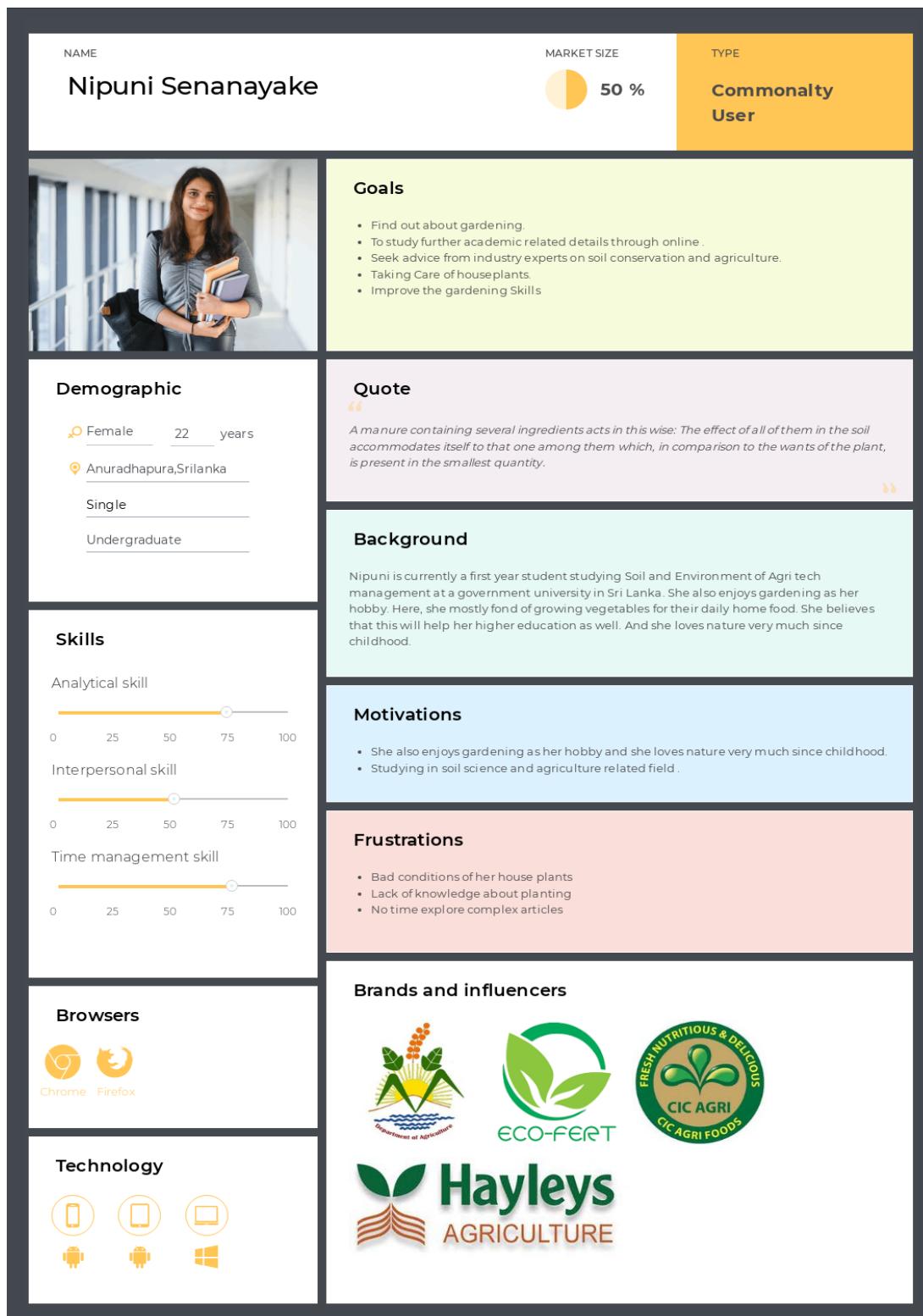


Figure 3-IT20258030.persona

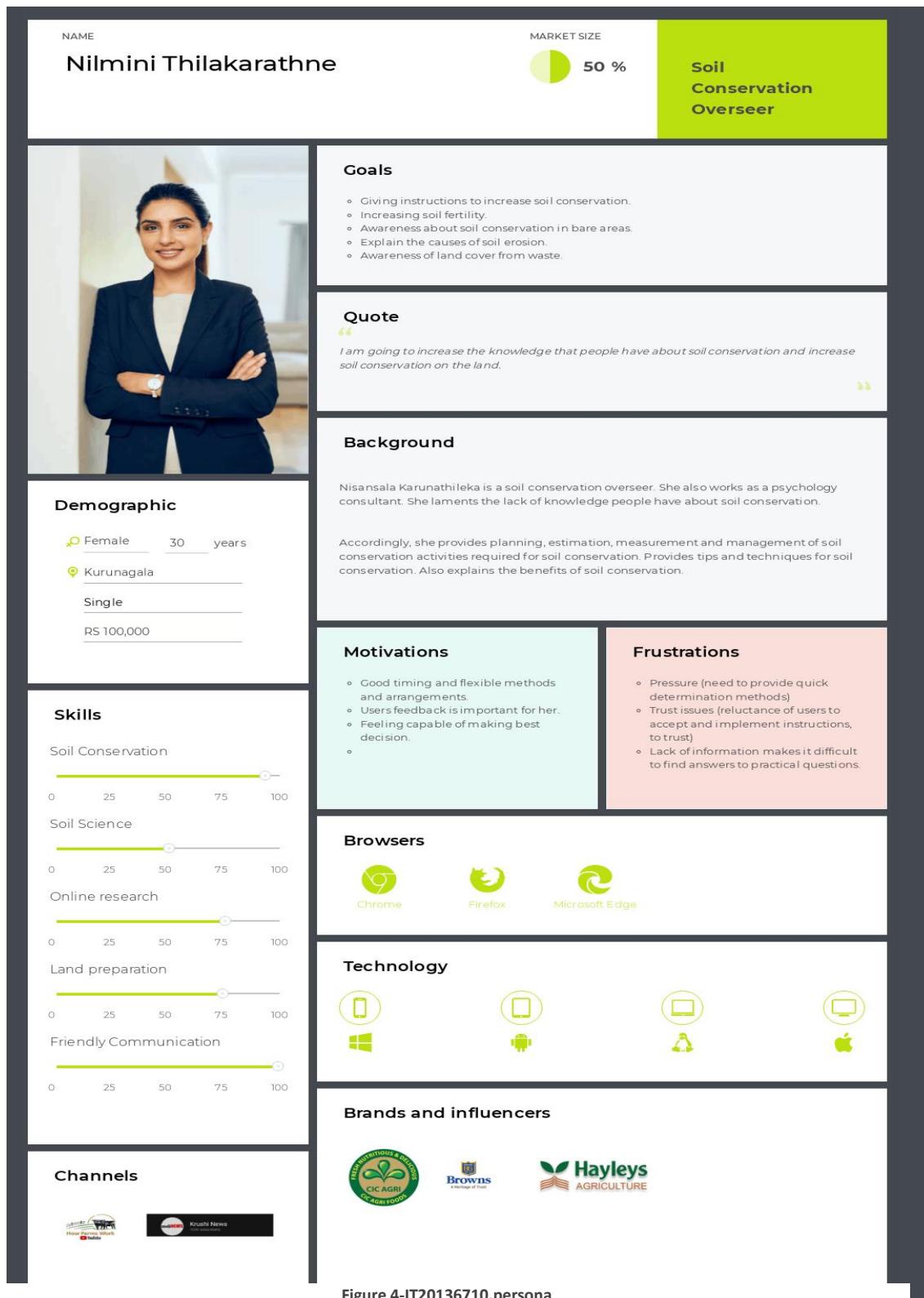


Figure 4-IT20136710.persona

4.2 Empathy map(s) – 04 Empathy maps from a group



Figure 5-IT20125066.Empathy map

<p>1.WHO are we empathizing with?</p> <p>Nipun is an accountant of a government bank and is a well educated person.</p> <p>He is such a busy person.</p> <p>He is a married man and have two small children.</p> <p>He is looking forward to start a small farm around his house.</p> <p>He is not only doing it alone but also with his family.</p> <p>Harvest as many as vegetables.</p>	<p>7.What does he THINK and FEEL?</p> <p><i>He is looking forward to start a completely organic farm to have a healthy meal for his family.</i></p> 	<p>2.What does he need to DO?</p> <p>He needs to know what vegetables are grown in his area and what vegetables are not.</p> <p>He needs to follow the instructions of the specialize about how the soil must prepare for farming.</p> <p>He needs to decide whether his farm will be a half organic and half agrochemical or a fully organic.</p> <p>He can be able to give feedback to the help he get from the application.</p>
<p>6.What does he HEAR?</p> <p>He had a little bit of idea about the organic fertilizers from his friend.</p> <p>He had information about the vegetables that can be grown in his district.</p> <p>He heard that even some vegetables that grown in cold areas like Nuwara Eliya can be able to grow in Monaragala,</p>	<p>GAINS</p> <p>His ultimate goal is to have a proper healthy meal of his own.</p> <p>He wishes to gift his extra harvest to his friends, relatives and neighbors.</p>	<p>3.What does he SEE?</p> <p>He had seen that most of the vegetables in the market were farmed using chemicals.</p> <p>Usually they are unhealthy for the human body.</p> <p>He had seen that there are lot of empty area in his garden and he needed to do some useful thing.</p>
<p>5.What does he DO?</p> <p>He is about to start his farm these days.</p> <p>He is planning where will his farm will be and what kind of vegetables would grown in his soil(land).</p>	<p>PAINS</p> <p>As he is a busy man he does not have much of a free time to farm.</p> <p>His lack of knowledge about farming.</p>	<p>4.What does he SAY?</p> <p><i>I wanted to gift my extra harvest of my farm not to sell and have money, but to give away as gifts to my relatives, friends and neighbors . So I can keep them healthy also.</i></p>

Figure 6-IT20147082.Empathy map



Figure 7-IT20258030.Empathy map

1.WHO are we empathizing with? We are empathizing with nilmini thilakarathne. She is soil conservation overseer She is working as psychological adviser In our scenario she is represent as direct stakeholder. She is graduate from Peradeniya university. And she also working as senior lecturer.	7.What do they THINK and FEEL? <i>I think that those who have no knowledge about soil conservation should be given the necessary knowledge so that they can easily get it. Then it makes me happy.</i>	2.What do they need to DO? She wants to give advice on proper soil conservation methods and reducing soil erosion. She wants to know whether the users are satisfied with her program according to the feedback of the users.
6.What do they HEAR? Successful feedback on soil conservation is heard. Heard about those interested in further study of soil conservation.		3.What do they SEE? A creative and effective application that can get advice according to human needs and improve human knowledge. An application where you can learn many things besides soil conservation.
4.What do they SAY? <i>"Through the mobile application, I hope to present successful solutions to the problems of the users as well as the successful actions and methods to be taken by them whenever possible."</i>	5.What do they DO? She is a soil conservation overseer. She always tries to educate people about soil conservation methods and benefits.	
PAINS Needs to improve conservation skills more. Lack of resources. Confused about some peoples unnecessary action. Frustration for lack of knowledge about soil conservation about peoples.		GAINS provide suggestions and introduction about soil conservation for users. Add more useful methods to need the user goals. Wants to learn more useful methods with clean practical examples.

Figure 8-IT 20136710.Empathy map

4.3 User stories – 04 User stories from a group

Organic Farming trainer who providing advice and details

As an Organic Farming Trainer, I would like to add organic farming methods and tips to the system so that I can lead users to an organic farming instead of agrochemical which we already know that unhealthy for human. So, I can Guide toward for a healthy society.

Farmer who wants to get details about farming related things

As a farmer, I would like to know about the soil around my farming area so I can get an idea about what kind of vegetables would grow easily in my farm. Also, I can have knowledge how to grow other vegetable plants in my farm by using various farming techniques given from the application.

Commonalty User who interact with home planting and researching details

As a Commonalty user, I would like to know about the effect of soil on the cultivation and related activities and details needed for my studies in daily life and the tips, tricks and how to properly engage with those activities in an environmentally friendly manner.

Soil conservation overseer who interact with providing details

As a soil conservation overseer I want to provide tips, methods and benefits of soil conservation so that I can build people's knowledge about soil conservation and increase soil conservation in the lands.

4.4 User flow(s) - 04 User flows from a group

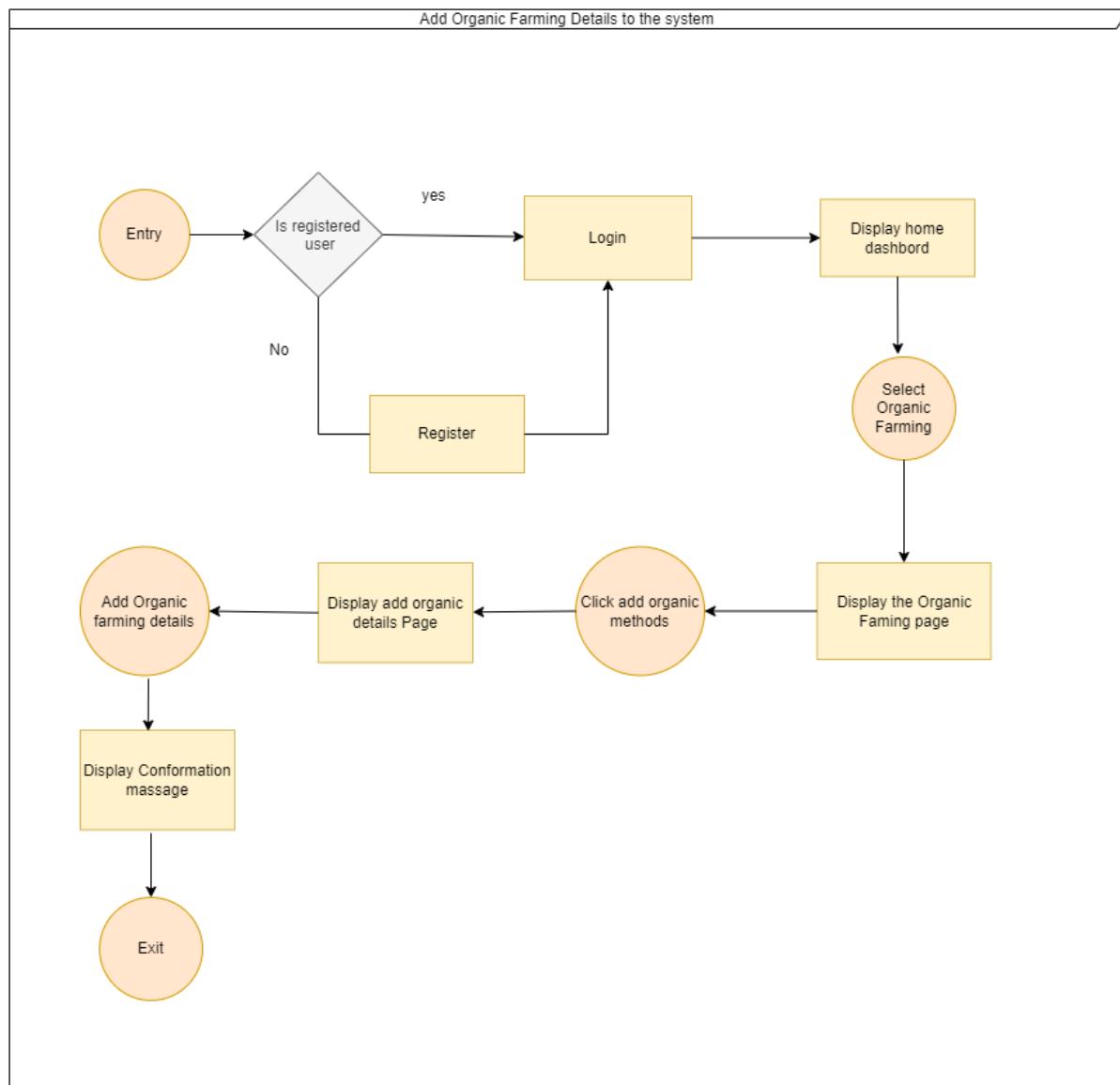


Figure 9-IT20125066.User Flow

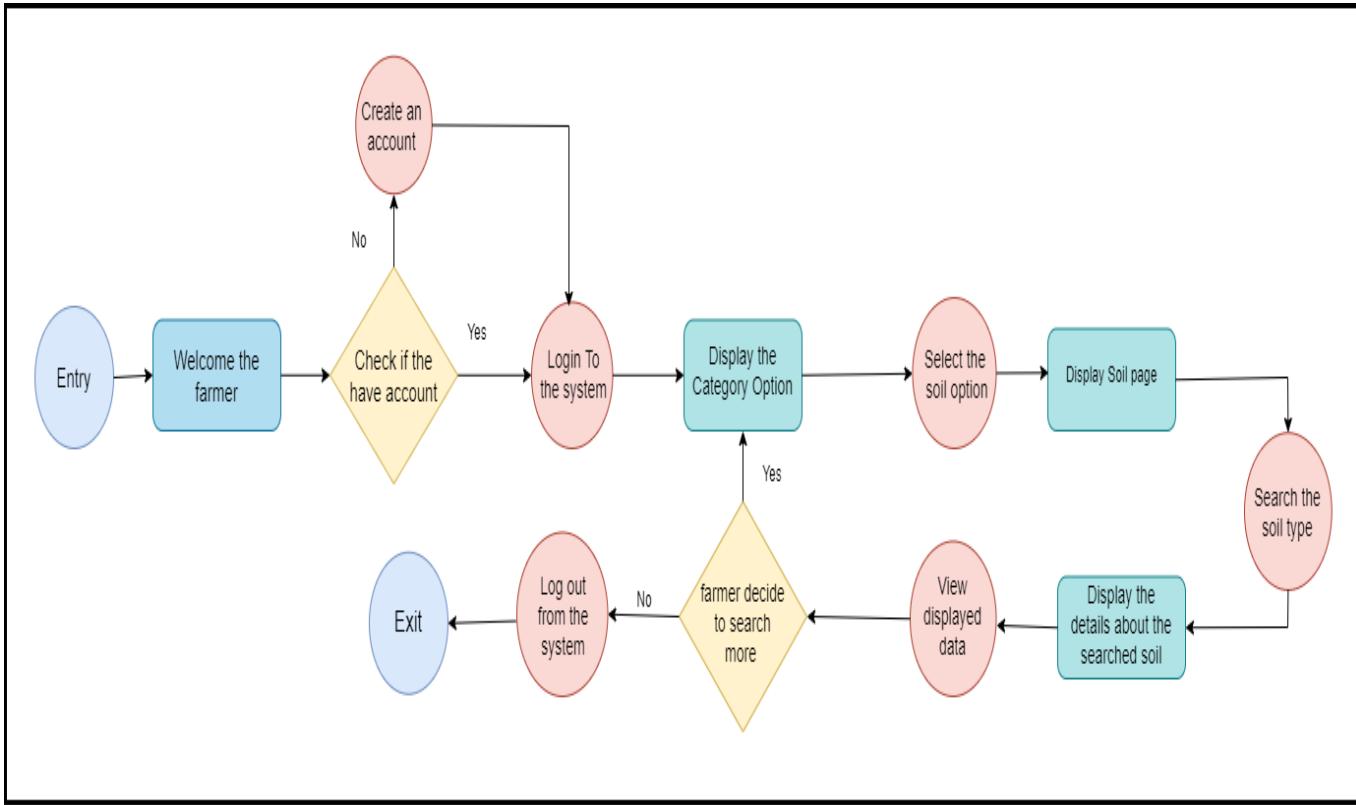


Figure 10-IT20147082.User Flow

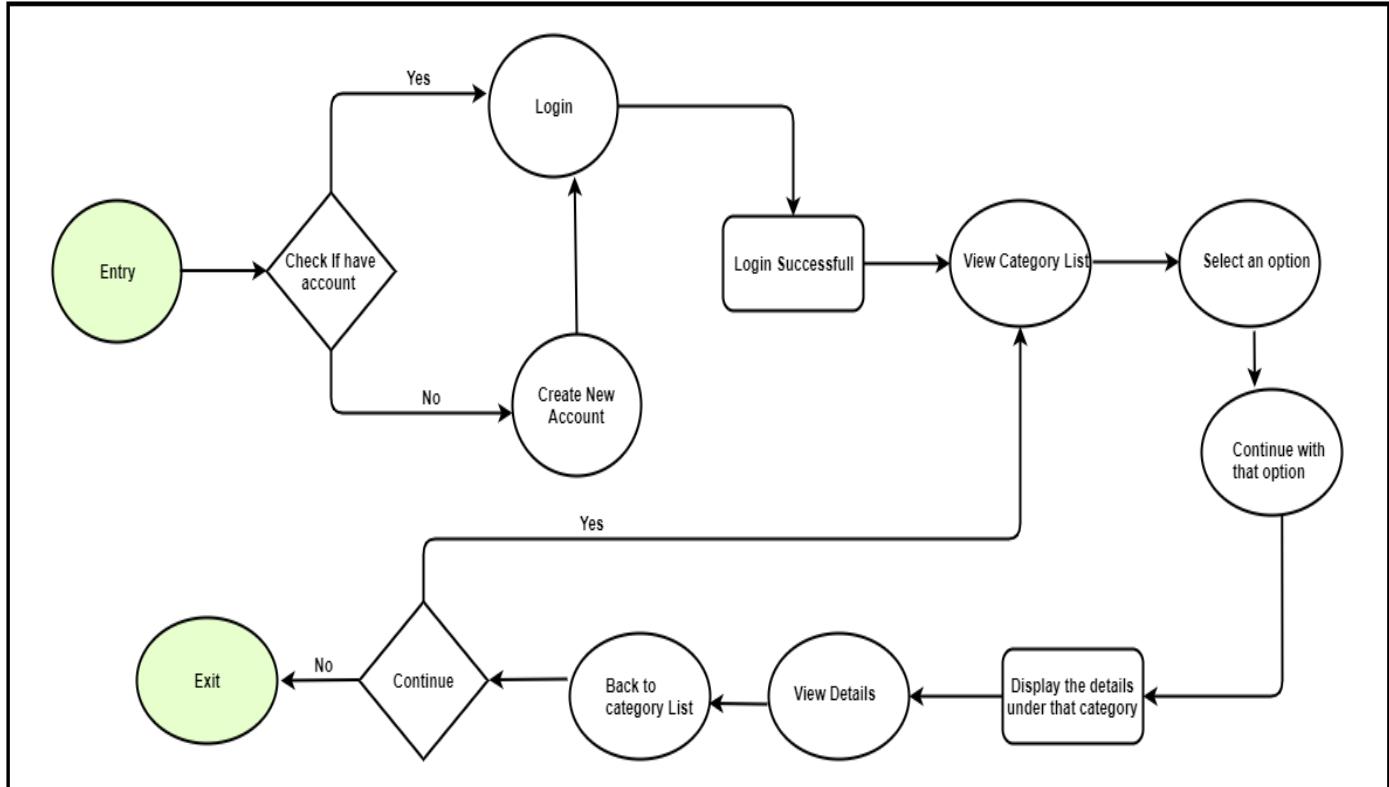


Figure 11-IT20258030.User Flow

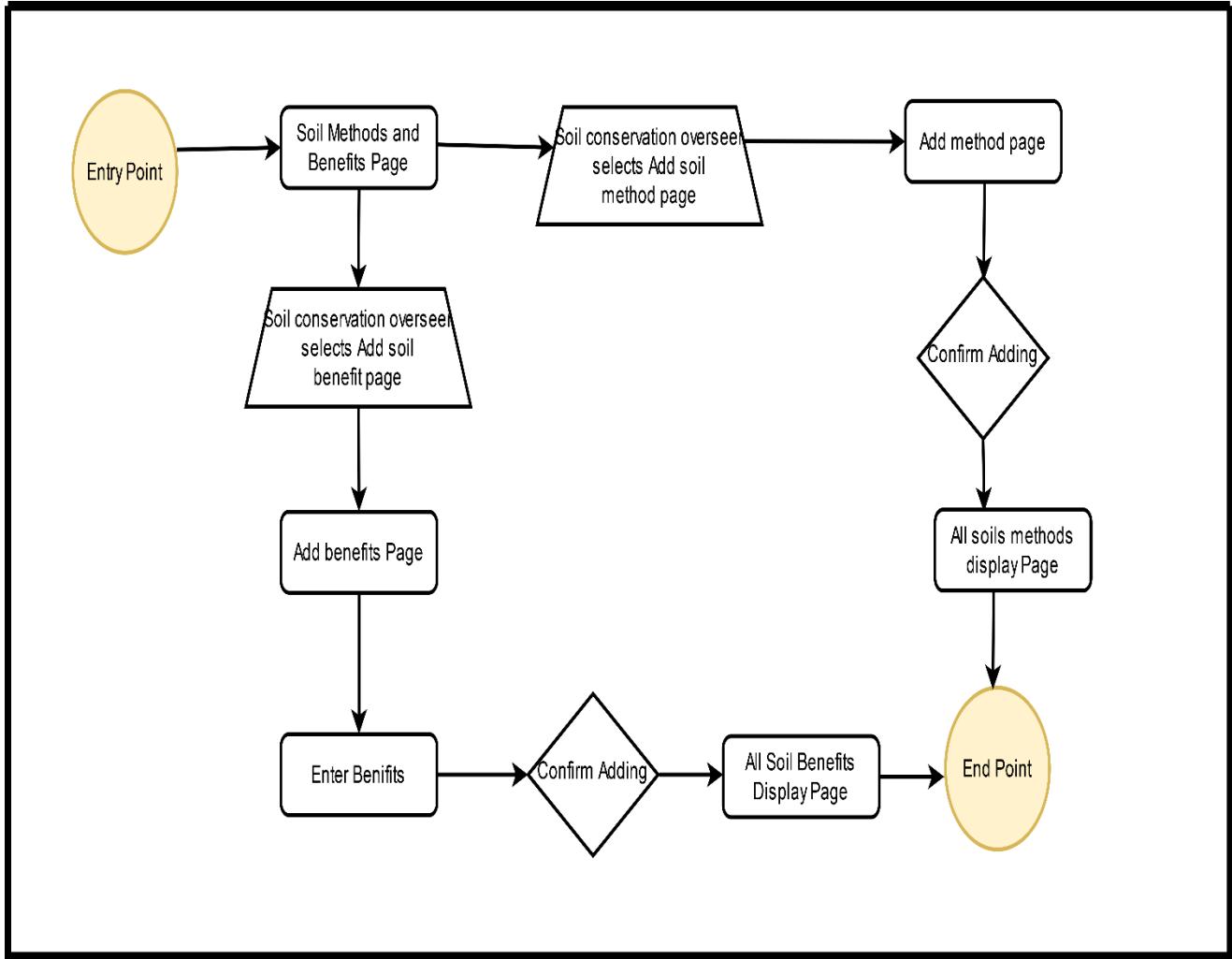


Figure 12-IT20136710.User Flow

4.5 Service Blueprint(s) – 01 Service Blueprint from a group

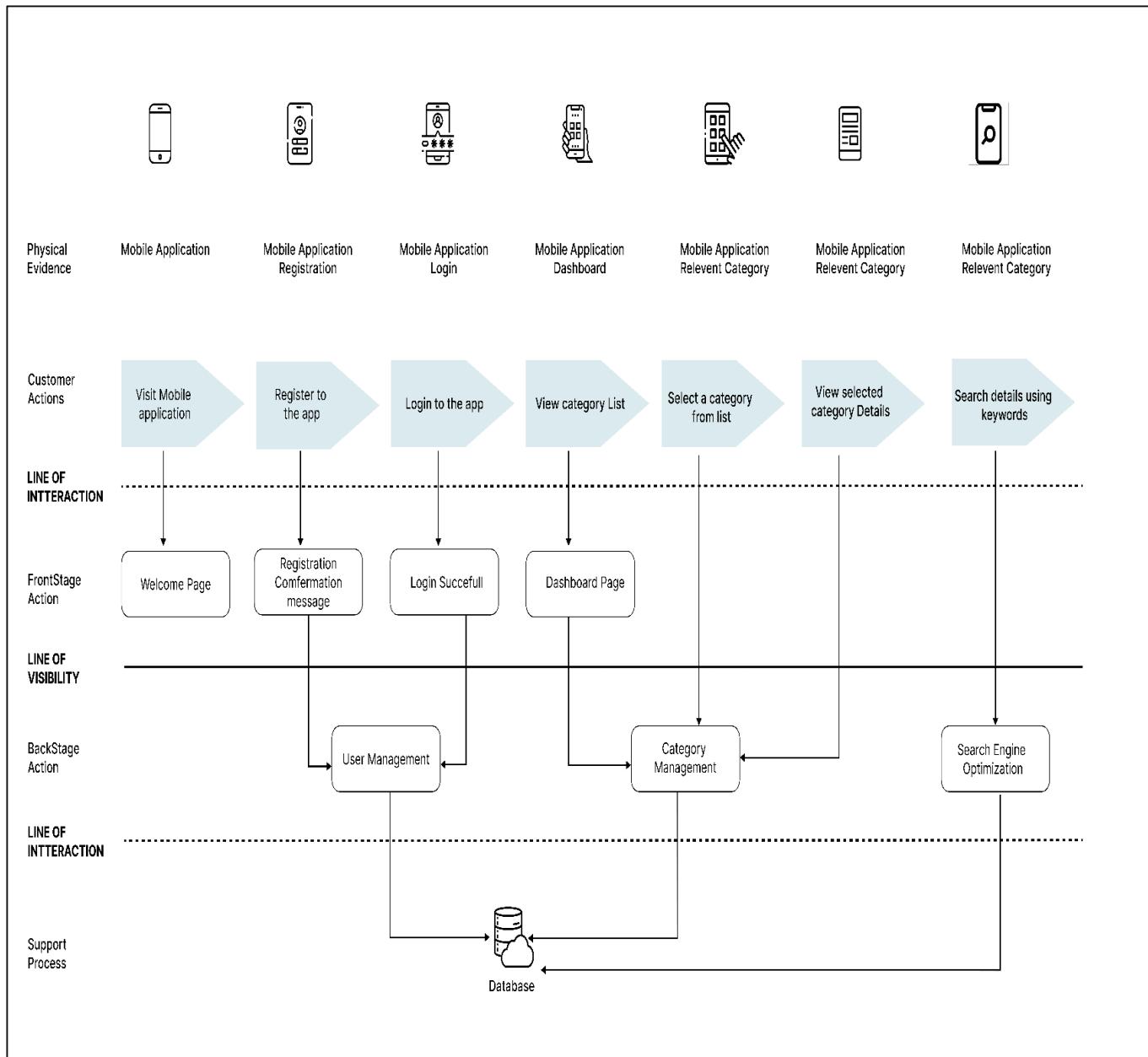


Figure 13-User Side Service blue print

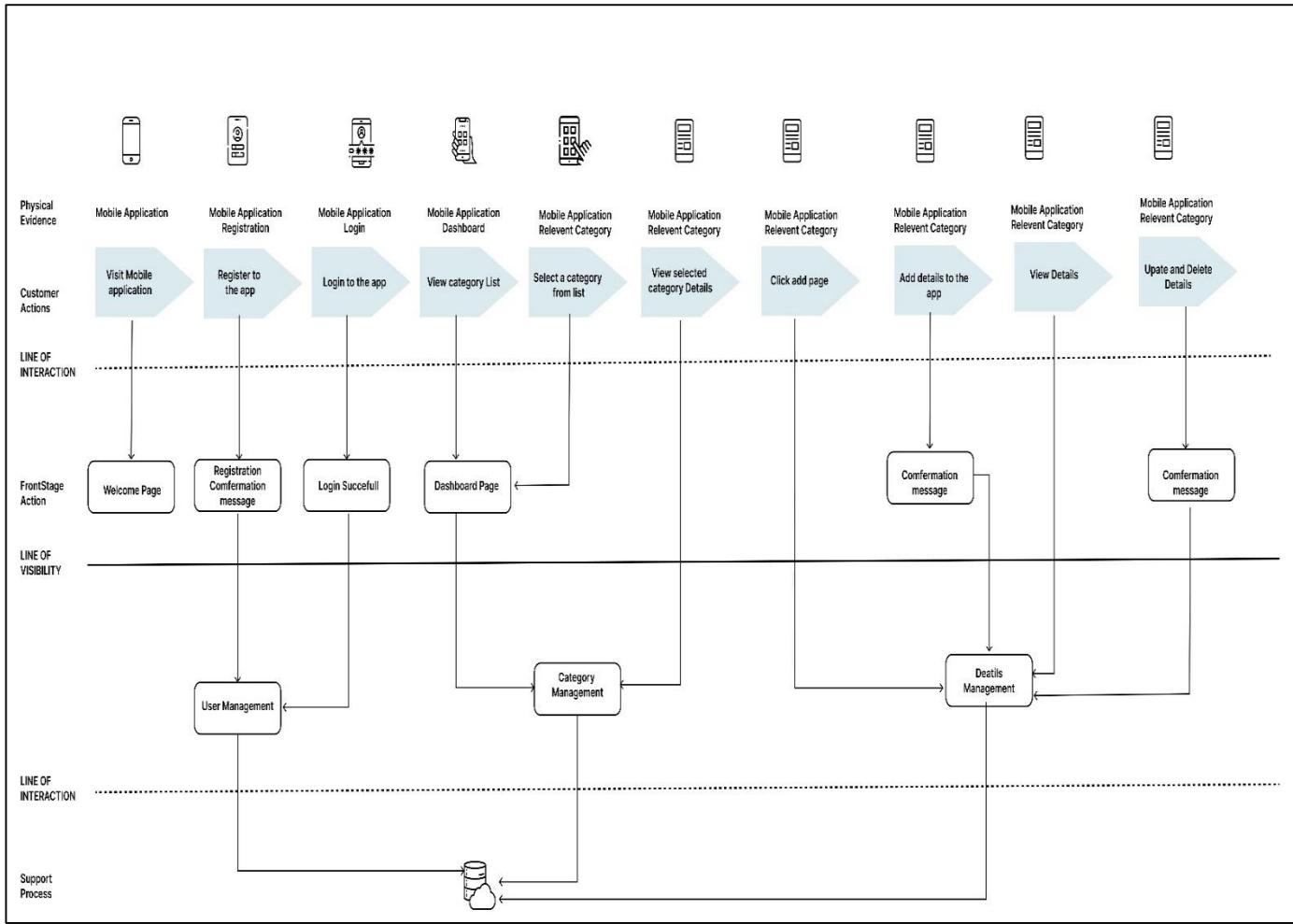


Figure 14-Admin Side service blue print

5 Milestone 2: Plan and conduct user research

5.1 IT 20125066

Goal

People in Sri Lanka are having such a difficult time due to the country's current economic disaster. To improve the relationship between the cost of living and the economy, actions can be implemented to direct people to organic crop cultivation seasons without toxins and to educate people about the success of organic crop cultivation. This is done to direct cultivation and clarify people's attitudes toward organic cultivation, as well as their current knowledge and specific demands.

The goal of the research is understood how people's opinion towards organic farming and their common knowledge about it. Also, I wanted to know are they afraid to use organic farming instead of chemicals and what is their reason for that.

Methodology

In order to get a better understanding of the ongoing project, we have prepared two methods to gather user research data from people who are related to agriculture and other non-related people. We have conducted four interviews with four people who are in the persona. Also, we have prepared a Questioner to share with other people directly related to and non-related to farming to get more user research data for the project.

Interview

- Based on the information I provided in milestone 1, online interviewing of a suitable person was done here.
- Accordingly, the interview was conducted through an organic farming trainer.
- The interviews were recorded for further reference.
- To ensure that all aspects of the test objectives have been covered, a questionnaire was prepared before the interview.
- The questions that were asked in the interview directly focused on-point and simple

Questioner

A questionnaire was shared, which included mostly questions with quantitative answers so that it was easier to analyze the data.

- The questionnaire was designed using google Forms within a one section.
- My questions are directly focusing on organic farming and tips functions.
- The questionnaire was shared using social media to get valuable responses.

Questionnaire

Questionnaire link :-

<https://forms.gle/1wb36DD4AYDTyRtZA>

Questions and Purpose of the questions

1. What is your opinion about organic farming?

This question is to understand the user's knowledge about organic farming. As we are developing the application, we need to develop the application to understand even the users who have a lesser understanding of farming.

2. What are the positive effects of organic farming?

This question is to understand the user's knowledge about the positive effect of organic farming. Here, we can gather feedback on the user's positive knowledge of the organic farming.

3. What are the negative effects of organic farming?

This question is to understand the user's knowledge about the negative effect of organic farming. Here, we can gather feedback on the user's negative knowledge of organic about

4. How do you plan to control weeds while you farming?

The following question is to gather data on how to affect weeds in the framing and control the weeds.

5. In Sri Lanka, almost everyone uses chemical fertilizers. Do you think Sri Lankan farmers are interested in using organic methods?

The following question is to gather data on how Sri Lankans think about organic farming and how much knowledge they have about organic farming methods.

How should the questionnaire be distributed and the data collection process

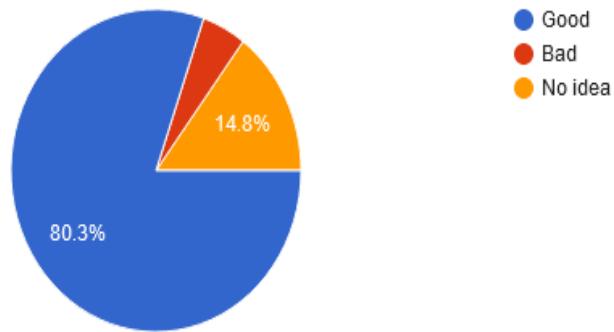
- The questionnaire is planned to be distributed online since it was created using the google form
- The main method was distributed through WhatsApp groups and friends
- Also, other social media platforms such as Facebook and Instagram are used to share the questionnaire.

Questions with user feedback details

What is your opinion about organic farming?

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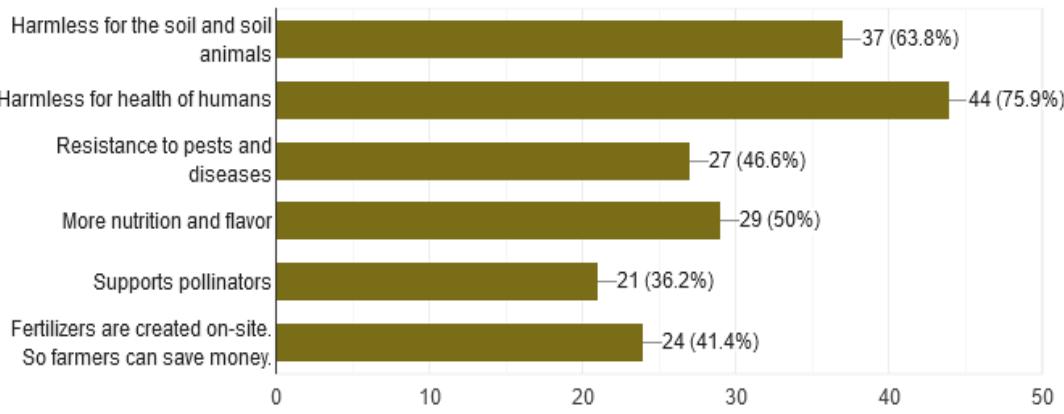
60 responses



What are the positive effects of organic farming?

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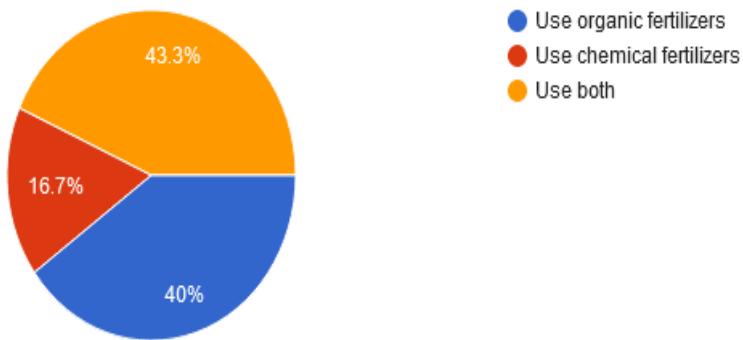
58 responses



How do you plan to control weeds while you farming?

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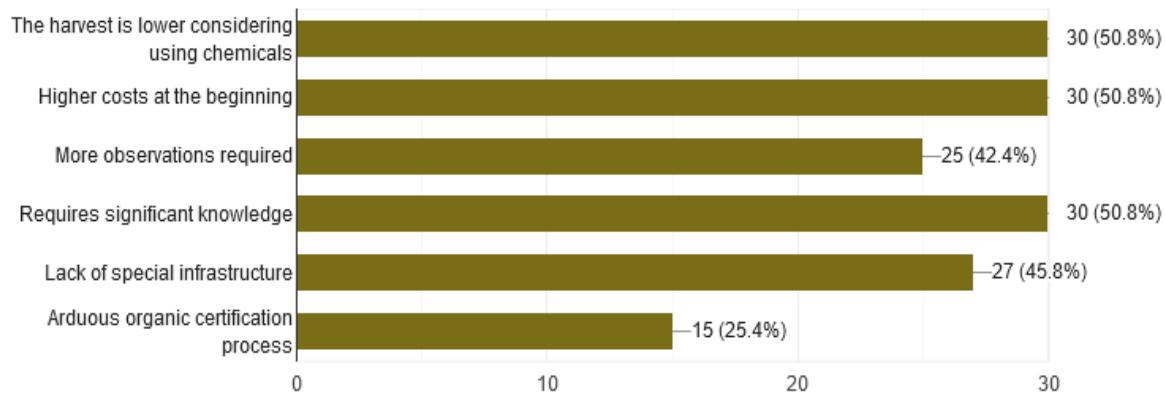
60 responses



What are the negative effects of organic farming?

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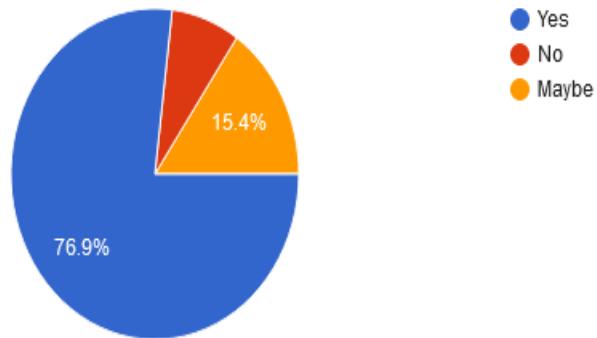
59 responses



In Sri Lanka, almost everyone uses chemical fertilizers. Do you think Sri Lankan farmers are interested to use organic methods?

 Copy

13 responses



Interviewing

Interview 01

Interviewer :- Mr. Udara Gamage

Conduct by :- A.P.M. Chandrasena (IT20125066)

LINK

<https://drive.google.com/drive/folders/1Ra3fhaOmUi6Q50aGrNzHwgB9xi9oKAd6?usp=sharing>

Procedure for the interview

- The interview was conducted as a physical interview.
- The Interview was conducted from Kiribathgoda. So, I went from her place and conducted this interview as physical.
- I have prepared some questions before the interview because I won't miss any details.
- Also, I have informed the interviewer about our project and the application that we hope to develop before the interview, so he won't confuse.
- The interview was recorded as a video for future purposes after asking his permission to do so.

Questions that we have prepared for the interview

1. Hello, Madam, good morning, and welcome to the interview
2. Ok, can you say something about yourself?
3. As the first question, I would like to ask you about what organic farming is and the profits of using it.

4. In Sri Lanka, almost everyone uses chemical fertilizers. Do you think Sri Lankan farmers are interested in using organic methods?
5. It is such a good answer, I think. What is your thought about using chemical fertilizers?
6. Can you tell us how much effect you put on your work daily?
7. Can you show us some pictures or video of the organic farms that you visited?
8. Thank you, sir, for sharing your knowledge with us and allocating valuable time for this interview.

Have a good day Madam.!!

Participant Profiles

Name	Demography	Location & Date
Udara Gmage	<ul style="list-style-type: none"> 1. An Organic farming trainer 2. An unmarried young officer 3. Have organic farming 4. Engaging in research about organic farming 	Physical Interview 25 th September 2022

Goal

The research is done with the ambition of gathering data from people who are related to farming and non-related. To complete the goal, we have prepared a questionnaire as a group, and I have personally interviewed a person how planned to start a farm as a part time work.

The goal of the questionnaire is to get a brief idea about the percentage of people who have the experience on farming and who haven't. Also, I wanted to know each of the person's knowledge of about farming so I can understand the overall idea about the Sri Lankans knowledge level about farming and soil. I wanted to get an overall idea about why people are farming for and do they only care about that purpose.

The goal of the Interview was how the people who are planning to start a farm and what kind of attitude they have toward farming. Also, I wanted to know their goals and their motivations toward their plan. Not only motivations but also frustrations toward his plan.

Methodology

In order to get a better understanding about the ongoing project we have prepared two methods to gather user research data from people who are related to agriculture and other non-related people. We have conducted four interviews with four people who are in the persona. Also, we have prepared a Questioner to share with other people who are directly related and non-related for the farming to get more user research data for the project.

Interview

- 4 people who are in the persona were interviewed online covering all the functionalities of the application.
- The 4 people are an organic farming trainer, a part time farmer, a Soil conservation overseer and a Commonalty User (Gardner).
- Each interview was conducted by each member of the team.
- The interviews were recorded for further reference.
- In order to make sure that all aspects of the test objectives were covered a questioner was prepared before the interview.
- The questions that were asked in the interview directly focus on-point and simple.

Questioner

A questionnaire was distributed which included mostly questions with quantitative answers so that it was easier to analyze the data.

- The questioner was designed using google form with a one section.
- It contained questions that are directly focus on each of our functions.
- The questioner was shared using social media to get user reference.

Questionnaire & Response

Questionnaire link :-:

<https://forms.gle/1wb36DD4AYDTyRtZA>

My Questions

1. What is your knowledge level about Farming & soil?

This question is to understand the user's knowledge about the farming and soil. As we are developing the application, we need to develop the application to understand even the users how have the lesser understanding about farming and soil.

2. Do you have any experience on farming?

We needed to understand how experienced and unexperienced people answer to the questioner and what kind of thing they expect from the application.

3. If you are farming or plan to farm, which of the following reason you are doing it for?

The question is to understand purpose of how each person is doing or plan to do the farming.

4. If you already have a farm about how much is your farm spread?

The question is to know that have large their farm.

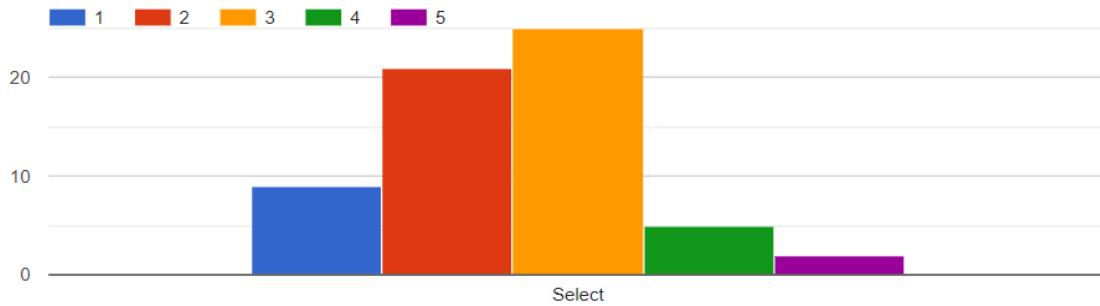
5. What means do you use to get the agronomic and soil knowledge you need to farm?

This question is to get to know that what kind of means do they get knowledge about farming and what are the efficient ways

Response to my Questions

What is your knowledge level about Farming & soil?

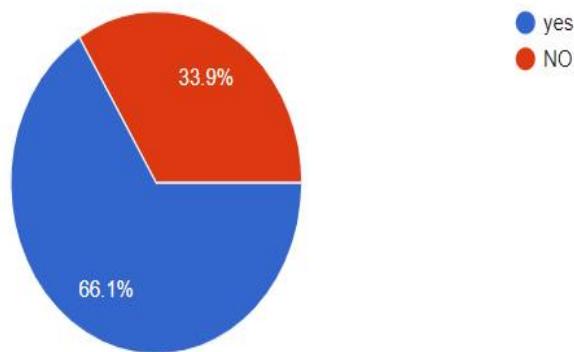
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Do you have any experience on farming?

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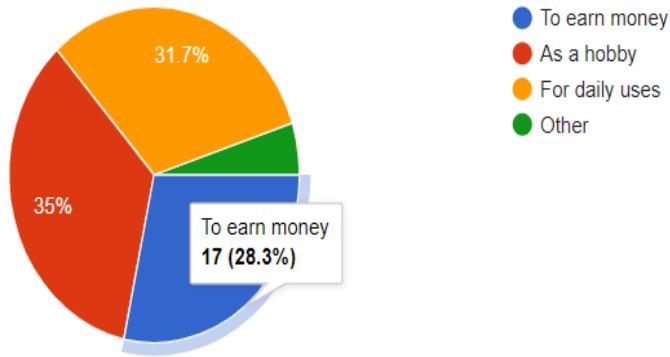
62 responses



 Copy

If you are farming or plan to farm, which of the following reason you are doing it for?

60 responses

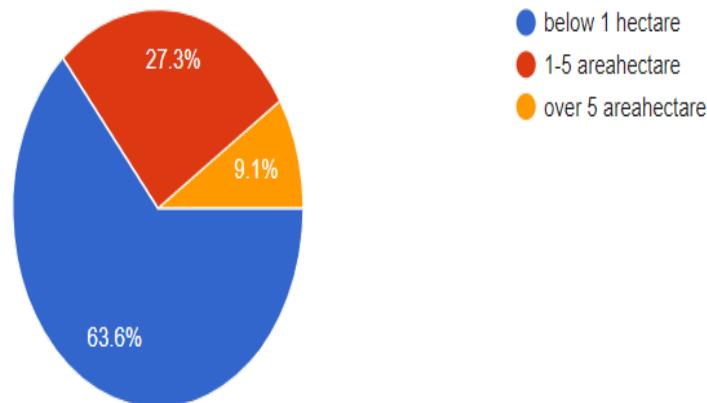


- To earn money
- As a hobby
- For daily uses
- Other

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If you already have a farm about how much is your farm spread?

11 responses

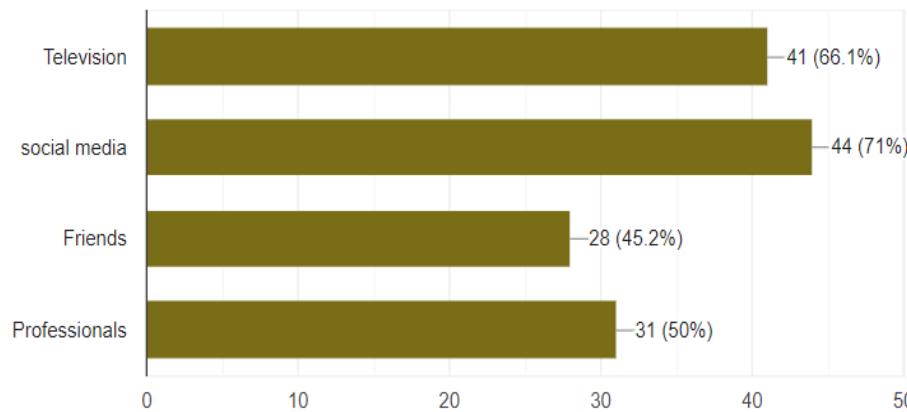


- below 1 hectare
- 1-5 areahectare
- over 5 areahectare

 Copy

What means do you use to get the agronomic and soil knowledge you need to farm?

62 responses



How the questionnaire should be distributed and data collection process

- The questionnaire was planned to be distributed online since it was created using google form
- The main method was distributed through WhatsApp groups and friends
- Also, other social media platforms such as Facebook and Instagram are used share the questionnaire.

Interview

Interviewer :- Mrs. Dilini Amanda

Link -:

<https://drive.google.com/drive/folders/1woSrfZInHe9bls4TEUPk1BQ7OdScelb2?usp=sharing>

Name	Demography	Location & Date
U_0002	<ol style="list-style-type: none">1. An accountant2. A part time famer3. Plan to build a farmer in garden4. A married young woman5. Unexperienced on farming	Physically 26 th September 2022

Procedure of the interview

- The interview was conducted physically.
- The Interviewer was in Monaragala, and she has a busy schedule.
- I have prepared some questions before the interview because I won't miss any details.
- Also, I have informed the interviewer about our project and the application that we hope to develop before the interview, so he won't confuse.
- The interview was recorded for future purposes after asking his permission to do so.

Interview sample questions

1. Hello madam, good morning and welcome to the interview
2. First, can you tell your name.

3. Ok madam, can you say something about yourself?
4. Do you have any experience about farming or gardening?
5. Are you interesting to start a farm?
6. What do you plan to archive from your farm?
7. what will you plan to do with your harvest? will you sell them?
8. Ok, then what will you do the extra vegetables?
9. Earlier you mention that you hope to do the farm just organic materials. What is the purpose of that?
10. How do you plan to get information about farming?
11. what will be your frustrations about the plan to build a farm?
12. what do you think about an application which consist of details about the soil each area in Sri Lanka and organic methods?
13. Ok madam, thank you for spending your valuable time for this interview. Hope you will be able to build a good farm soon and have a nice day.

5.3 IT 20258030

Goal

The main goal here is to engage in agricultural activities in an environmentally friendly manner without damaging the soil. Through that, according to my persona, the main targets are commonalty users who are engaged in daily gardening and planting. According to that, my goal is to find out whether they have enough knowledge about those actions through things like how to care for house plants, environmentally friendly gardening skills like soil conservation, and whether they already follow them or not. And to provide the information they need to get proper knowledge for those things.

Methodology

In order to get a better understanding of the ongoing project, we have prepared two methods to gather user research data from people who are related to agriculture and other non-related people. We have conducted four interviews with four people who are in the persona. Also, we have prepared a Questioner to share with other people directly related to and non-related to farming to get more user research data for the project.

Interview

- Based on the information I provided in milestone 1, online interviewing of a suitable person was done here.
- Accordingly, the interview was conducted through an organic farming trainer.
- The interviews were recorded for further reference.
- To ensure that all aspects of the test objectives have been covered, a questionnaire was prepared before the interview.
- The questions that were asked in the interview directly focused on-point and simple.

Questioner

A questionnaire was distributed, which included mostly questions with quantitative answers so that it was easier to analyze the data.

- The questionnaire was designed using google Forms with one section.
- It contained questions that are directly focused on organic farming and tips functions.
- The questionnaire was shared using social media to get valuable references.

Questionnaire

Questionnaire link :-

<https://forms.gle/1wb36DD4AYDTyRtZA>

Questions and Purpose of the questions

6. Do you think farmers or gardeners must think more about the land above the profit or harvest?

Through this question we mainly hope to know to what extent people give priority to environmental friendliness.

7. Do you engage in gardening?

What we wanted to know about this question was to get a rough understanding of the percentage about people are currently engaged in gardening.

8. If so, under which of the following reasons is it done?

Through this question, we want to get an understanding of what is the reason the people who are currently engaged in gardening are doing it through the above question.

9. Do you think a proper understanding of soil nature is essential for gardening?

Through this question, we wanted to know whether people engage in gardening with having knowledge about soil or not. And want to know that they know if it is essential for gardening or not

10. Are you concerned about the nature of the soil when you are engaged in gardening?

What is needed to be known through this question is whether people are concerned about the nature of the soil and its various forms when engaged in gardening or not.

How should the questionnaire be distributed and the data collection process

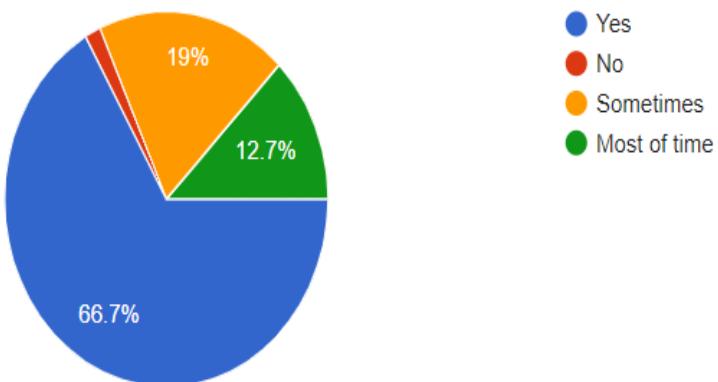
- The questionnaire is planned to be distributed online since it was created using the google form
- The main method was distributed through WhatsApp groups and friends
- Also, other social media platforms such as Facebook and Instagram are used to share the questionnaire.

Questions with user research feed back details

Do you think farmers or gardeners must think more about the land above the profit or harvest?

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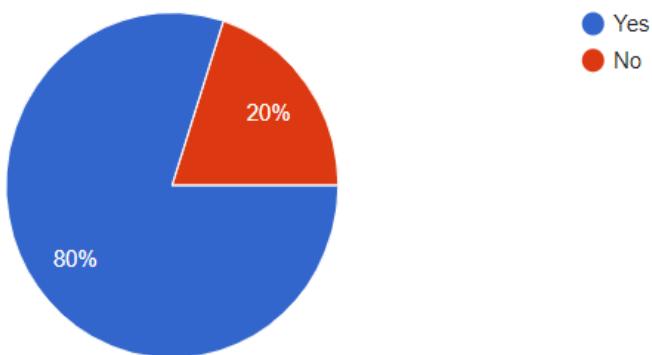
63 responses



Do you engage in gardening?

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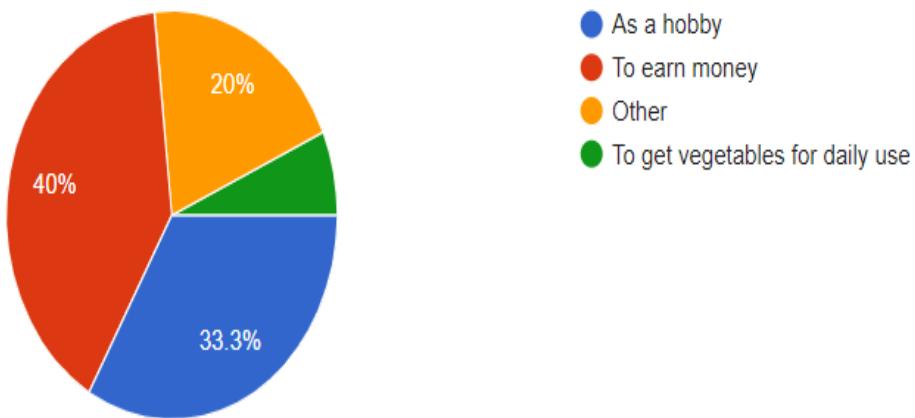
15 responses



If so, under which of the following reasons is it done?

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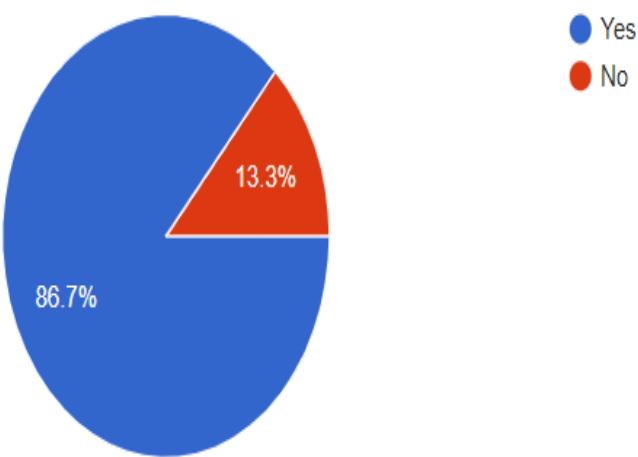
15 responses



Do you think a proper understanding of soil nature is essential for gardening?

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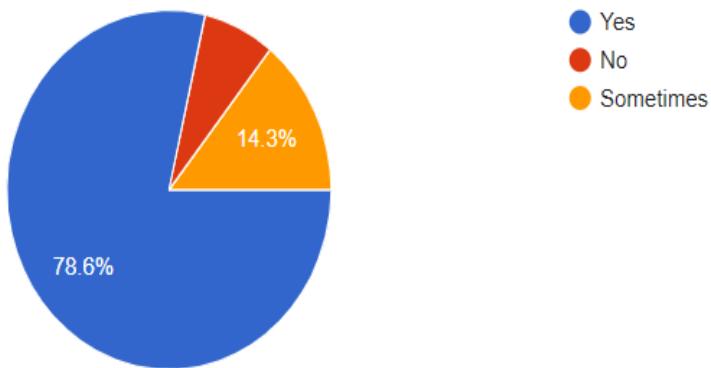
15 responses



Are you concerned about the nature of the soil when you are engaged in gardening?

 Copy

14 responses



Procedure for the interview

- The interview was conducted using Microsoft team's application.
- The Interviewer from Anuradhapura , But currently she in her university boarding place . So I am not able to contact her physically now. So, we conduct the interview through online.
- I have prepared some questions before the interview because I won't miss any details.
- Also, I have given a brief idea to the interviewer about our project and the application that we hope to develop before the interview, so she won't confuse. And during the interview also I am going to explain further more.
- The interview was recorded for future purposes after asking her permission to do so.

Interviewing

Interview 01

Interviewer :- Ms. Nipuni Senanayake

Conduct by :- Gunawardhana H.P.M.N

LINK

<https://drive.google.com/file/d/1yxCcznUbUiXe5zvXEPBv9swul-1nBdTC/view?usp=sharing>

Questions that we have prepared for the interview

9. Hello, Nipuni Good Afternoon
10. Gave an introduction and thanked for having with us.
11. First can I know do you engage in gardening?
12. Can I know why you are into gardening?
13. Do you think it is necessary to have a knowledge while doing gardening?
14. So I want to know if you who are engaged in gardening are doing it with the right knowledge and by using environmentally friendly strategies?
15. Are you concerned about soil moisture and related conditions while gardening?
16. Have you faced any problems while engaged in gardening?

17. Can I know what are those problems?
18. Do you use online resources to find solutions for them?

19. Explain the relevant process of application to her using my user flow.
20. Do you think it would help you if there was an app that included solutions to these problems, tips, and tricks on how to do agriculture and gardening in an environmentally friendly way, the nature of the soil, and soil conservation methods?
21. Thank you nipuni for your valuable information. And Have a nice day.

Participant Profiles

Name	Demography	Location & Date
Nipuni Senanayake	5. University Student 6. Who already doing gardening 7. Young lady who is love nature 8. Following a degree related to agriculture field .	Microsoft Teams 25 th September 2022

5.4 IT20136710

Goal

Life on land is extraordinary. Our magnificent ecosystems allow us all to eat, breathe and live. It's not just humans who live on land. All humans, animals, and quadrupeds live on land. Before everyone else, we should think about the earth we live in. But with minimal knowledge about soil conservation, we are slowly killing our planet and its inhabitants.

Indeed, there are people with knowledge about soil conservation in the society. Accordingly, those people have experience. Accordingly, my goal is to learn about a person with such experience and knowledge, ask them that information and spread that information among the people through this app. The purpose of this app is to find out information about soil conservation and the difficulties they face and solve those problems through this app. Accordingly, the goal is to increase people's knowledge for soil conservation and restoration. The purpose of this is to determine what results should be given to the people by analyzing the knowledge of the people about soil conservation. Then, we can stop the damage and loss caused by not conserving the soil.

Methodology

In order to get a better understanding about the ongoing project we have prepared two methods to gather user research data from people who are related to agriculture and other non-related people. We have conducted four interviews with four people who are in the persona. Also, we have prepared a Questioner to share with other people who are directly related and non-related for the farming to get more user research data for the project.

Interview

- 4 people who are in the persona were interviewed online covering all the functionalities of the application.
- The 4 people are an organic farming trainer, a part time farmer, a Soil conservation overseer and a Commonalty User (Gardner).
- Each interview was conducted by each member of the team.
- The interviews were recorded for further reference.
- In order to make sure that all aspects of the test objectives were covered a questioner was prepared before the interview.
- The questions that were asked in the interview directly focus on-point and simple.

Questioner

A questionnaire was distributed which included mostly questions with quantitative answers so that it was easier to analyze the data.

- The questioner was designed using google form with a one section.
- It contained questions that directly focus on each of our functions.
- The questioner was shared using social media to get user references.

Questionnaire & Response

Questionnaire link -: <https://www.surveymonkey.com/r/GRZP8LJ>

Questions

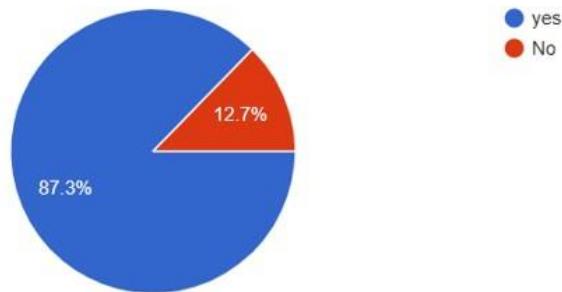
1. Do you think a proper understanding about the nature of the soil is essential for farming?
 - The main objective of this question is how much people are interested in soil while in farming. According to the responses given here, people's understanding can be analyzed.
2. If yes, what are the reasons?
 - using this question, we can analyses why people use soil knowledge for farming. Accordingly, you can get an idea of what things people pay more attention to, which should be included in this application.
3. Do you have any familiar methods in soil conservation?
 - In this question, a response can be obtained about whether people use the soil conservation method inherent in the grant or not.
4. Are you concern about soil conservation while agriculture?
 - This question aims to analyze whether people engaged in agriculture use soil conservation or not. Then, according to this app, we can know how many people can be informed about soil conservation.
5. Which of the following do you see as the most acute problem caused by poor soil conservation?
 - Due to the poor soil conservation, there are many bad results that have happened in the land. Through this, people can ask about the ones they experience the most.

Response

Do you think a proper understanding about the nature of the soil is essential for farming?

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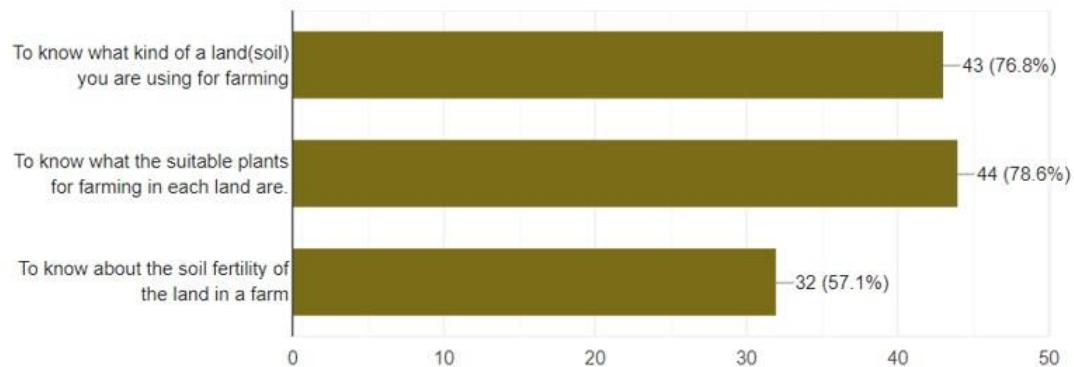
63 responses



If yes, what are the reasons?

 Copy

56 responses



Do you have any familiar methods for soil conservation?

 Copy

31 responses

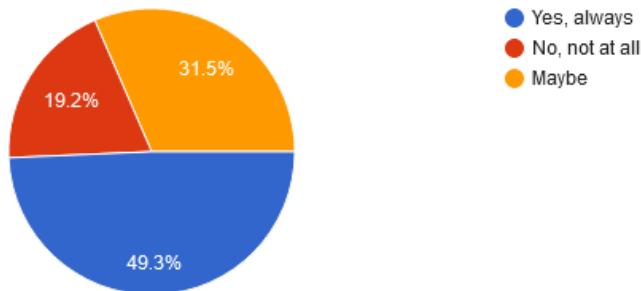


▲ 1/3 ▼

Are you concern about soil conservation while agriculture?

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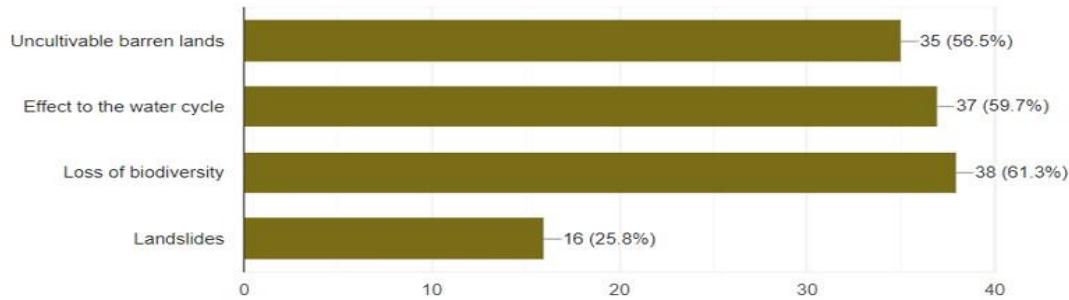
73 responses



Which of the following do you see as the most acute problem caused by poor soil conservation?

Copy

62 responses



How the questionnaire should be distributed and data collection process

- The questionnaire is planned to be distributed online since it was created using google form
- The main method was distributed through WhatsApp groups and friends
- Also, other social media platforms such as Facebook and Instagram are used share the questionnaire.

Interview

Interviewer :- Miss Nilmini Thilakarathne

Link -

Name	Demography	Location & Date
U_0004	1. A soil conservation researcher 2. Young Officer. 3. Have Better knowledge about soil conservation 4. Engaging in research about soil conservation	Physical Interview 25 th September 2022

Procedure of the interview

- The interview was conducted in physically.
- The Interviewer was in Kurunegala.
- I have prepared some questions before the interview because I won't miss any details.
- Also, I have informed the interviewer about our project and the application that we hope to develop before the interview, so he won't confuse.
- The interview was recorded for future purposes after asking his permission to do so.

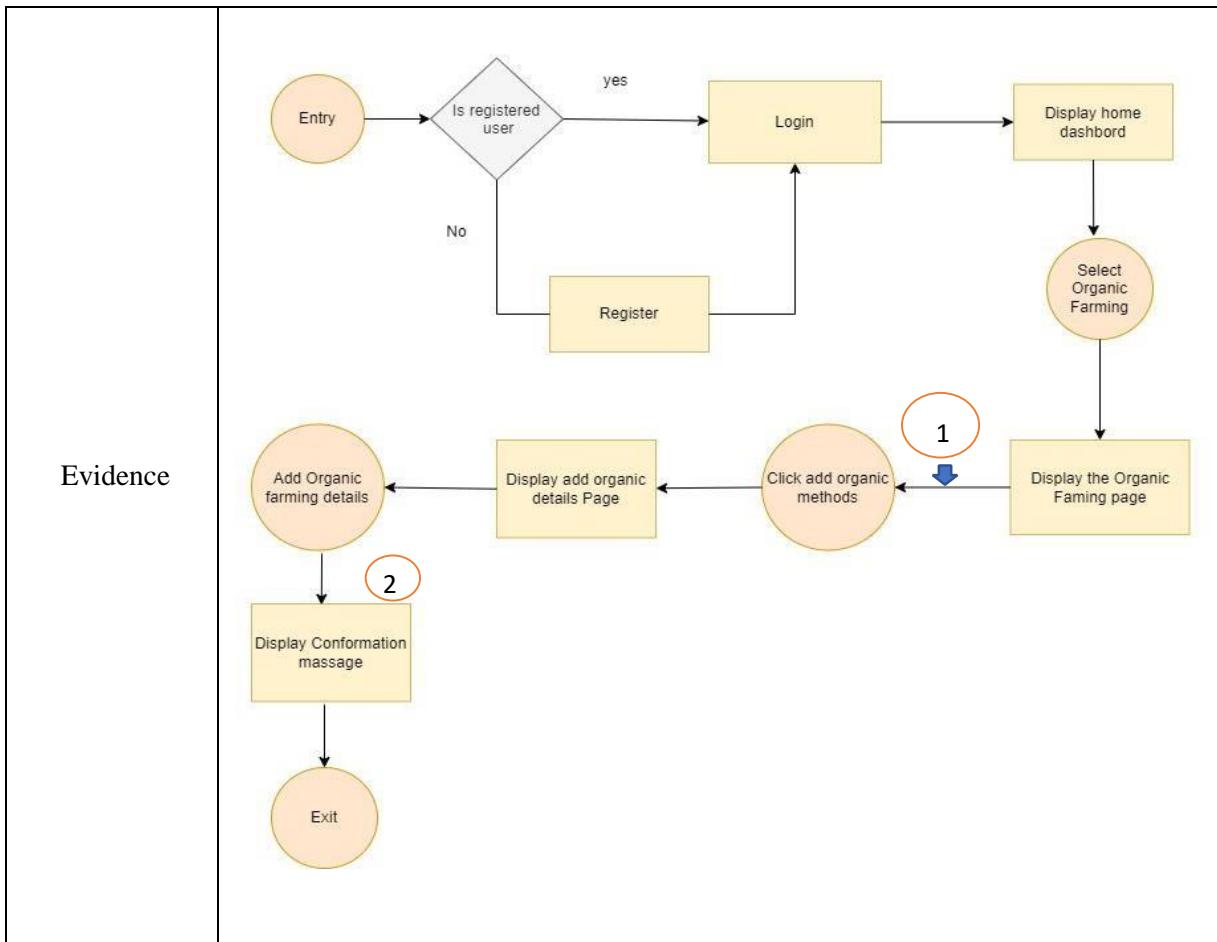
Interview sample questions

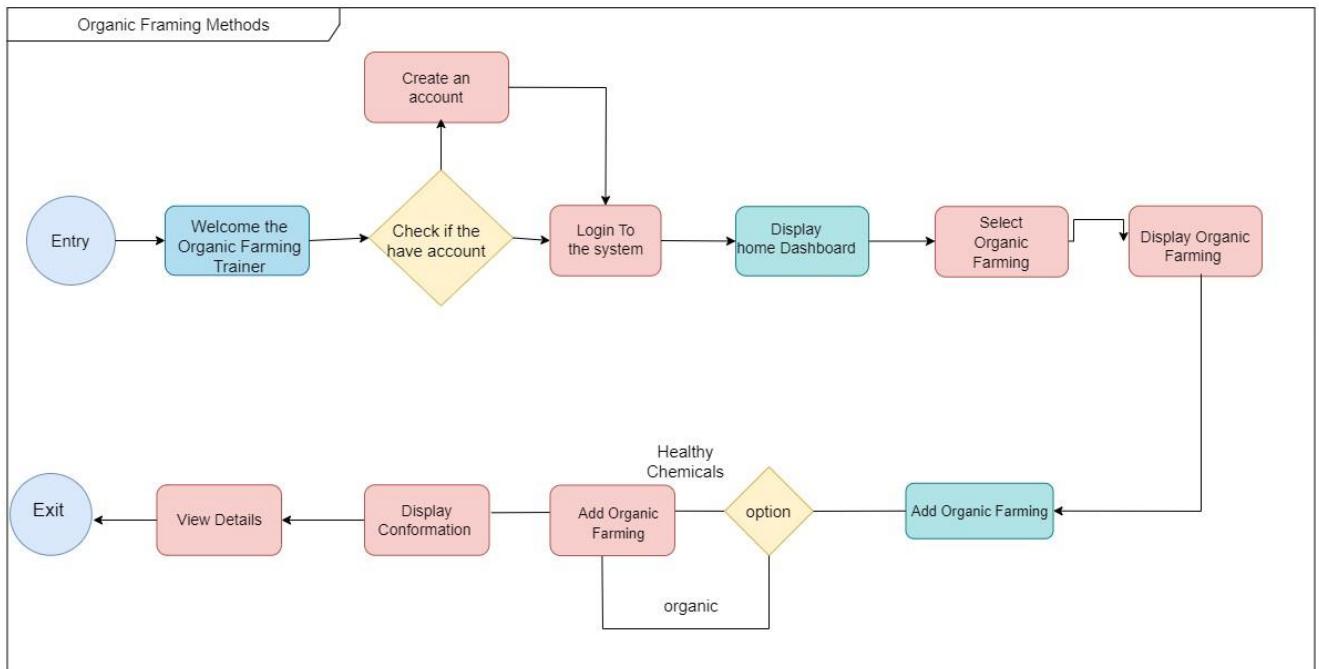
- 1) Hello Miss Nilmini, nice to talk to you.
- 2) Well, what are you think about soil conservation knowledge people have? Do you think they have enough knowledge?
- 3) What do you see as the most acute problem caused by poor soil conservation?
- 4) *So miss I need some information regarding your projects? Are you worked any projects?*
- 5) What are the most important factors to consider you when planning soil conservation projects?
- 6) Can you explain how you get feedback from peoples about your methods?
- 7) So, miss Nilmini can you explain what is the most important thing that farmers can do to protect their soil?
- 8) Which soil conservation methods are you most familiar with?
- 9) So can you please tell me what are the difficulties that you faced in this process?
- 10) Miss Nilmini, we develop app for including soil conservation, you can give suggestion for us.
- 11) Well finally thank you very much Miss joining with us and thank you for sharing your experience and kn

6 Milestone 3: Verify the key-user flow(s)

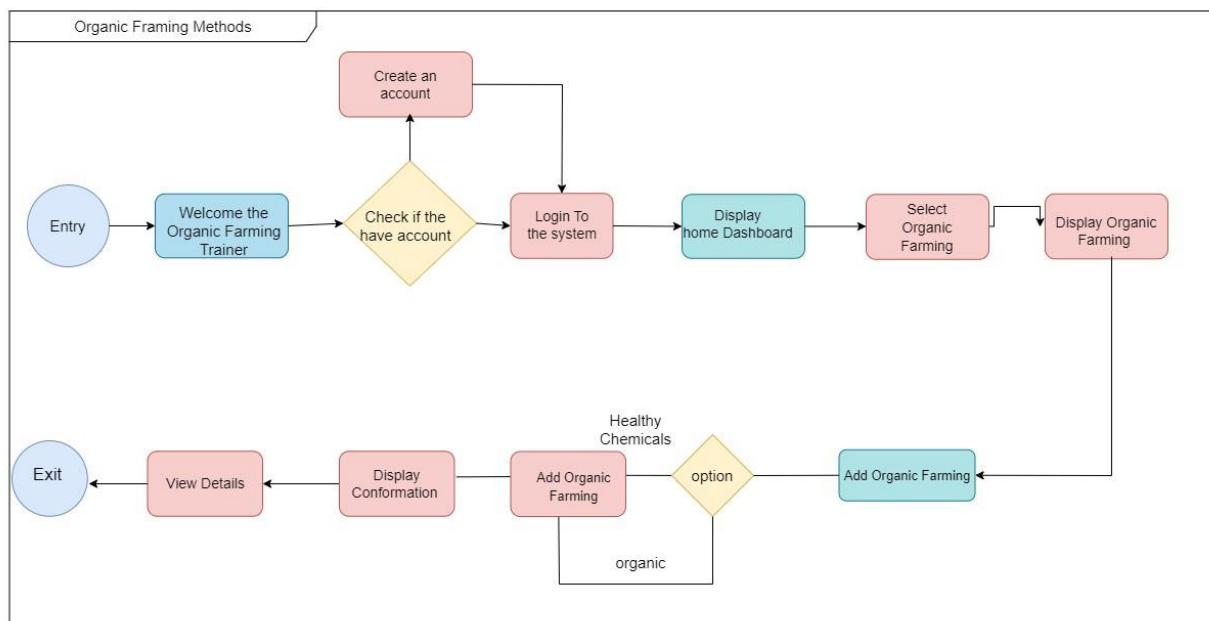
6.1 IT 20125066

	01 Fail-points/blocking
Fail-points/blocking	The organic farming instructor can be able to add the organic framing method he or he want to display adding details information page and want two option for the select organic farming and healthy range chemical fertilizer.

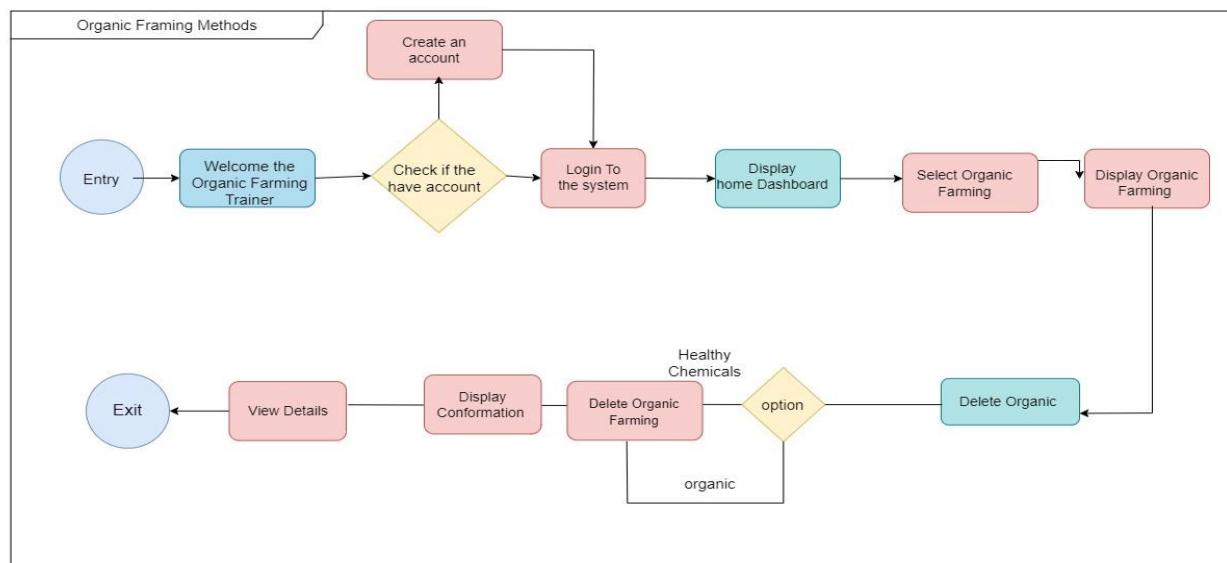


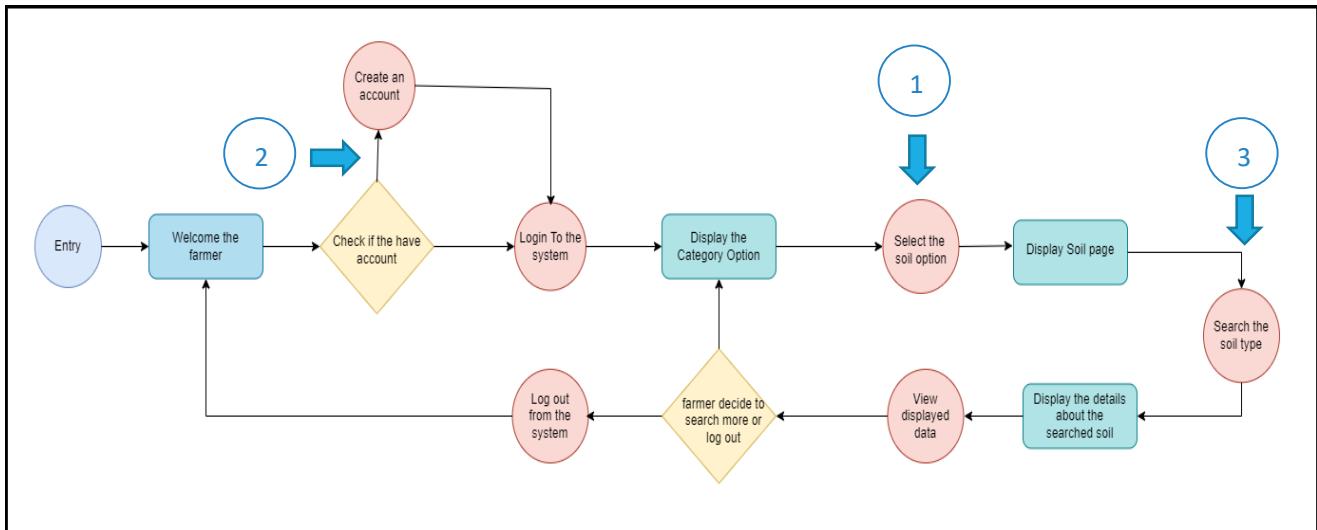


	02 Fail-points/blocking
Fail-points/blocking	The organic farming instructor wants to update the option to the given user flow show he wants to update the given details we add to the new user flow to update the given organic details.

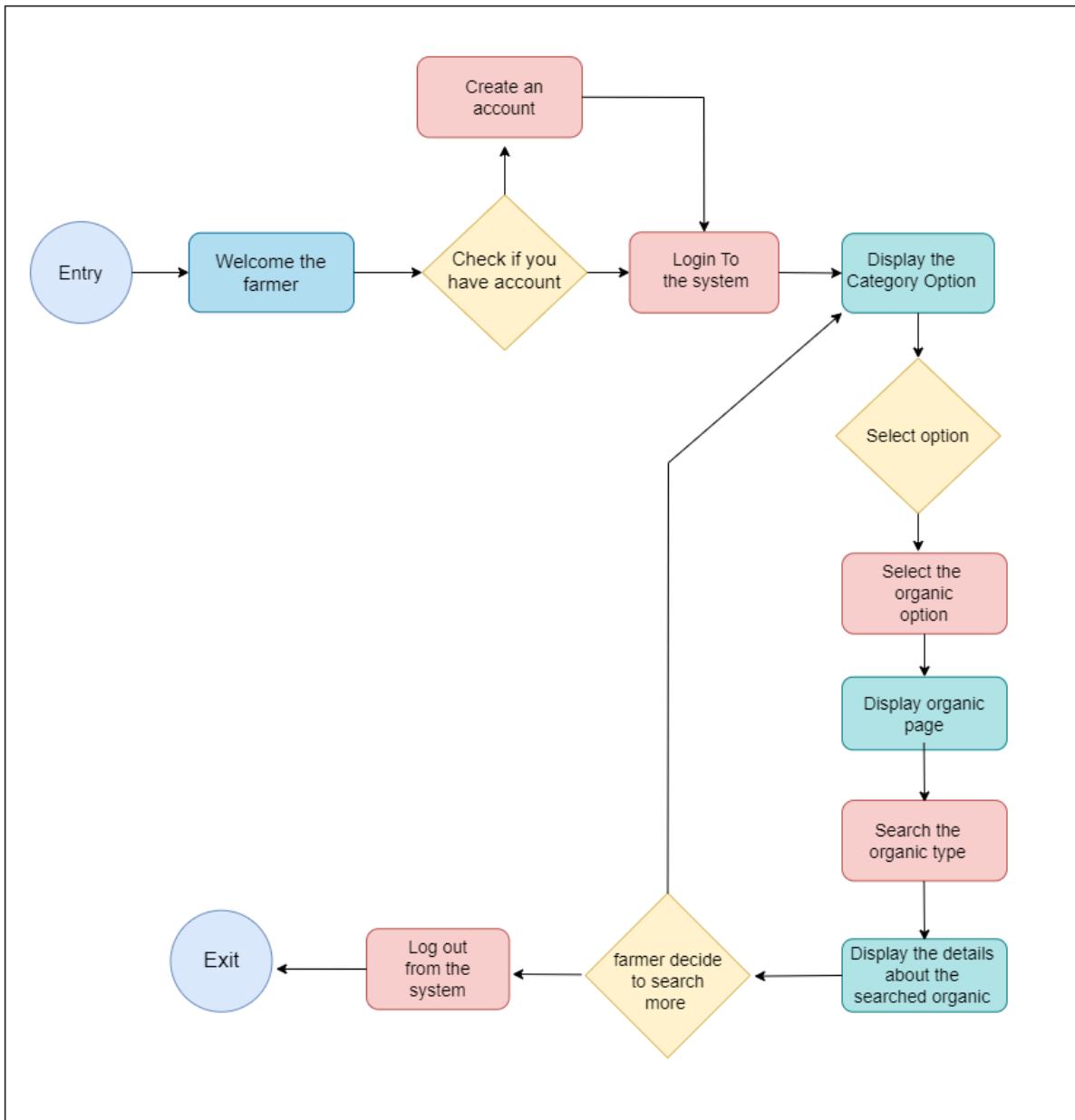


	03 Fail-points/blocking
Fail-points/blocking	The organic farming instructor wants to delete adding details then here added new user flow to delete user details



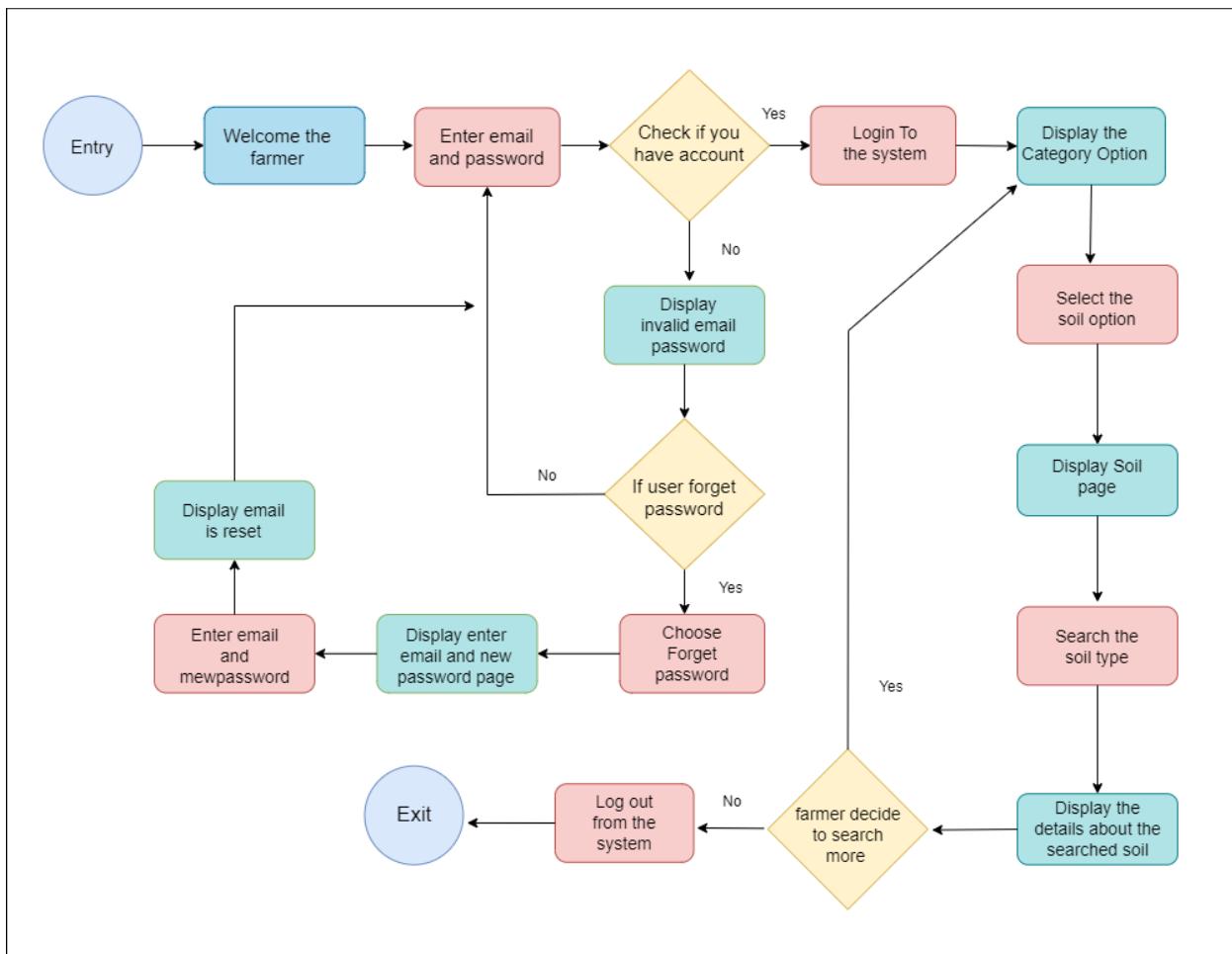
Evidence**Fail point 01**

	01 Fail-points/blocking
Fail-points/blocking	As the interviewer's thoughts he needed to know not just only know about the soil before started the farm but also, he needed to have a better knowledge about organic methods and tricks. So, I prefer to update user flow diagram how the user would search and go through organic farming method details.



Fail point 02

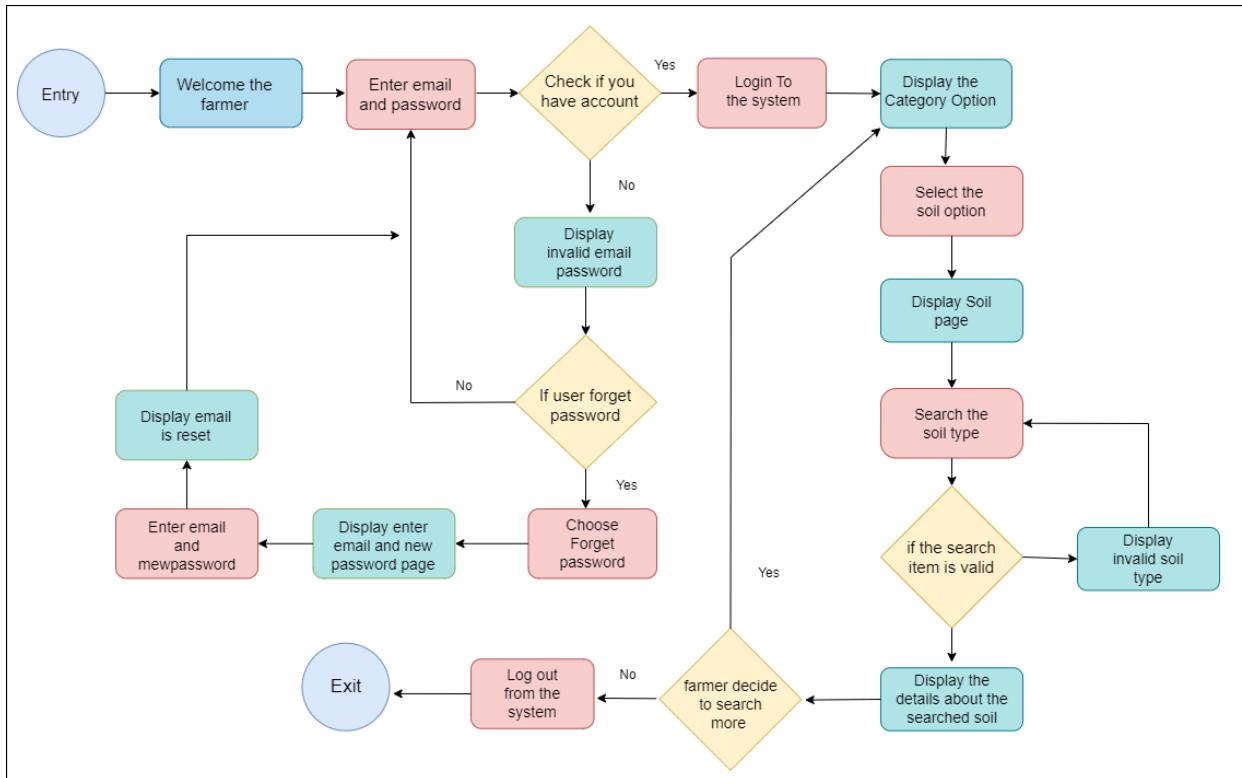
	02 Fail-points/blocking
Fail-points/blocking	As when a user wanted to reset a password, he could be able to update it or if he forgets the password, he can be able to reset it. I have updated the user flow by adding the password reset process.



Fail point 03

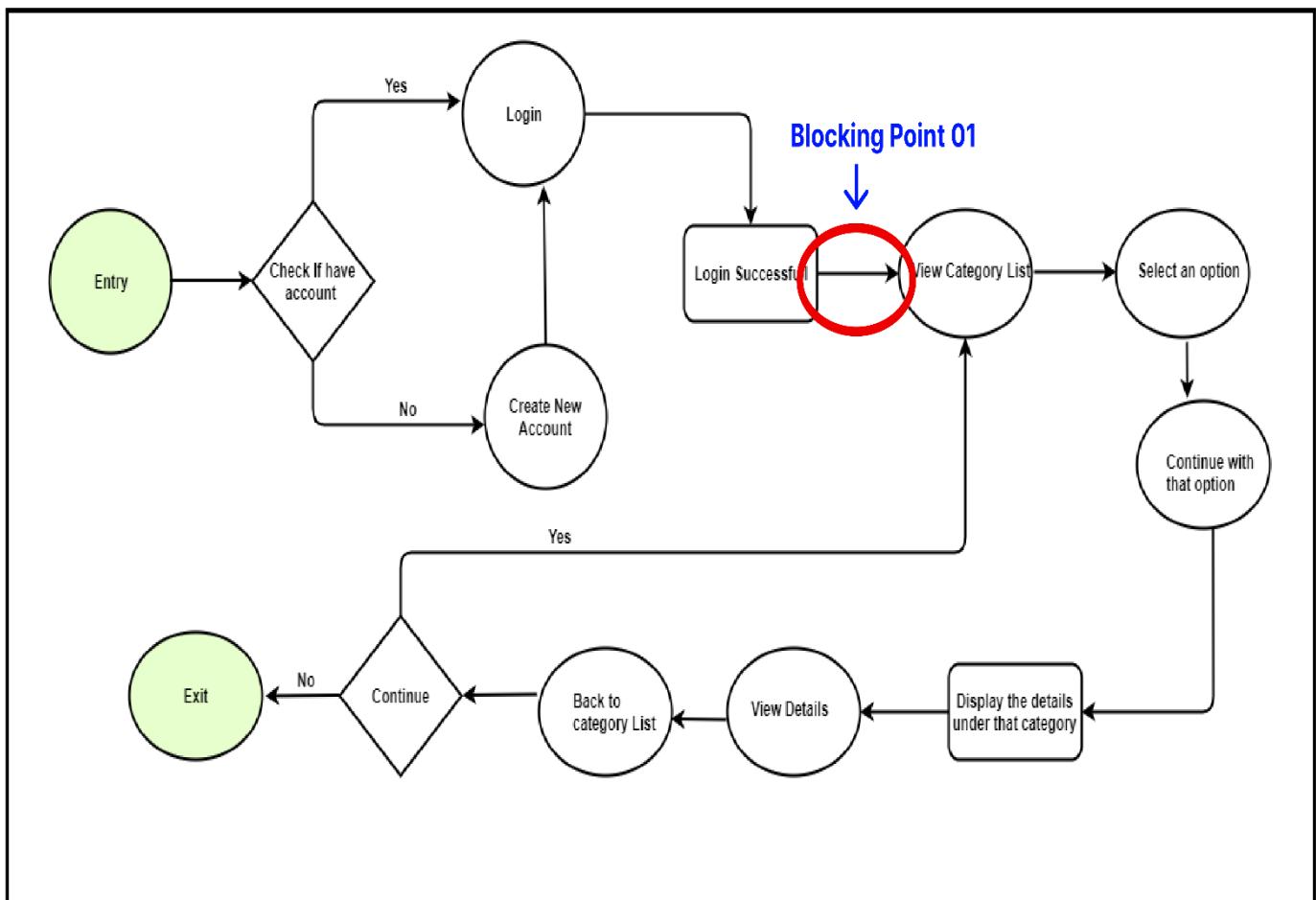
03
Fail-points/blocking

Fail-points/blocking	According to the interviewer I realize that she did not have much idea about the soil. So, it is hard to think that she exactly knows the names of soil that she wanted to know the information. So, it is not enough to think that she should search exactly a correct name without any invalid searches. Therefore, I updated the 1 st milestone user flow by adding error message.
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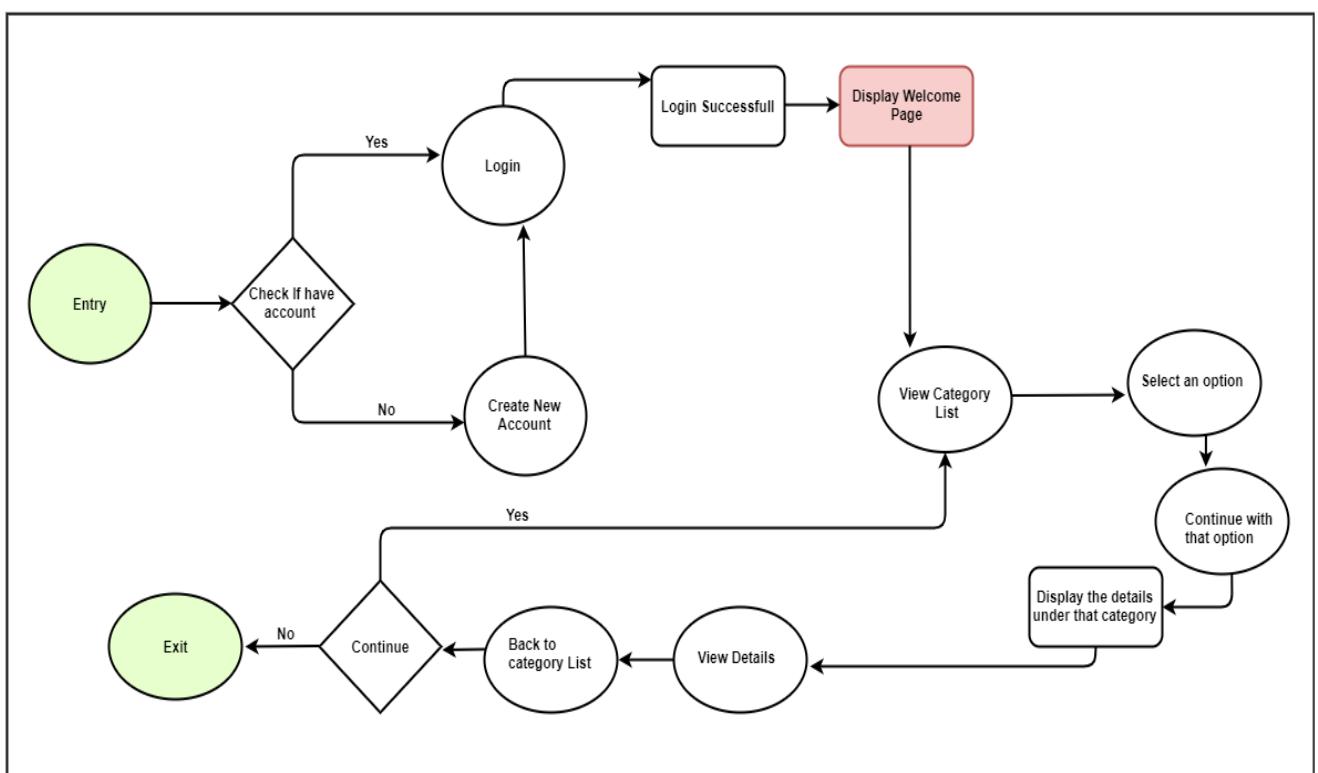


Fail Point 01

According to the persona's comments in the previous interview, as a fail point that I understood, before displaying the category list to the user, an About Us page should be included so that they can see a description page with a brief introduction about the App.

Fail Point 01 – User Flow with

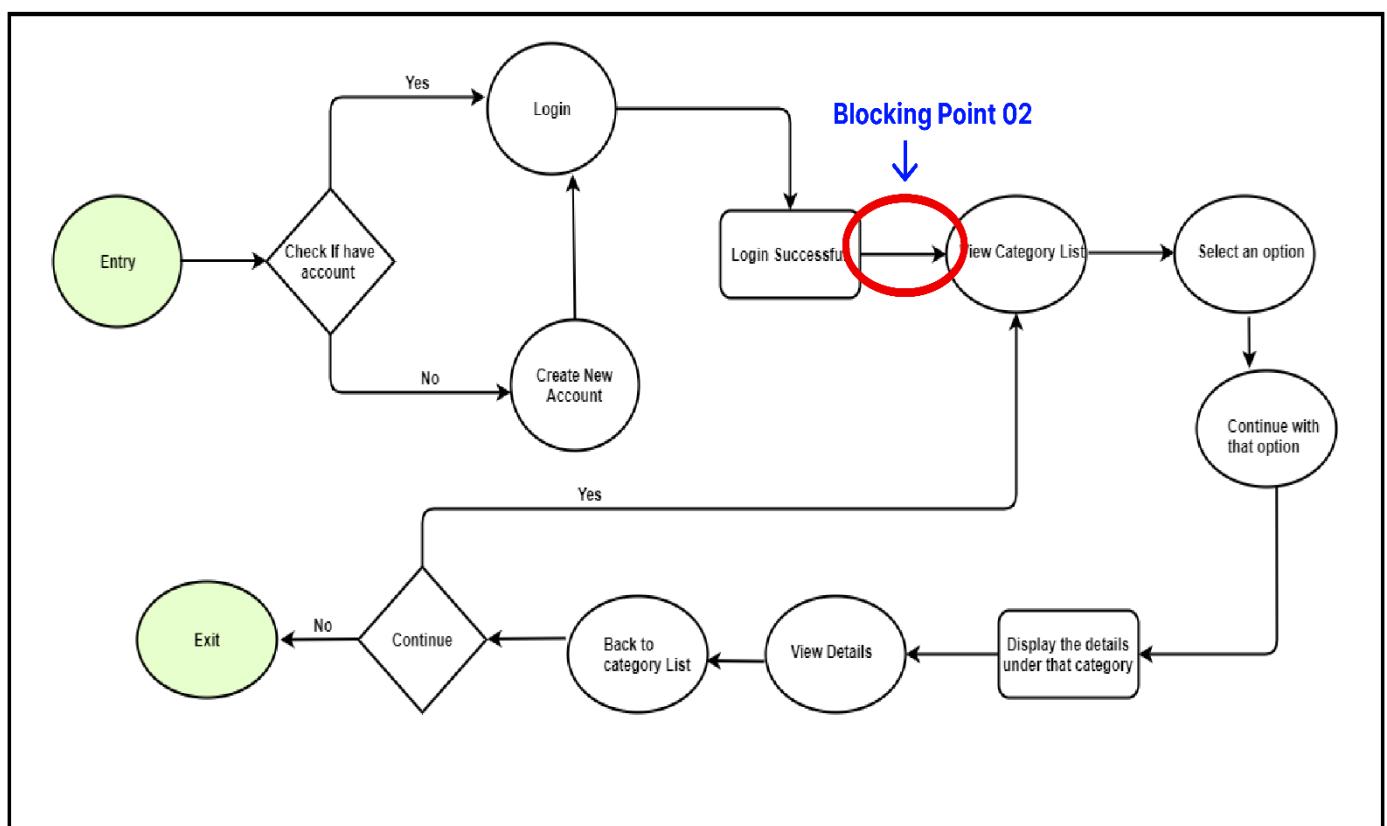
Fail Point 01 –Updated User Flow



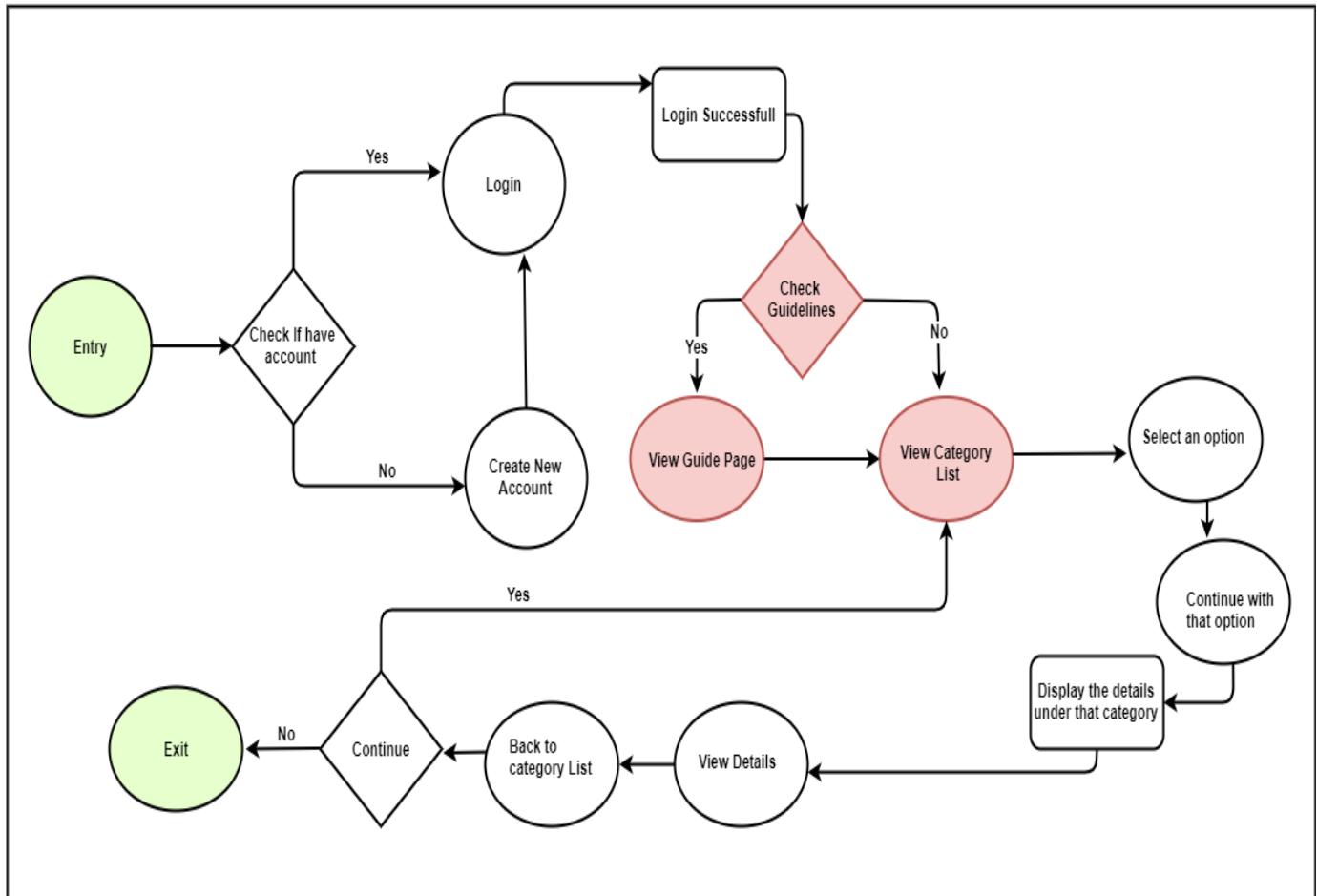
Fail Point 02

Apart from that, the other thing understood through the interview is that this can be used even by a person with technical knowledge as well as a person without technical knowledge, so the user should include a guideline page on how to use the app.

Fail Point 02 – User Flow with blocking point



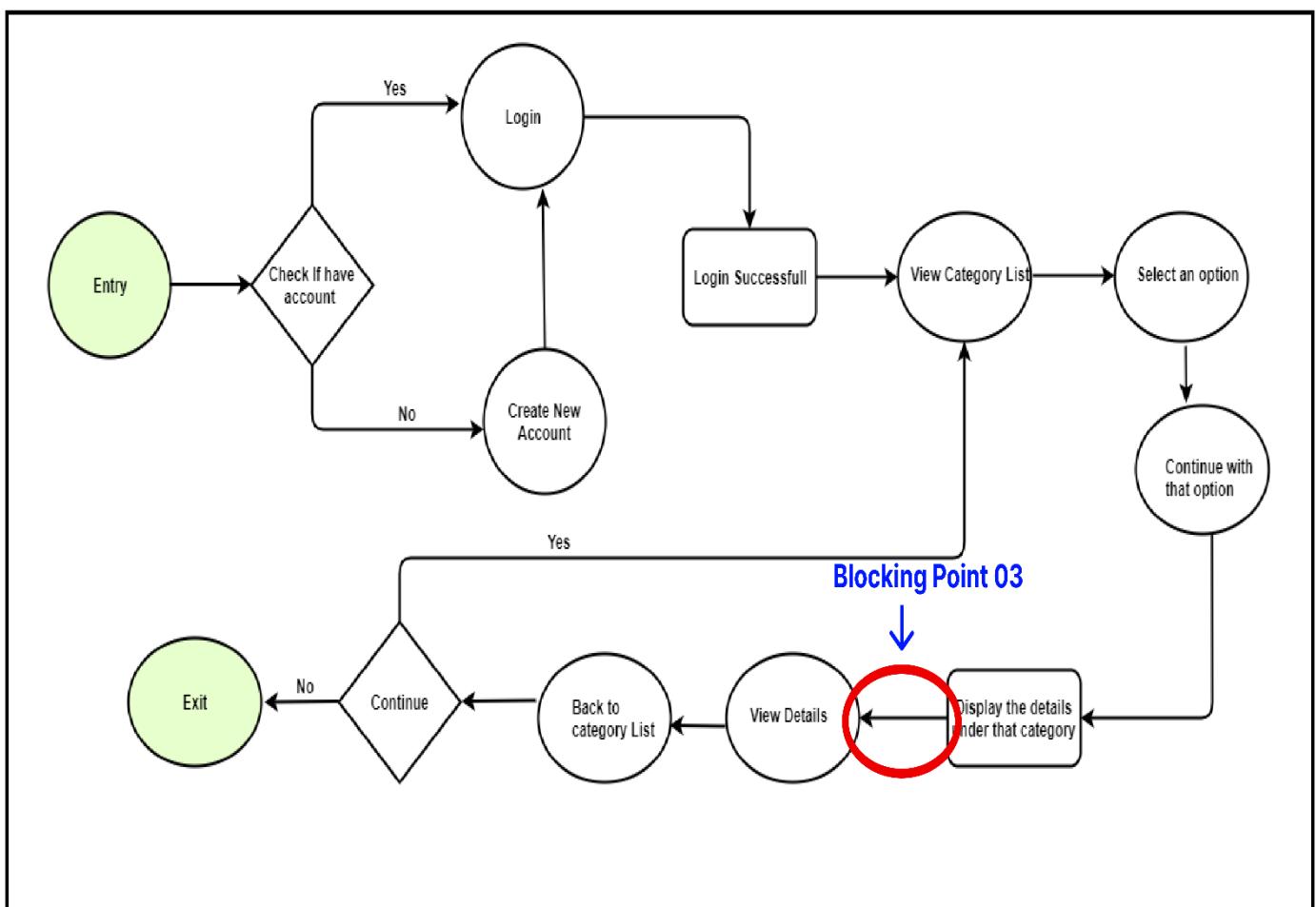
Fail Point 02 – Updated User Flow



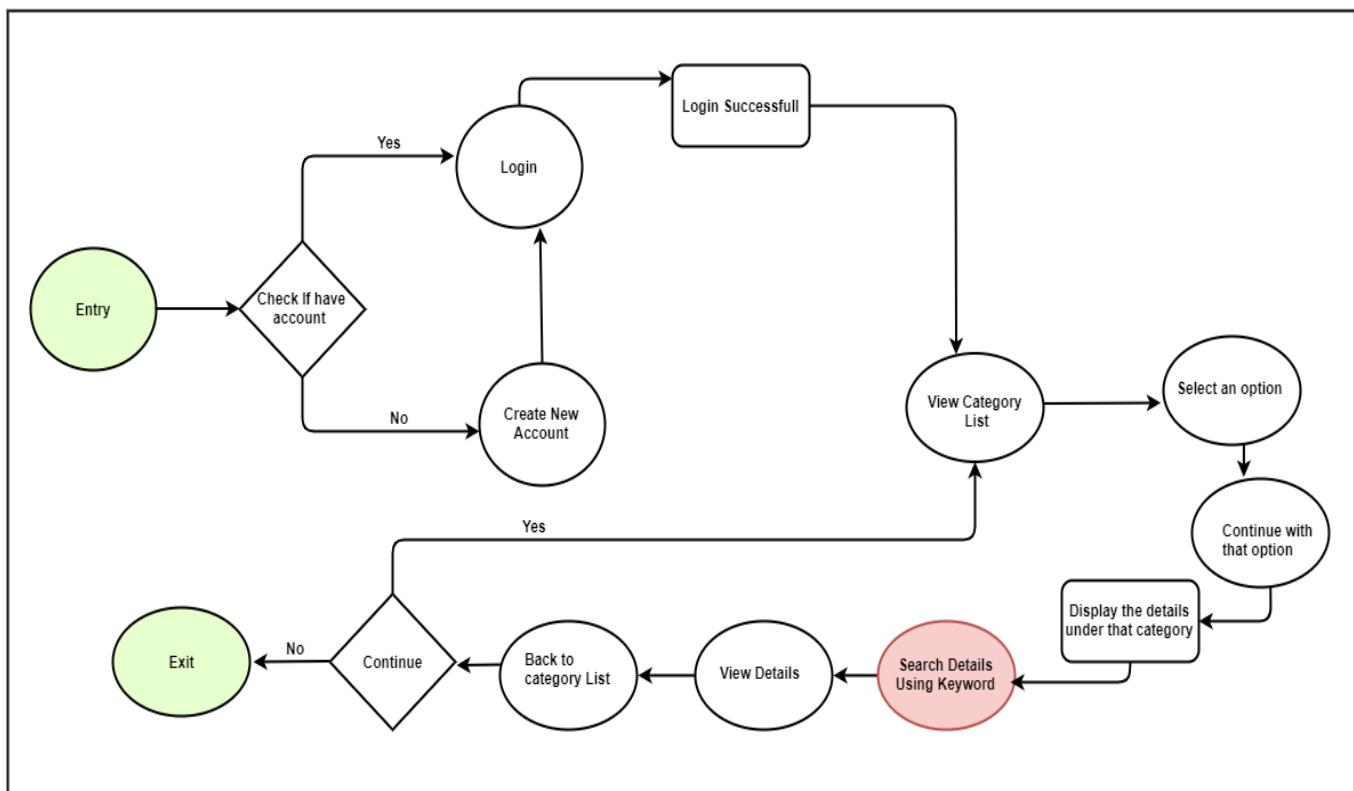
Fail Point 03

In addition to this, the other identified fail point is to display the details related to a certain category, and then instead of searching for the details one by one, insert a search box so that the information you want can be easily found with the help of a keyword.

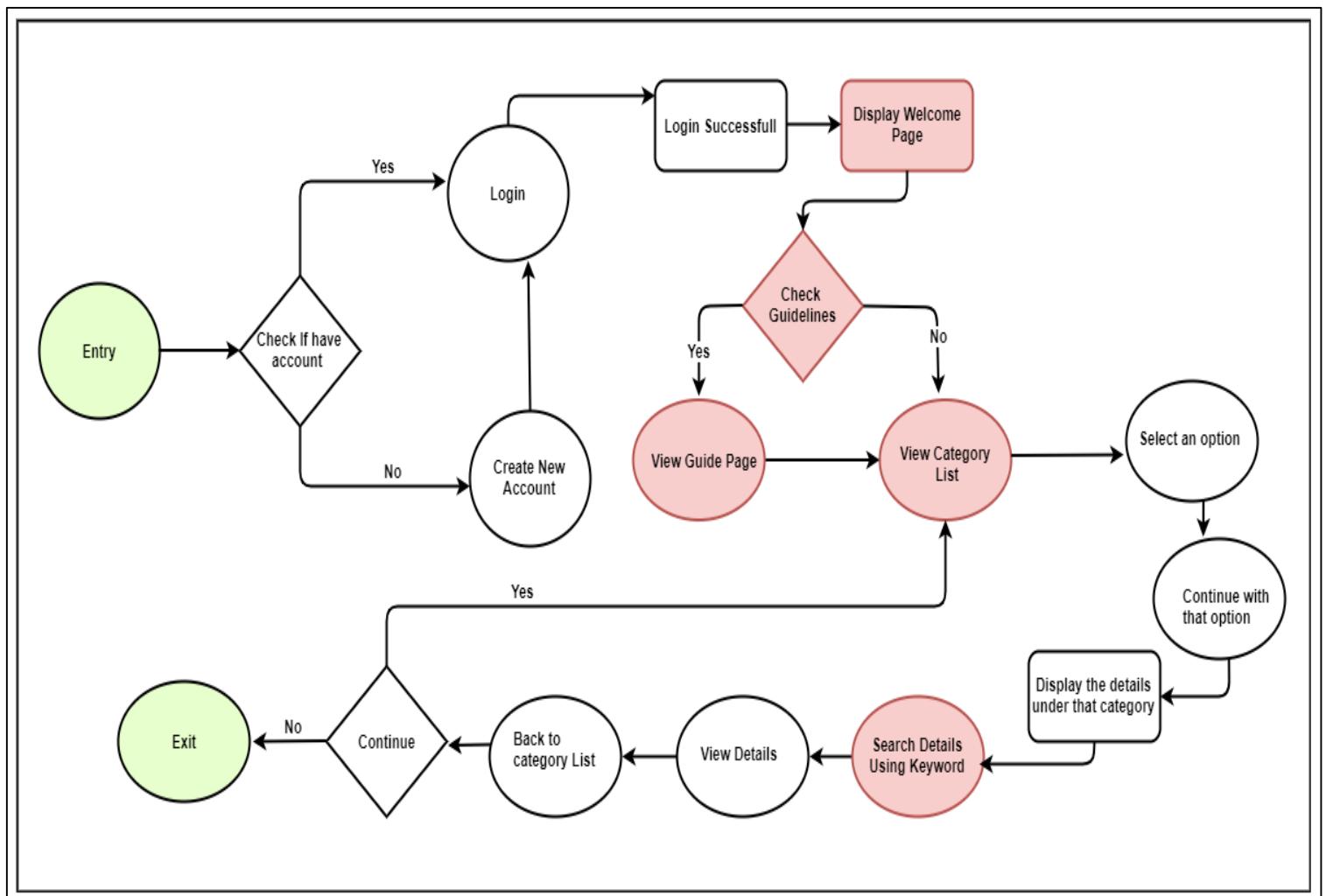
Fail Point 03 – User Flow with blocking point



Fail Point 03 – Updated User Flow



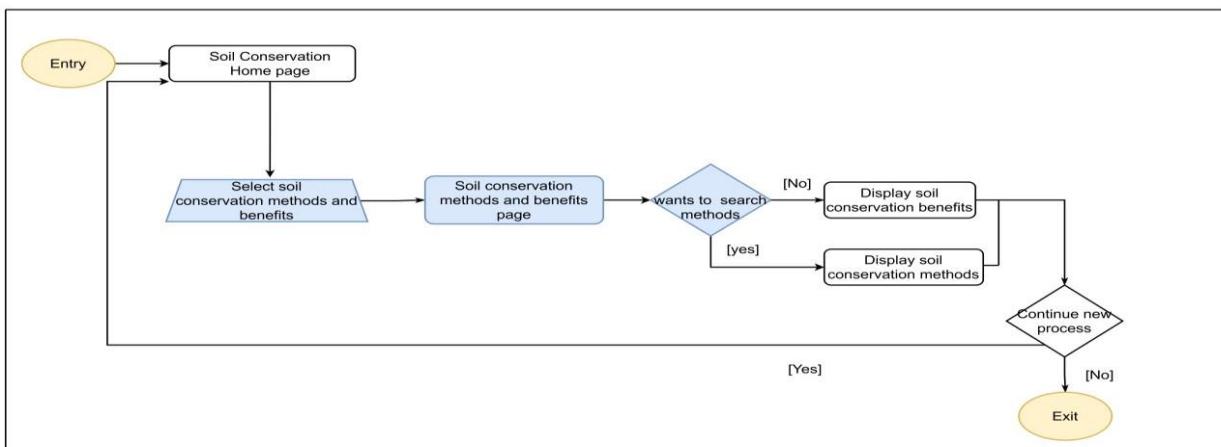
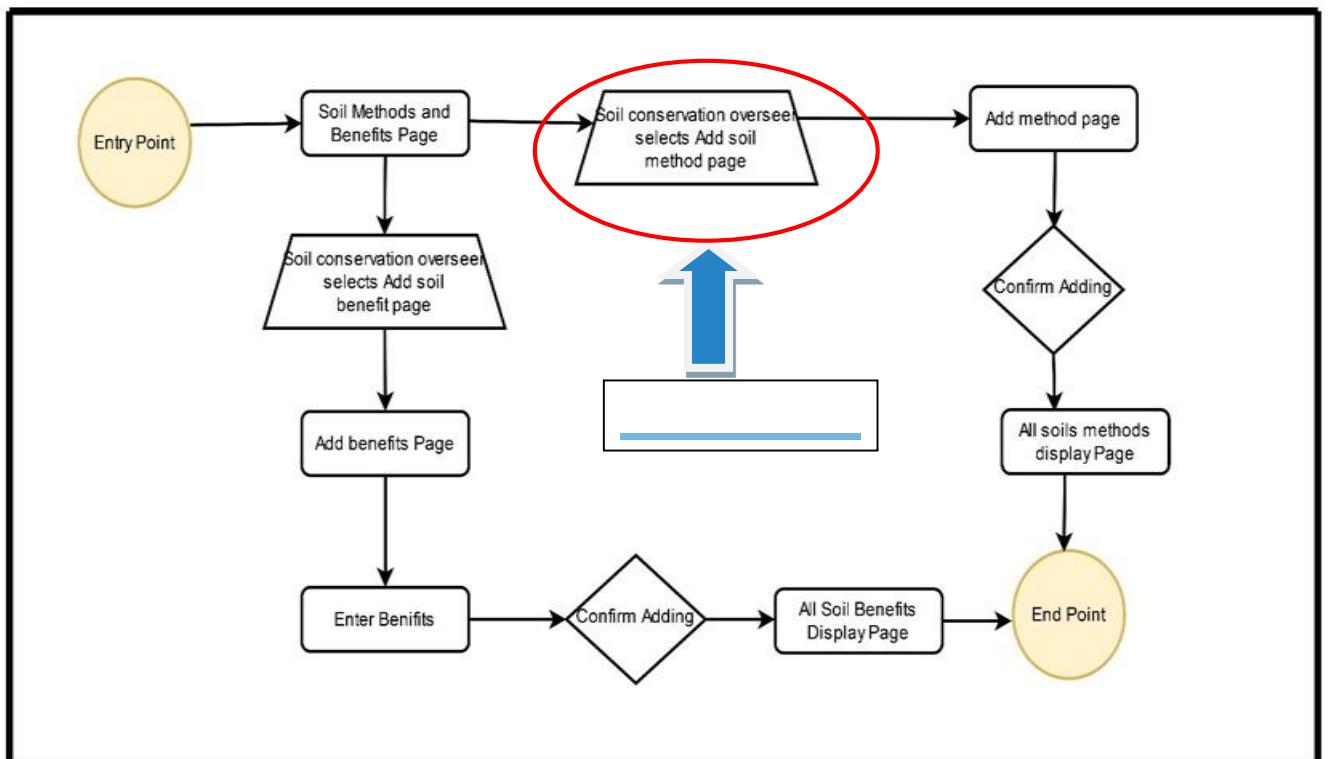
Updated Full User Flow



6.4 IT 20136710

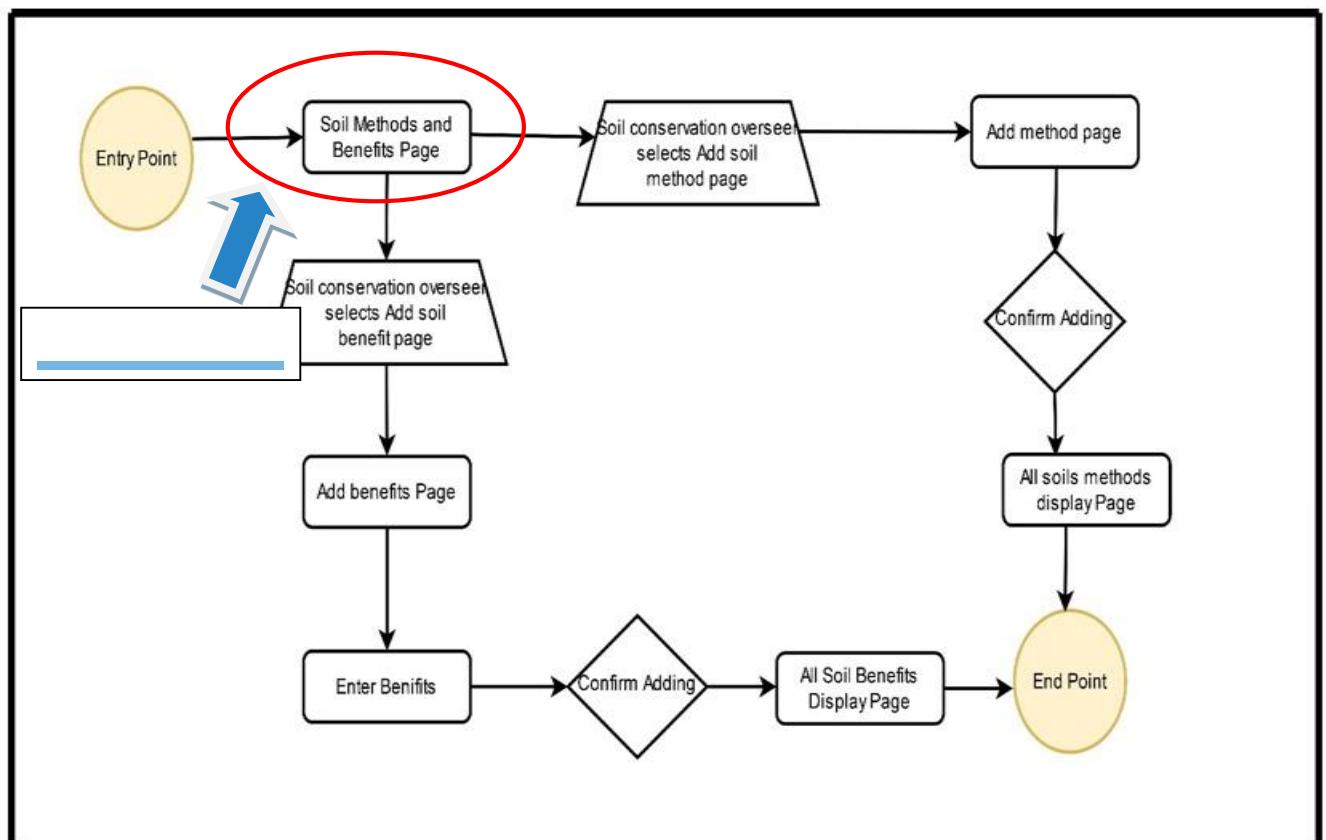
Fail Point 01

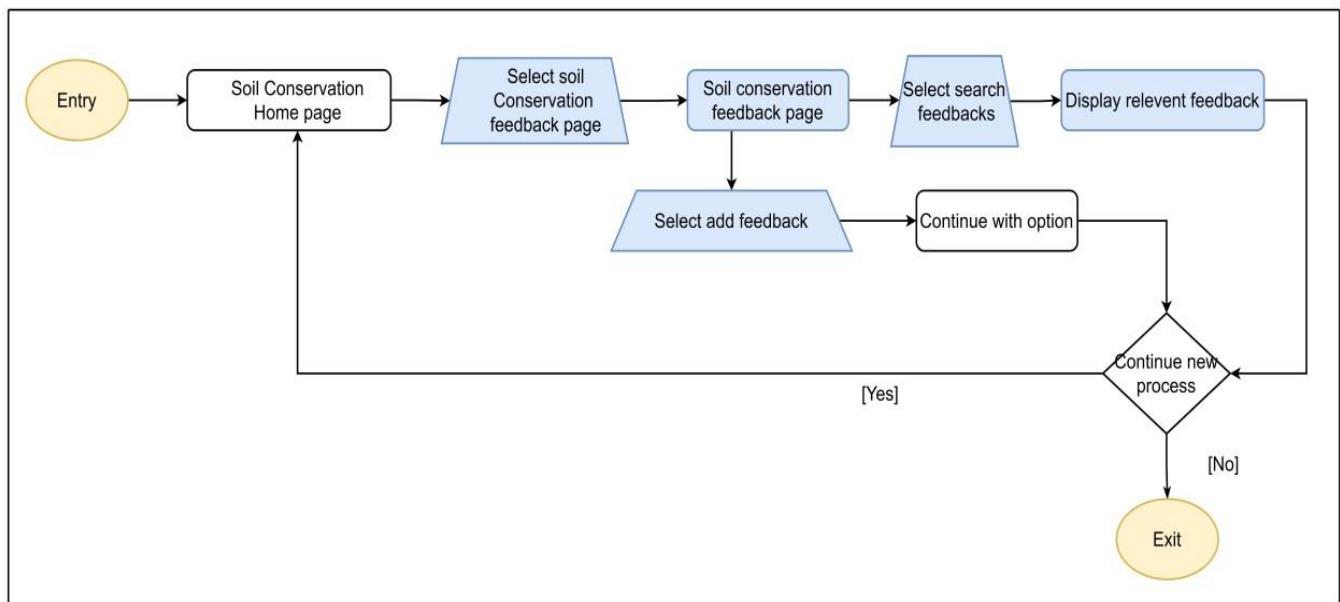
According to the comments received from the interviewed persona, I realized that the absence of a search field is a fail point. Accordingly, it is good to be able to create a search field and search for soil conservation methods.



Fail Point 02

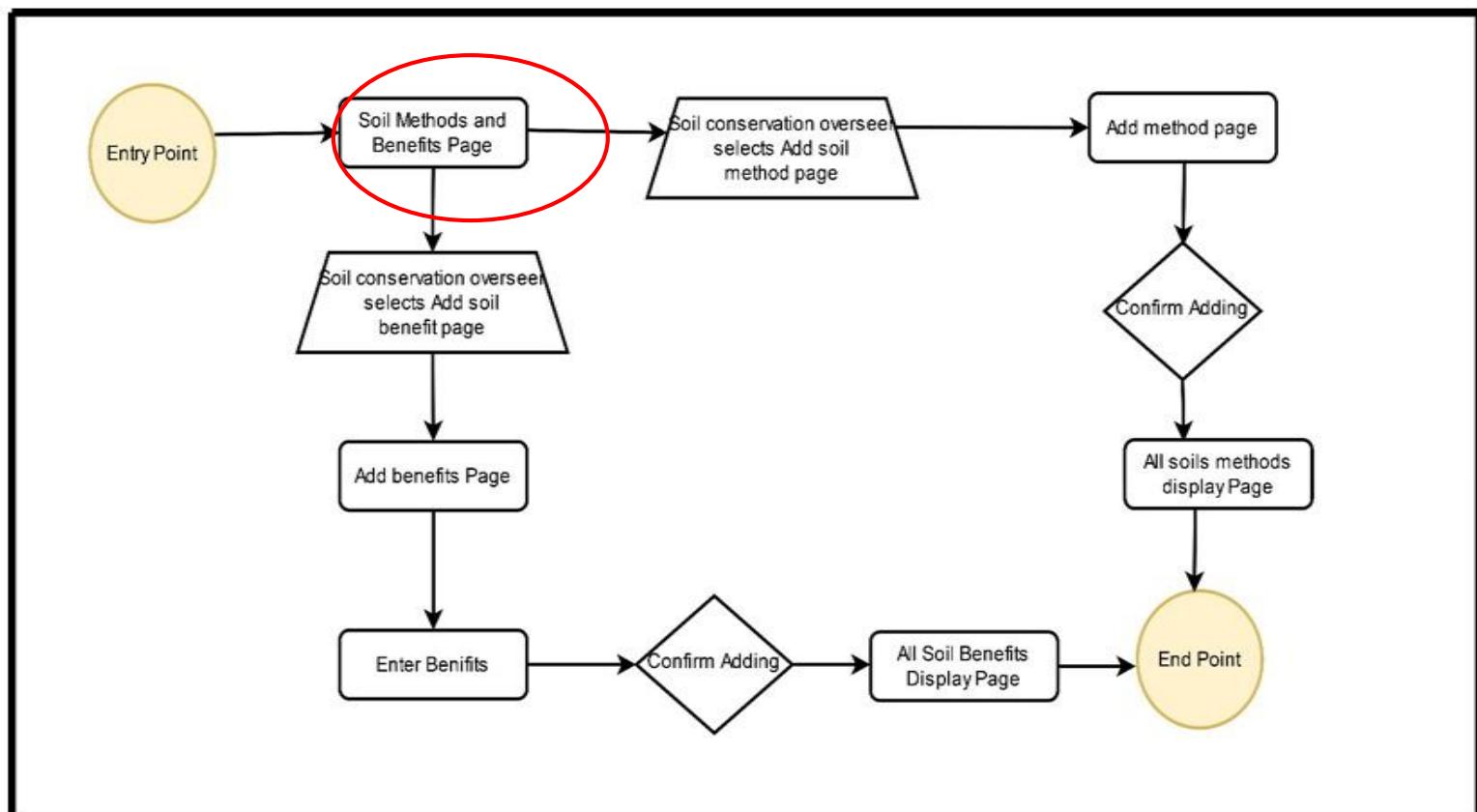
Regarding the person, the person said that feedback is a very valuable element. It can know the opinion of the people about the advice and services received. So, I figured it would be good to add a section to provide feedback on users' experiences.



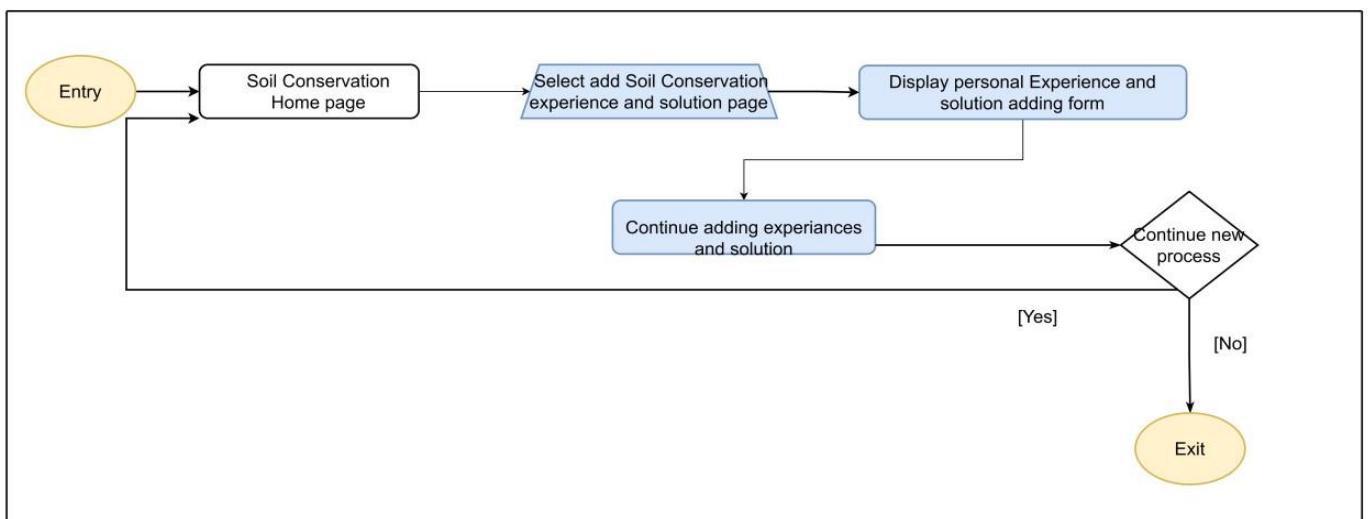


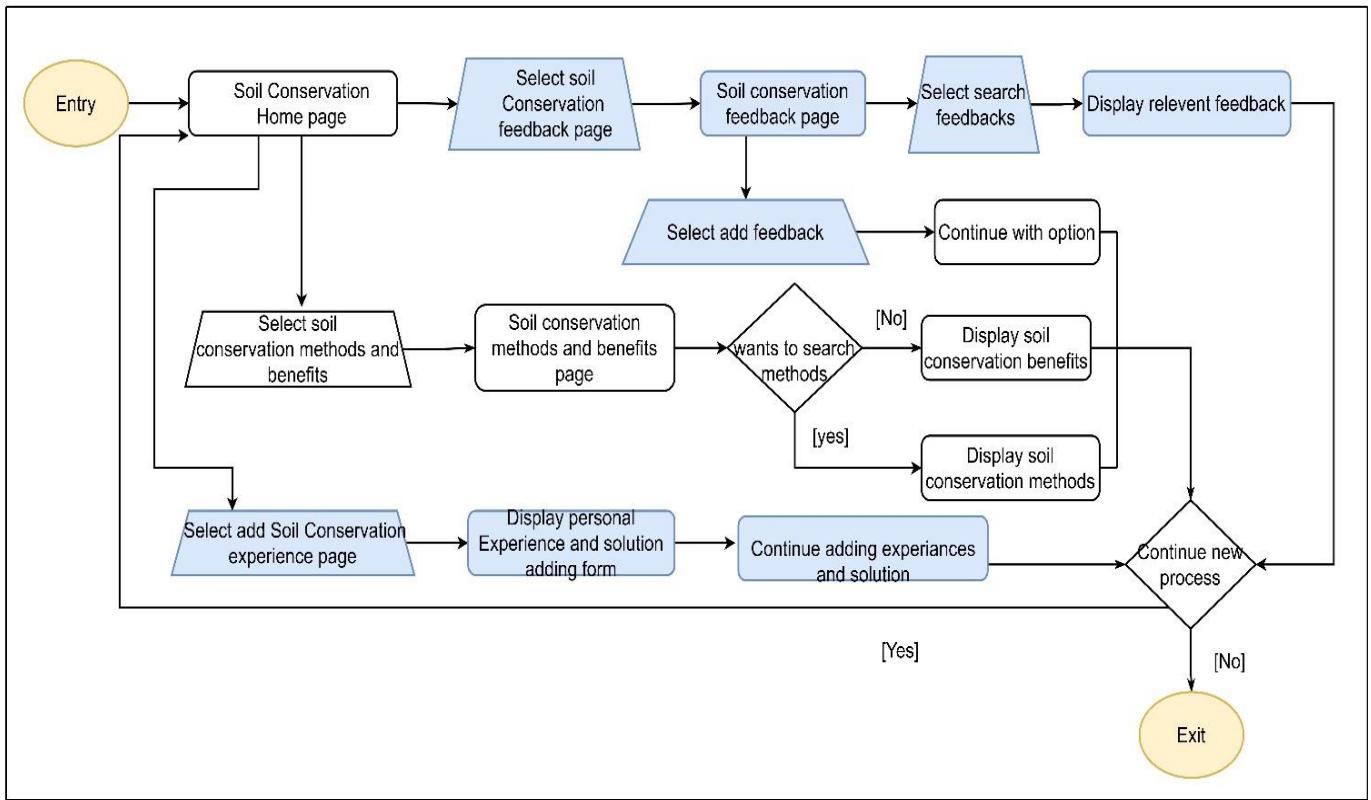
Fail Point 03

The person related persona said that he is experimenting with different methods. Accordingly, it was understood that not adding such a part is a fail point. So it is good to add a section to collect the problems of different users and the solutions and experience they have applied to those problems.



Final User Flow





7 Competitor Analysis

ගොව් මිතුරු

Advantages

- The ගොව් මිතුරු app contains information related to many categories.

Disadvantages

- In the ගොව් මිතුරු app, there is no subcategory page which is a disadvantage. There was more color, view more feathers didn't work. It is a disadvantage.

Comparison with our app

ගොව් මිතුරු- This is an app that provides fresh information about crop safety and healthy family. A shortcoming seen in it is that the view page related to all the existing categories is shown only on one page. We don't do that in our app. Mainly the sections are separated very lightly into sub-category pages. User can easily proceed to the issues by clicking on his desired category.



Figure 15-Competitor 01 sample screenshot

වවමු දිනමු

Advantages

- You can search a category in වවමු දිනමු app.

Disadvantages

- In the වවමු දිනමු app, there is no sub-category page, which is a disadvantage. The ui is less attractive. Having to scroll down a lot to select the category.

Comparison with our app

වවමු දිනමු- This is also an app that has been created to give advice on farming activities. A shortcoming seen there is that the view page related to all the existing categories is shown only on one page. Also, there was a lack of attractiveness. Not user friendly. Color combination is not creative. We have designed our app with good quality and it is really attractive to look at.

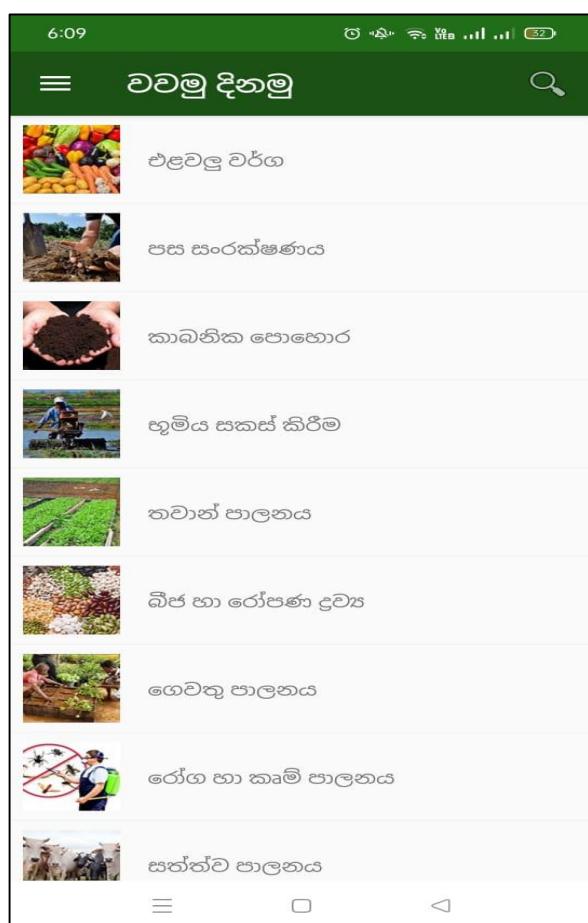


Figure 16-Competitor 2 sample screenshot

Soil type

Advantages

- Soil type app's user interface is attractive. Creative.
- Adding real-world images is a plus. Adding green color is good. white color is very good combination with green color

Disadvantages

- soil type app - missing a home page. lack of information and feathers.

Comparison with our app

soil type - There was no major drawback in this app. But it lacked a home page. There was a lack of information. I saw it as a deficiency. And the attractiveness of some pages was low. Our app has been designed by combining all these good advantages . Our app has been designed to be user friendly, attractive and effective.

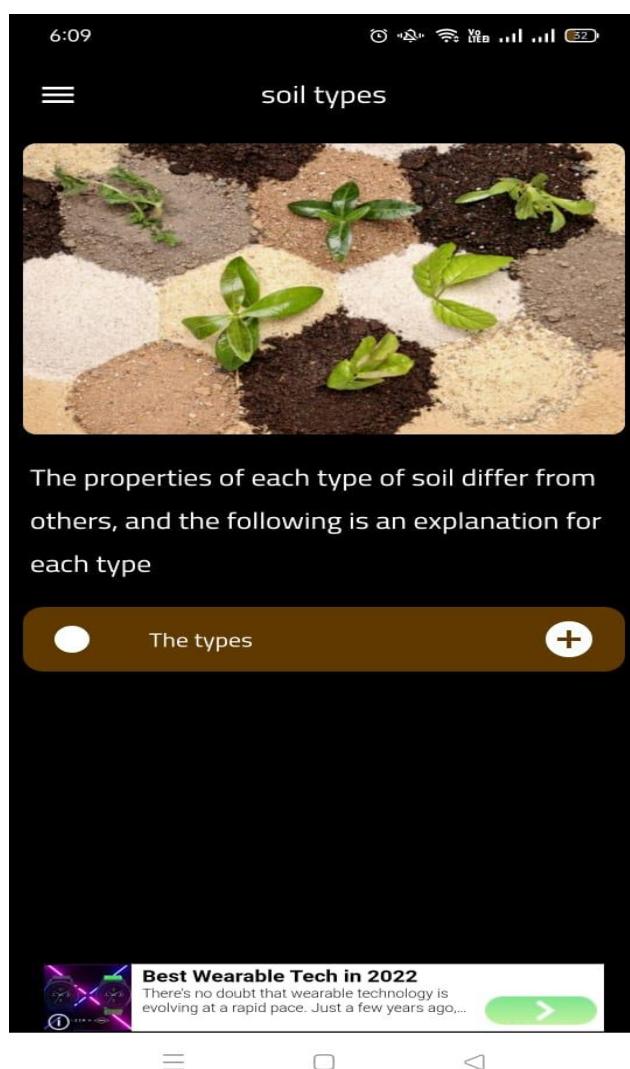
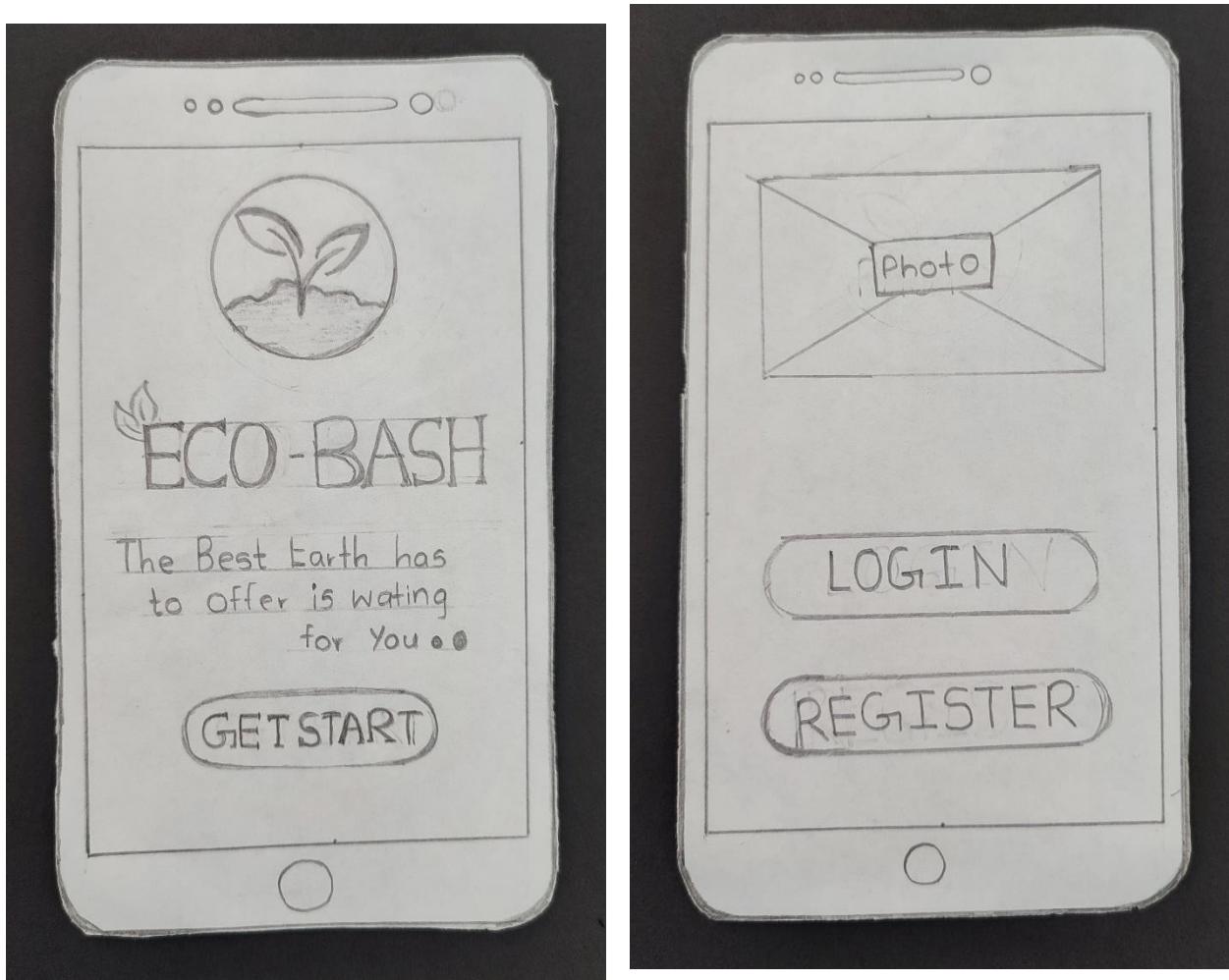
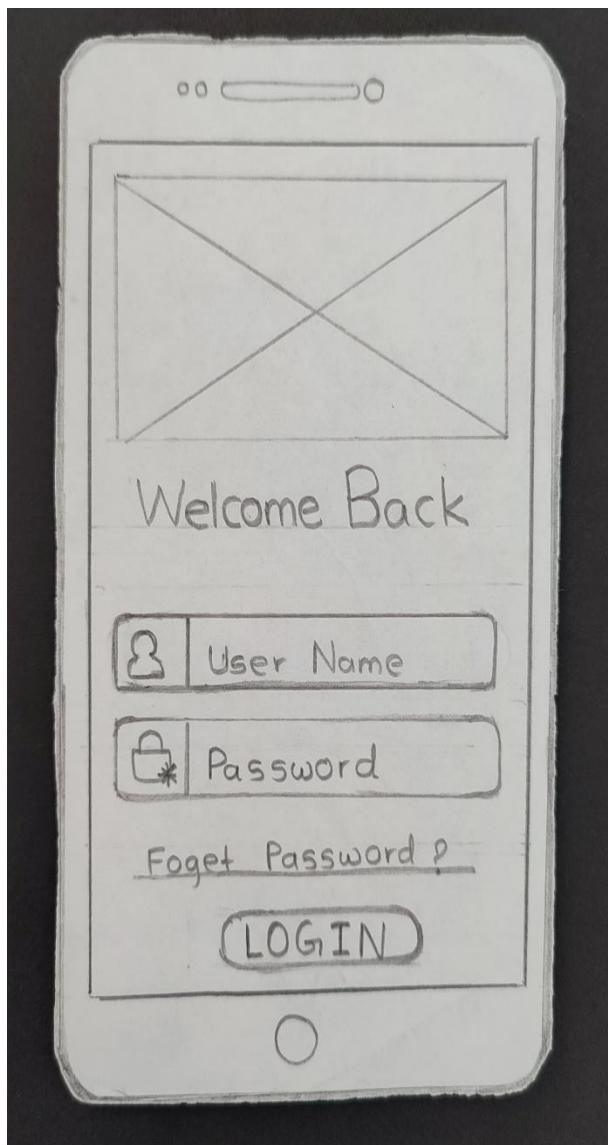
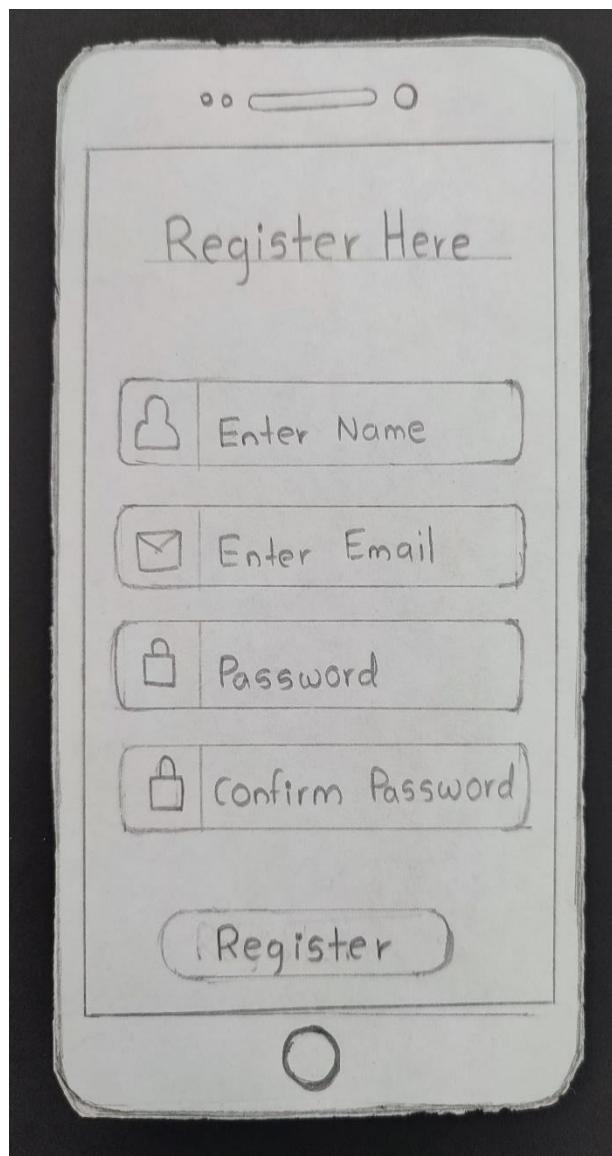
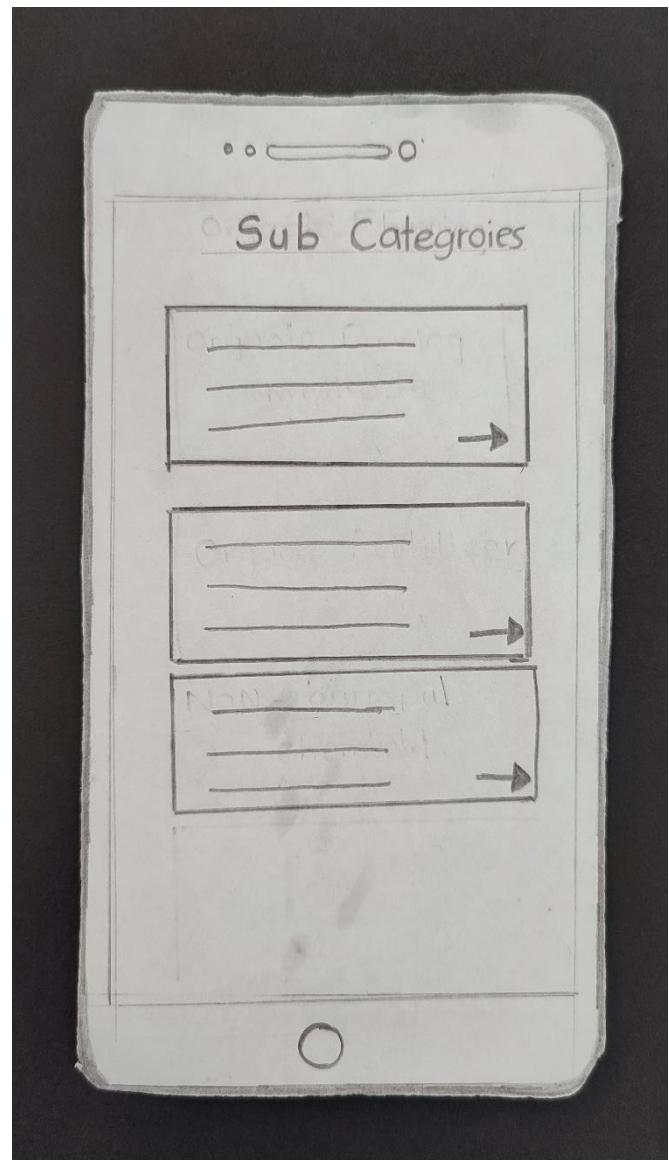
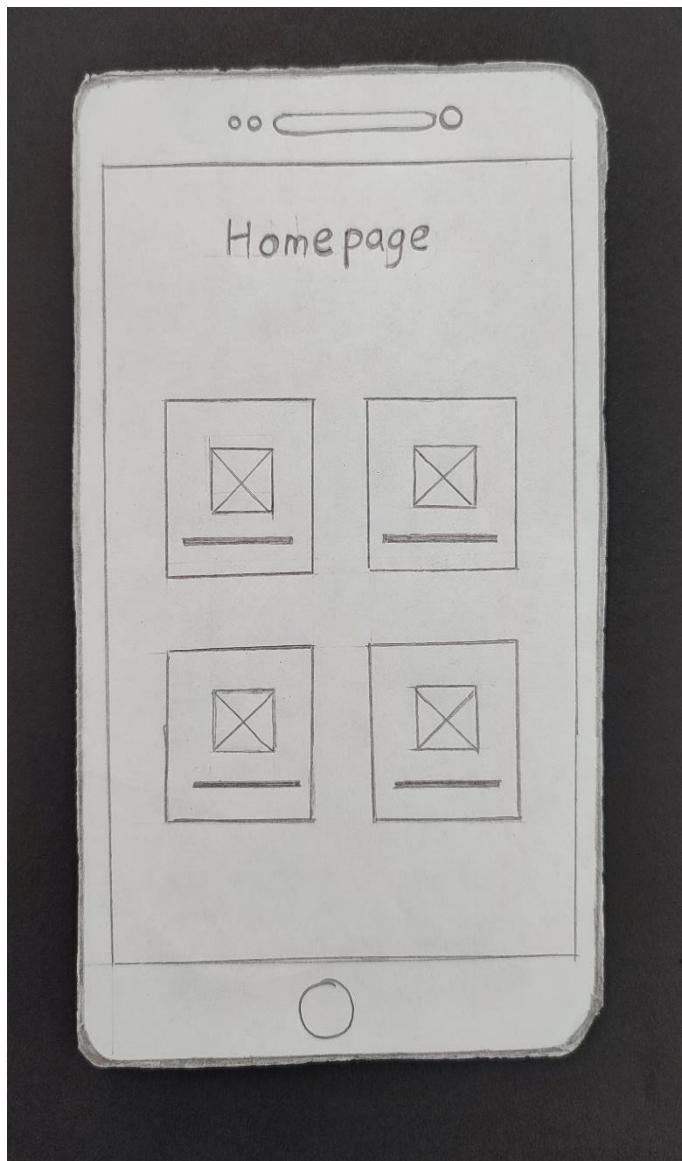


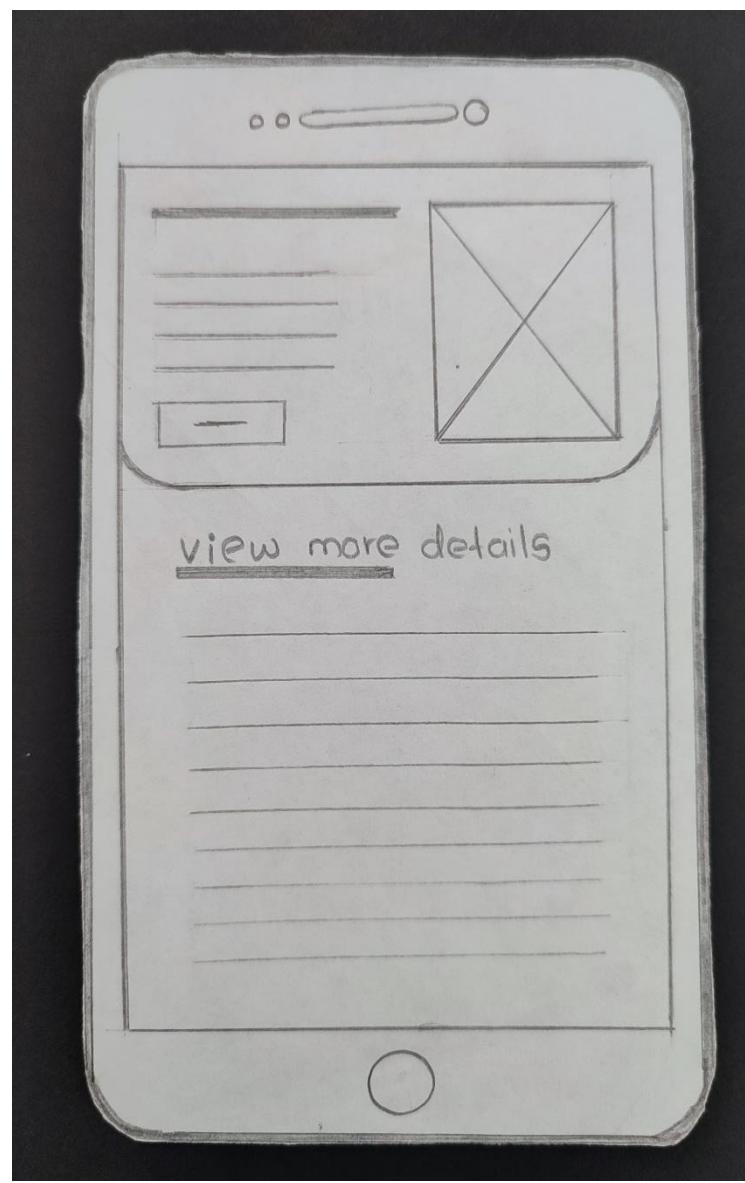
Figure 17-Competitor 3 sample screenshot

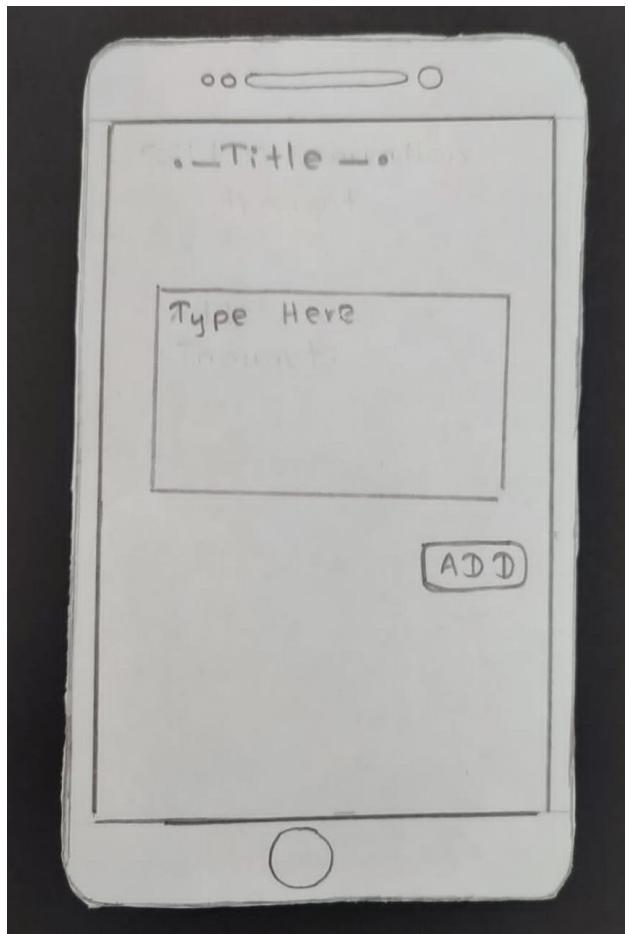
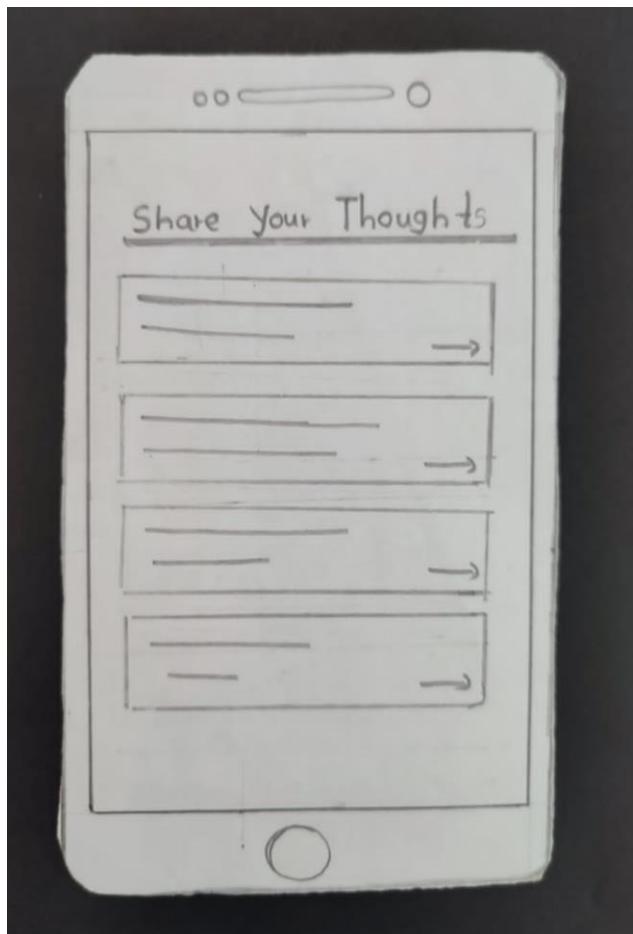
8 Milestone 4: Sketching



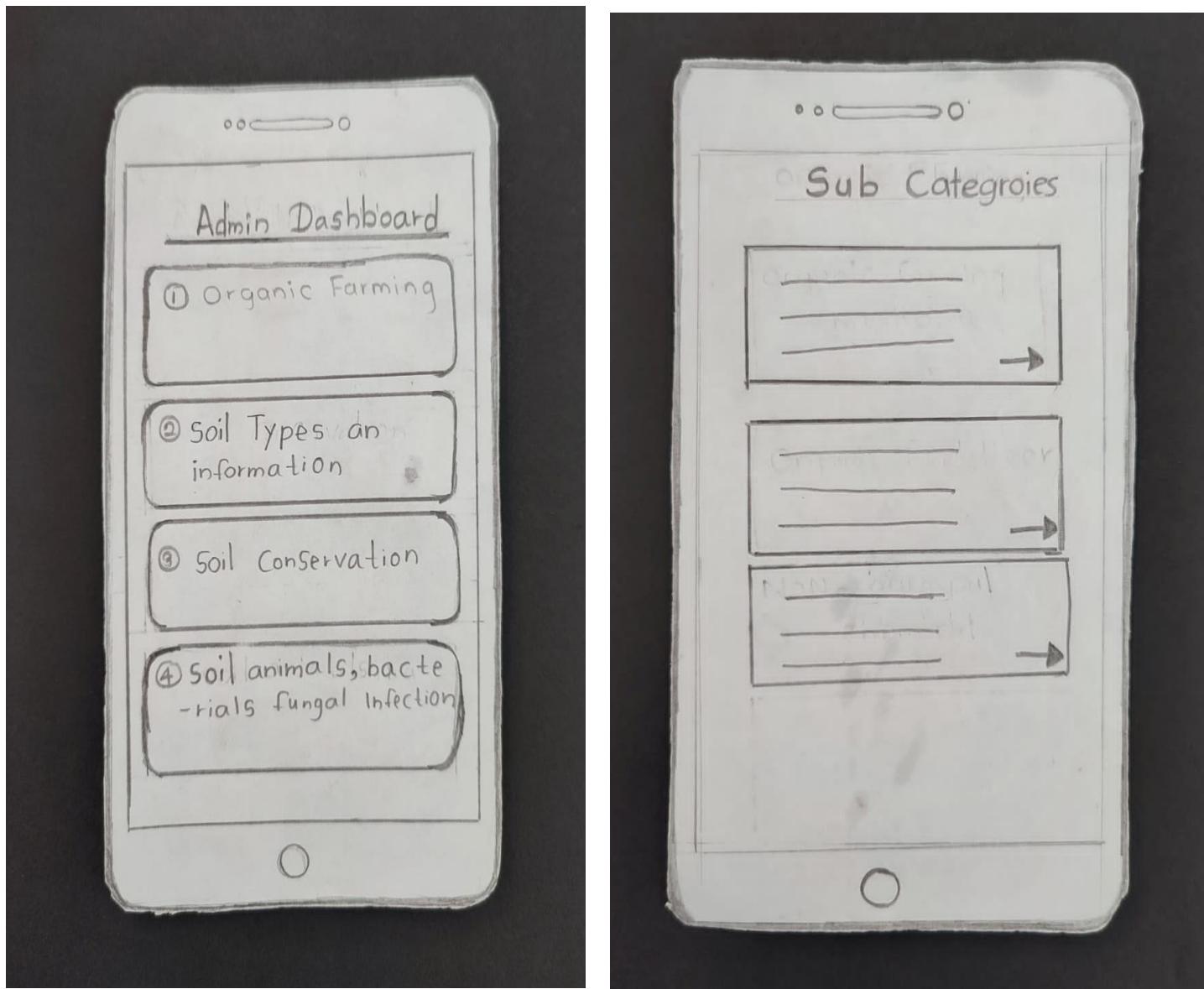


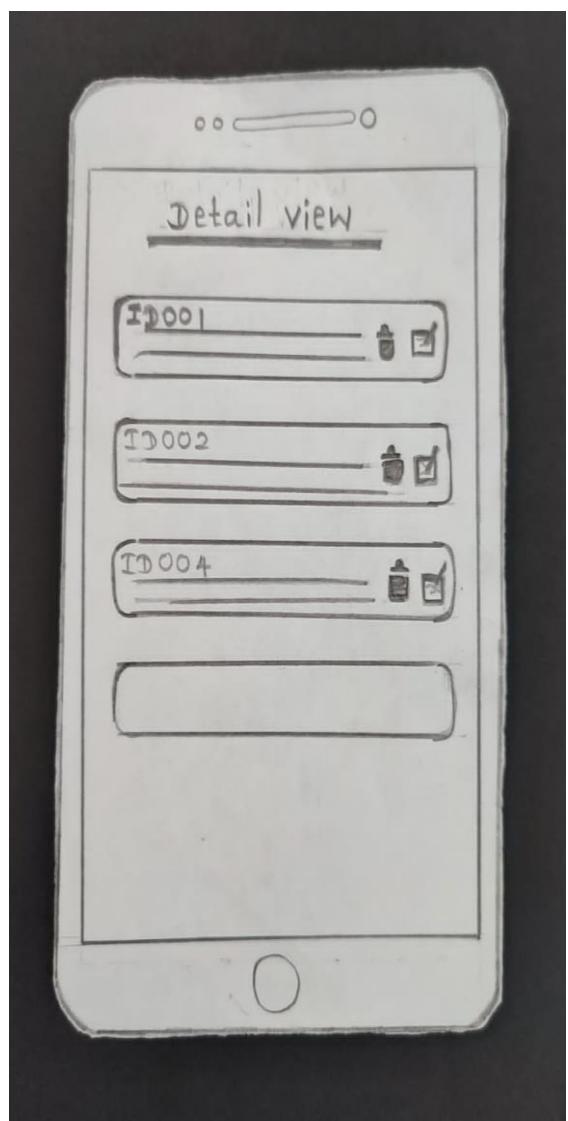
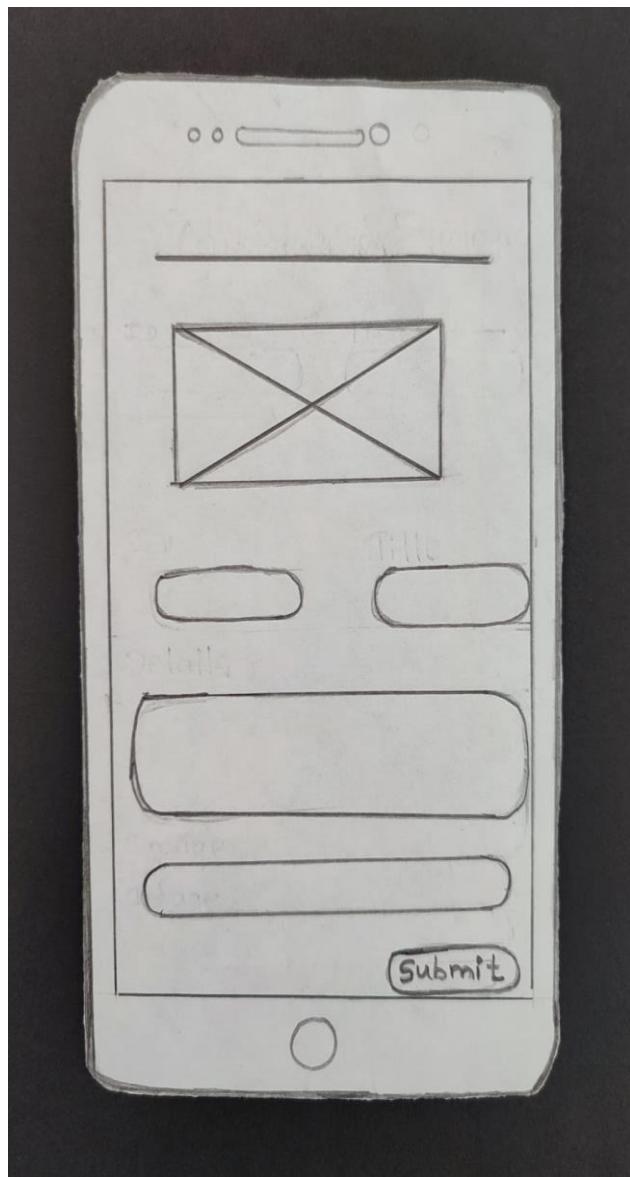


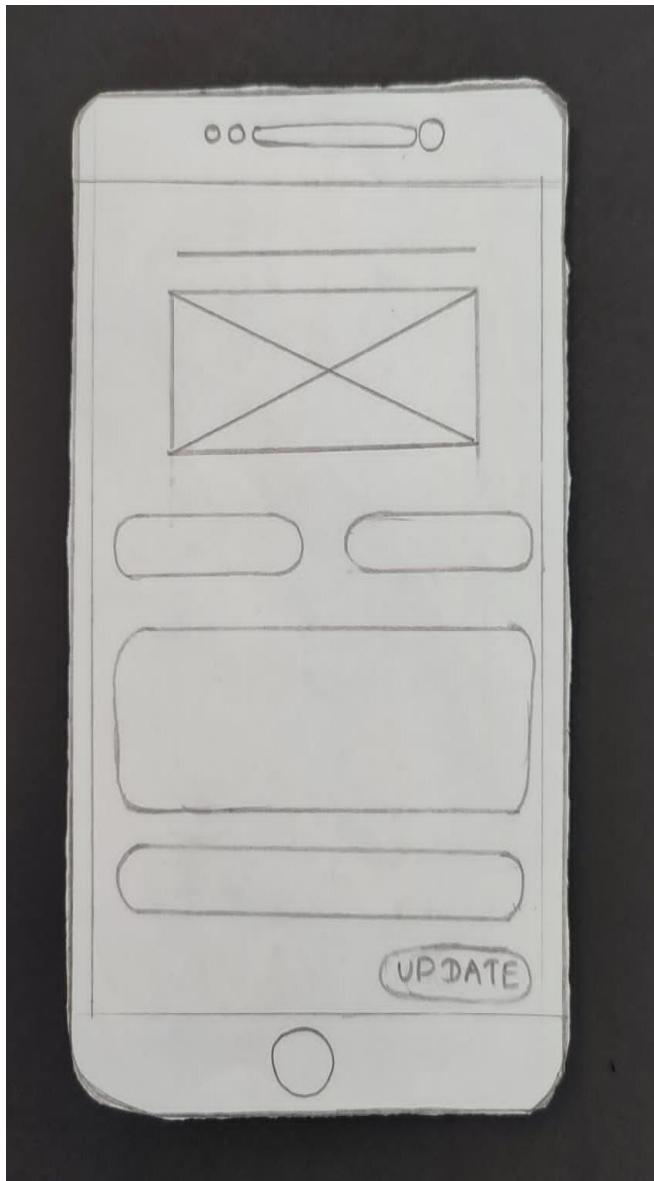




8.1 Admin Side Sketches





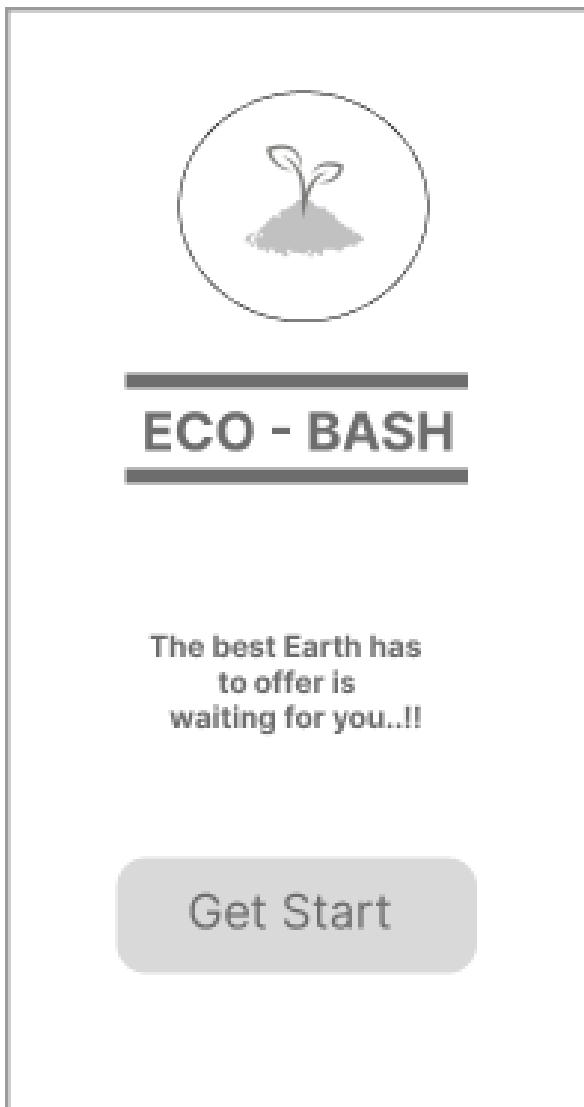


IT20125066

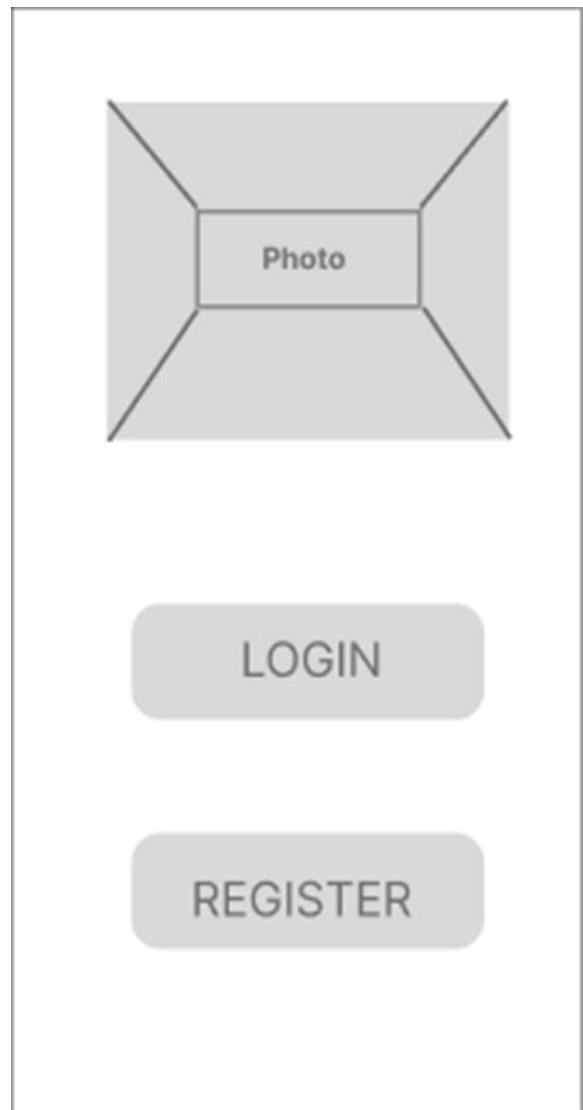
8.2 Low fidelity wireframe

8.3 Function: Organic Farming Management

1. User part wireframes



Splash page



Start page

Register Here



Enter Name



Enter Password

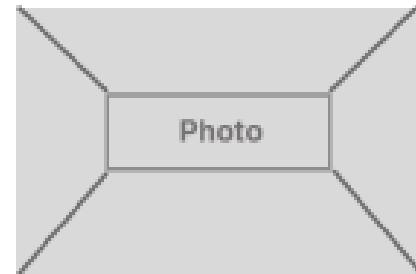


Password



Confirm Password

Register



WELCOME BACK



User Name



Password

Forget Password ?

LOGIN

Registration page

Registration page

Home Page



Organic Farming



Soil Type



Soil Conservation



soil animals

Organic

Organic Farming Methods



Organic Fertilizer



Non-Harmfull Chemicals



Home Page for user side

Organic Farming Dashboard

Organic Farming

Search



green manures and
compost

[View More](#)

[View More](#)

[View More](#)

[Organic Farming Details view](#)

Organic Fertilizer

Search



Compost

[View More](#)

[View More](#)

[View More](#)

[Organic Fertilizer Details view](#)

Non-Harmfull Chemicals

Search 

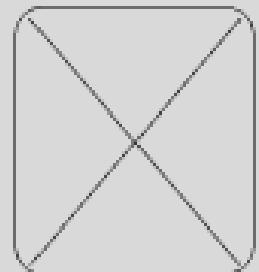
Permethrin

[View More](#)

[View More](#)

[View More](#)

green manures
and compost



Healthy

[View More Details](#)

Green manures are crops grown specifically for building and maintaining soil fertility and structure, though they may also have other functions.

[Non- Harmful chemicals View](#)

[View more details for organic Farming](#)

1. Compost

Healthy

[View More Details](#)

Decomposed material such as leaves, vegetable scrapes and other organic kitchen scrapes. It can be mixed with garden soil to add needed nutrients to promote healthy plant growth. Compost can be applied in solid form or in a liquid form known as compost .

[View more details](#)**1. Permethrin**

Healthy

[View More Details](#)

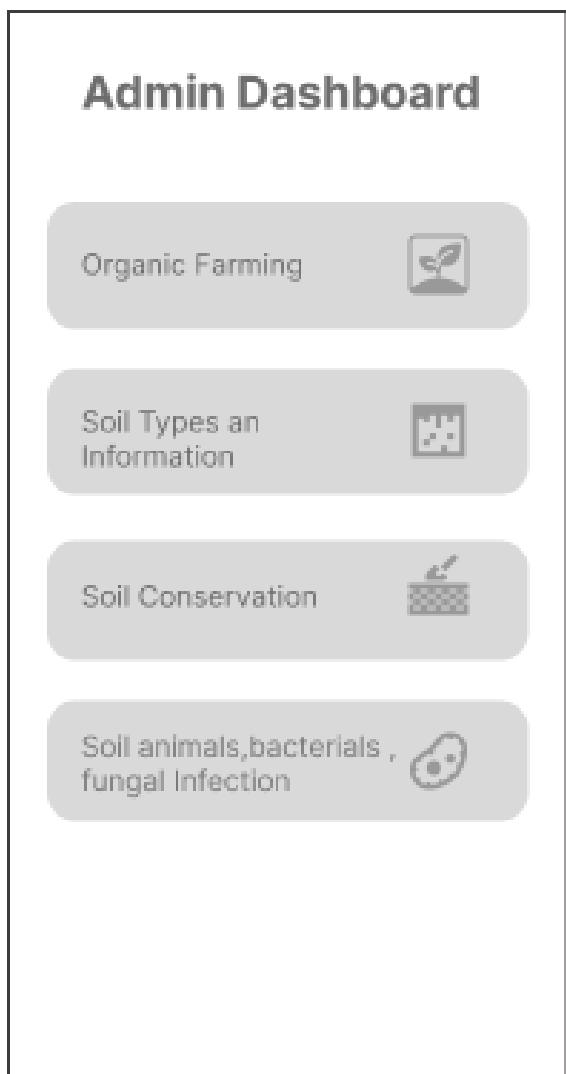
Permethrin absorption after oral gavage dosing varies with the choice and volume of vehicle. After oral gavage administration of cis/trans-permethrin to male rats in 0.5 ml of DMSO at 1.6–4.8 mg kg⁻¹, 61% was absorbed.

92%

[View Non Harmful chemical details](#)

8.4 Function: Organic Farming Management

Admin part wireframes



Admin Dashboard



Organic Farming dashboard

Organic Farming Methods



ID001

green manures and
compost



ID002

.....
.....



ID002

.....
.....



Non-Harmfull Chemicals



ID001

.....
.....



ID002

.....
.....



ID002

.....
.....



Organic Farming method Details view

Organic Farming method Details view

Organic Fertilizer



ID001



ID002



ID002



Add Organic Framing



ID:



Title:



Description:



Type:



Image:

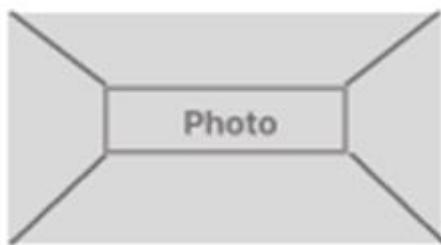


Submit

Organic Farming method Details view

Add form for Organic Farming

Update Organic Framing



ID:

ID001

Title:

Framing

Description:

This kind of soil requires mulching for holding moisture in it and requires various kinds

Type:

Type1

Image:

img.jpg

Update

Add Organic Fertilizer



ID:

Title:

Description:

Type:

Image:

Submit

Update form for Organic Farming

Add form for Organic Fertilizer

Update Organic Fertilizer

 Photo

ID:

Title:

Description:

Type:

Image:

Non-Harmfull Chemicals

 Photo

ID:

Title:

Description:

Range:

Image:

Update form for Organic Fertilizer

Add form for Non-harmful Chemicals

Update Non-Harmfull Chemicals



ID:

Title:

Description:

Range:

Image:

Update

Update form for Organic Farming

8.5 Prototype Links

Admin Part:

<https://www.figma.com/proto/kRSnFRImFwYCDNBPT0kaV1/Untitled?node-id=1%3A44&scaling=min-zoom&page-id=0%3A1&starting-point-node-id=1%3A44>

User Part:

<https://www.figma.com/proto/kRSnFRImFwYCDNBPT0kaV1/Untitled?node-id=34%3A2&scaling=min-zoom&page-id=0%3A1&starting-point-node-id=1%3A44>

8.6 User Feedback Gathering

Questionnaire

Questionnaire link :- <https://forms.gle/XNir1NjGe2kXjqb29>

Questions with user feedback details

The link below is the link to the prototype video of our project. You can navigate to my functionalities of User part and Admin go through the process. You can give feedbacks below.

 Copy

[User functionalities](#)

[Admin functionalities](#)

1 response



What are your feedbacks regarding following Home page wireframe?

1 response

There are some empty space in the wireframe.

What are your feedbacks regarding following organic farming page wireframe?

1 response

This interface is nice looking and I think it is what a user wants from a mobile application.

What are your feedbacks regarding following organic farming searching details display page wireframe?

1 response

The view is good but here do not enter much details in this window.

What are your feedbacks regarding following organic farming searching details display page wireframe?

1 response

The header is good but you can enter below details as points so user can understand details easily.

Admin functionalities

What are your feedbacks regarding following Admin Dashboard wireframe?

1 response

The empty space is the only mistake of the page. other wise it is good looking.

What are your feedbacks regarding following organic farming dashboard page wireframe?

1 response

This wireframe is so good and eye catching.

What are your feedbacks regarding following organic farming details display page wireframe?

1 response

The below views are so good but in the upper part the plus button not good for the view. It is hard to understand it.

What are your feedbacks regarding following organic farming add page wireframe?

1 response

The form is good but I like if you describe what is the meaning of "type".

What are your feedbacks regarding following organic farming update page wireframe?

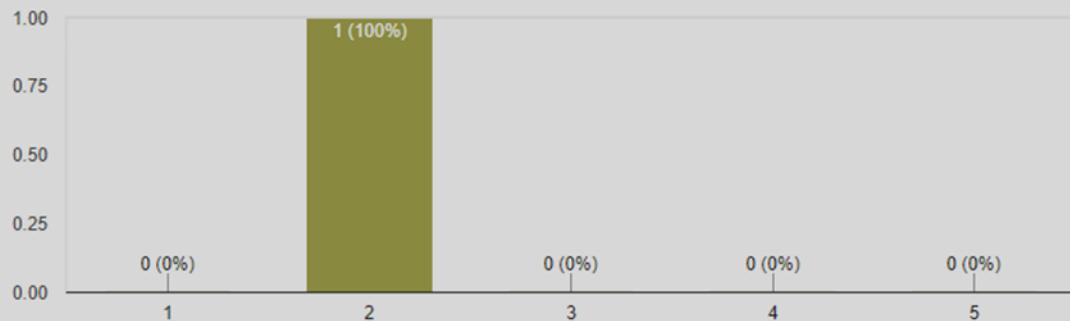
1 response

The form is good but I like if you describe what is the meaning of "type".

How difficult is to read characters on the screen?

 Copy

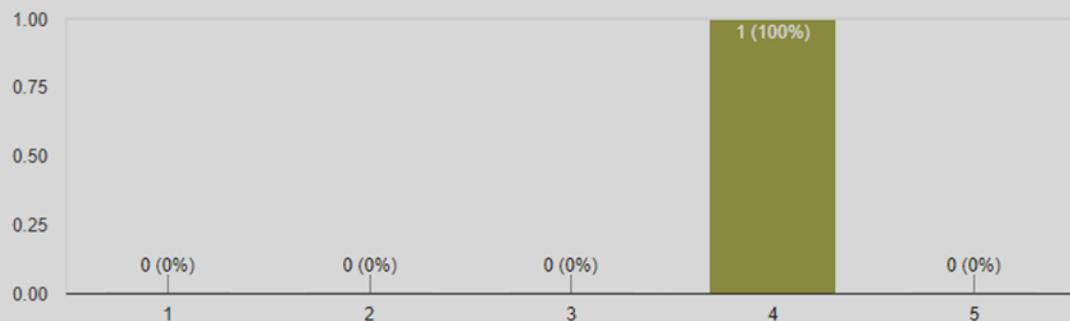
1 response



How would you rate the user-friendliness of the product interface?

 Copy

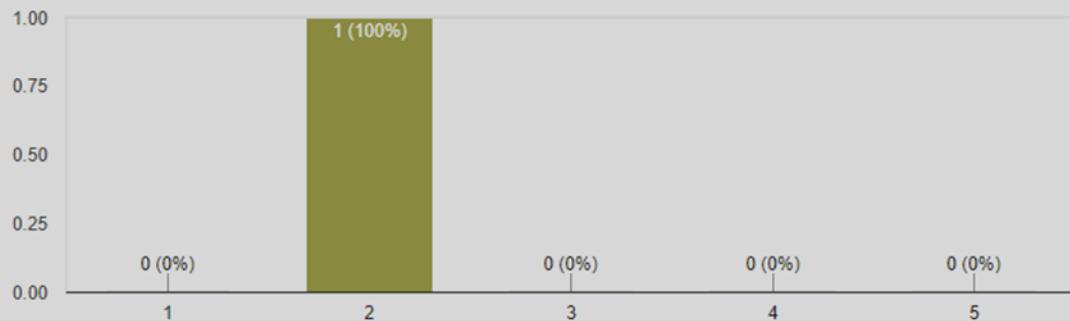
1 response



How difficult is to read characters on the screen?

 Copy

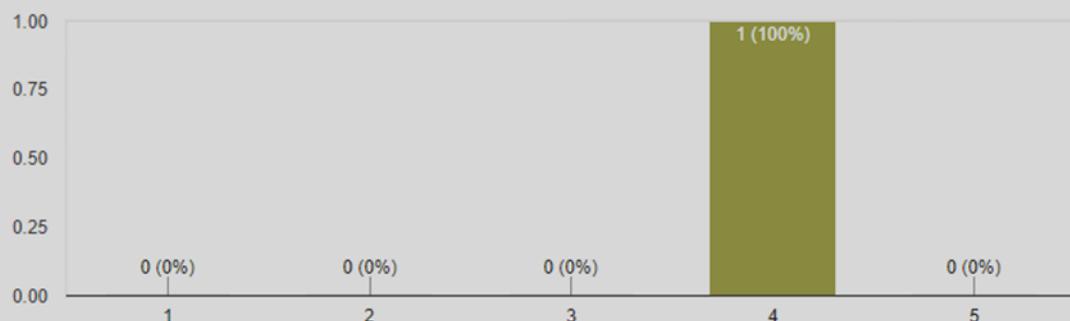
1 response



How would you rate the user-friendliness of the product interface?

 Copy

1 response



IT20258030

8.7 User Side Wireframes

User Side prototype:

<https://www.figma.com/proto/OgwqJ4HOC6DyBGxkoVpAjl/Untitled?node-id=33%3A17&scaling=min-zoom&page-id=21%3A2&starting-point-node-id=33%3A17&show-proto-sidebar=1> Untitled Title

Home Page

The Home Page wireframe displays four cards arranged in a 2x2 grid. Each card features a square icon with a large 'X' through it and a rounded bottom-left corner. Below each icon is a button-like shape containing text.

- Top-left card: Organic Farming
- Top-right card: Soil Types an Information
- Bottom-left card: Soil Conservation
- Bottom-right card: Soil animals, bacterial,fungal

Sub Categories

The Sub Categories wireframe displays three cards arranged vertically. Each card features a rounded rectangle with a shadow effect and a small icon on the left side.

- Top card: Types of soils (Icon: soil texture)
- Middle card: Plant Growth in Different Soil Types (Icon: plant in a pot)
- Bottom card: Treatment Methods for Contaminated Soil (Icon: hands holding a leaf)

Each card has an arrow pointing to its right.

Types of soils

Search 

Sandy soil



[View](#)

Clay Soil



[View](#)

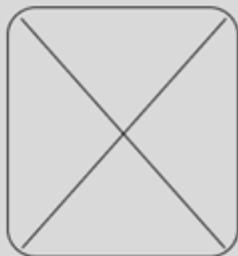
Peat Soil



[View](#)

[All Soil Types page](#)

Sandy Soil



[More Details](#)

Sandy Soil is light, warm, dry and tends to be acidic and low in nutrients. Sandy soils are often known as light soils due to their high proportion of sand and little clay (clay weighs more than sand).

[Relevant Soil Type page](#)

Plant Growth in Different Soil Types

Search



Sandy soil



View

Clay Soil



View

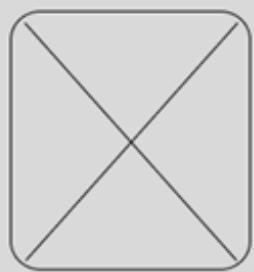
Peat Soil



View

All Plant Growth in Different Soil Types page

Bio remediation



More Details

Bioremediation is the use of biological processes to degrade, transform, or essentially remove contaminants from soil and water.

- nitrogen compounds
- metals(lead,mercury, chromium)
- radionuclides

Relevant Plant Growth in Different Soil Types page

Treatment Methods for Contaminated Soil

Search



Bioremediation



[View](#)

Chemical oxidation



[View](#)

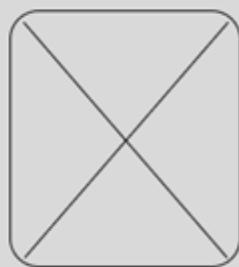
Soil stabilisation



[View](#)

[All Treatment Methods for Contaminated Soil page](#)

Sandy Soil



[More Details](#)

This kind of soil requires mulching for holding moisture in it and requires various kinds of organic blends to make it ideal for growing plants

- potatoes
- carrots
- lettuce
- zucchini

[Relevant Treatment Methods for Contaminated Soil page](#)

Share Your Thoughts

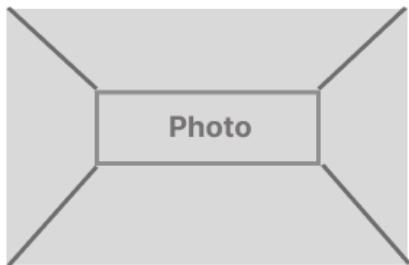
Organic Farming →

Soil Types an
Information →

Soil Conservation →

Soil animals,bacterials ,
fungal Infection →

Add Here



Type Here

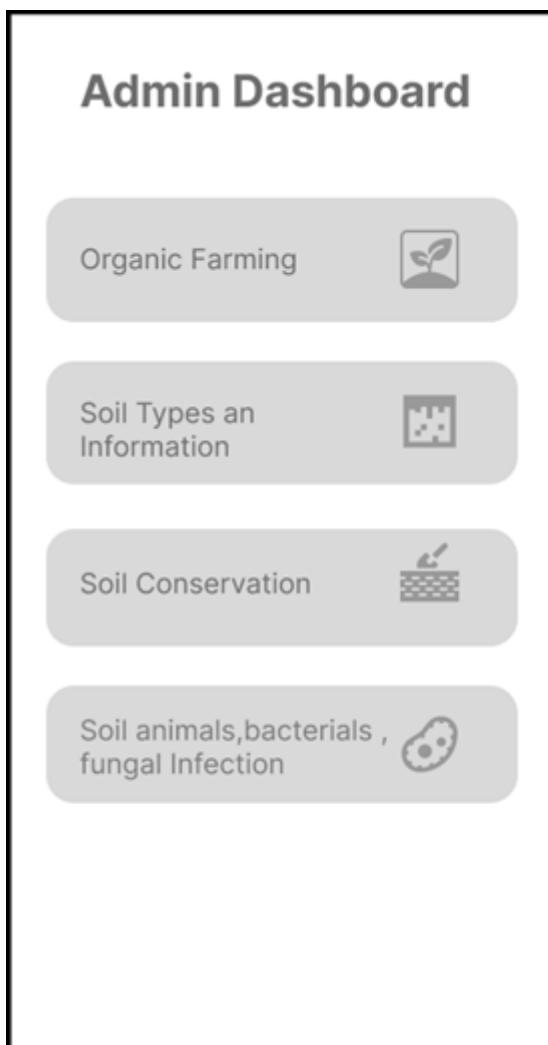
Add

User Experience/Feedback adding page

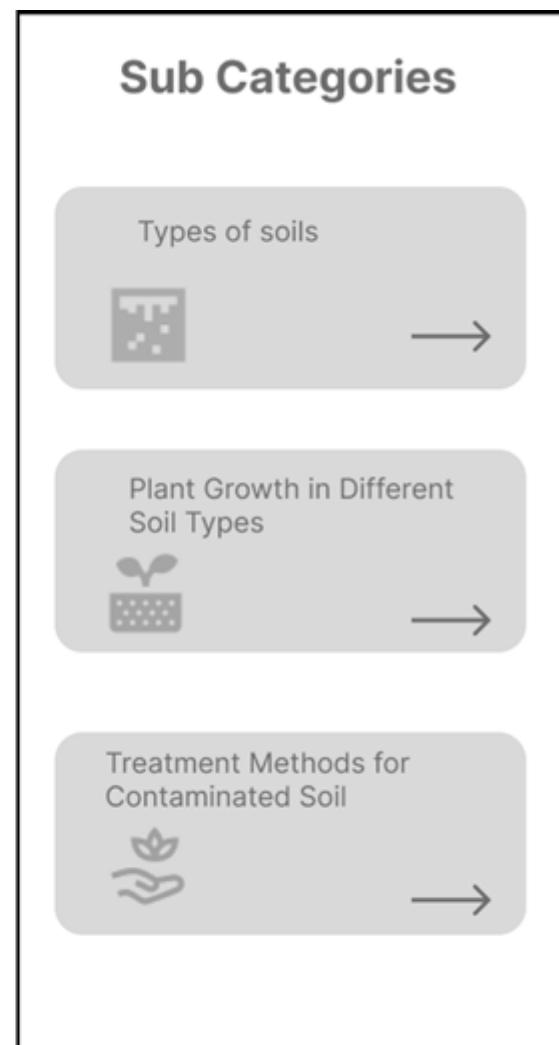
8.8 Admin Side Wireframes

User Side prototype:

<https://www.figma.com/proto/OgwqJ4HOC6DyBGxkoVpAjl/Untitled?node-id=50%3A682&scaling=min-zoom&page-id=21%3A2&starting-point-node-id=50%3A682&showproto-sidebar=1>



Admin Dashboard page



Admin Subcategories page

Add Types of soils



ID:

Title:

Description:

Image:

Submit

Types of soils

ID001

Sandy Soil



ID002

.....
.....



ID003

.....
.....



Details adding page

All Added Details page with update
/Delete options



ID:

ID001

Title:

Sandy Soil

Description:

Sandy Soil is light, warm, dry and tends to be acidic and low in nutrients.

Image:

/images/soil.png

Submit

Update Details Page

9 User Responses

Google Form Link :

https://docs.google.com/forms/d/e/1FAIpQLSczUjHS_ETwRDxoJVunate07LGbbLtr9qB3_-ERRm8MJgkQgw/viewform

The screenshot shows a Google Form summary page. At the top right, there is a green button labeled "Accepting responses" with a switch icon. Below it, three tabs are visible: "Summary" (underlined in green), "Question", and "Individual". Under the "Summary" tab, the question "Who has responded?" is displayed. Below the question, the word "Email" is followed by a text input field containing the email address "nipunisenanayake98@gmail.com".

The screenshot shows the "Responses" tab of the Google Form interface, indicated by a green underline and a red notification bubble showing the number 1. The tab includes links for "Questions", "Responses" (with the notification), and "Settings".

The responses are listed in three separate sections:

- Wireframe 01 -User Homepage** (Add your feedback below about this wireframe)
1 response
space is large among items
- Wireframe 02 -Sub Categories** (Add your feedback below about this wireframe)
1 response
everything is fine in the wireframe
- Wireframe 03 -All Soil Types page** (Add your feedback below about this wireframe)
1 response
good

Questions Responses 1 Settings

good

Wireframe 04 -**Relevant Soil Type page** (Add your feedback below about this wireframe)
1 response

Think about the font

Wireframe 05 -**All Plant Growth in Different Soil Types page** (Add your feedback below about this wireframe)
1 response

the view button should be set to middle of the box

Wireframe 06 -**Relevant Plant Growth in Different Soil Types page** (Add your feedback below about this wireframe)
1 response

Good

Questions Responses 1 Settings

Wireframe 07 -**All Treatment Methods for Contaminated Soil page** (Add your feedback below about this wireframe)
1 response

The title is too long

Wireframe 08 -**Relevant Treatment Methods for Contaminated Soil page** (Add your feedback below about this wireframe)
1 response

Good

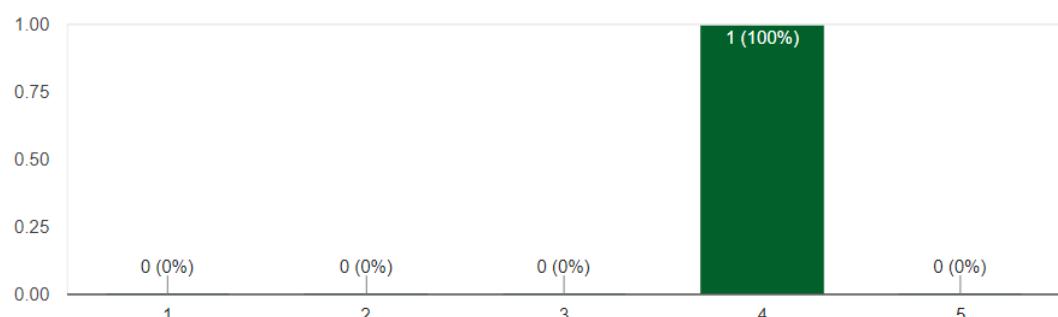
Wireframe 09 -**User Experience/Feedback adding page** (Add your feedback below about this wireframe)
1 response

comment box should be set to the bottom

User Side Wireframe Overall rating

1 response

 Copy



Admin Section

Wireframe 10 -**Admin Dashboard page** (Add your feedback below about this wireframe)

1 response

this is really good

Wireframe 11 -**Admin Subcategories page** (Add your feedback below about this wireframe)

1 response

Icons are good.

Wireframe 12 -**Details adding page** (Add your feedback below about this wireframe)

1 response

form is good

Questions Responses **1** Settings

Wireframe 13 -All Added Details page with update /Delete options (Add your feedback below about this wireframe)

1 response

Not bad

Wireframe 14 -Update Details Page (Add your feedback below about this wireframe)

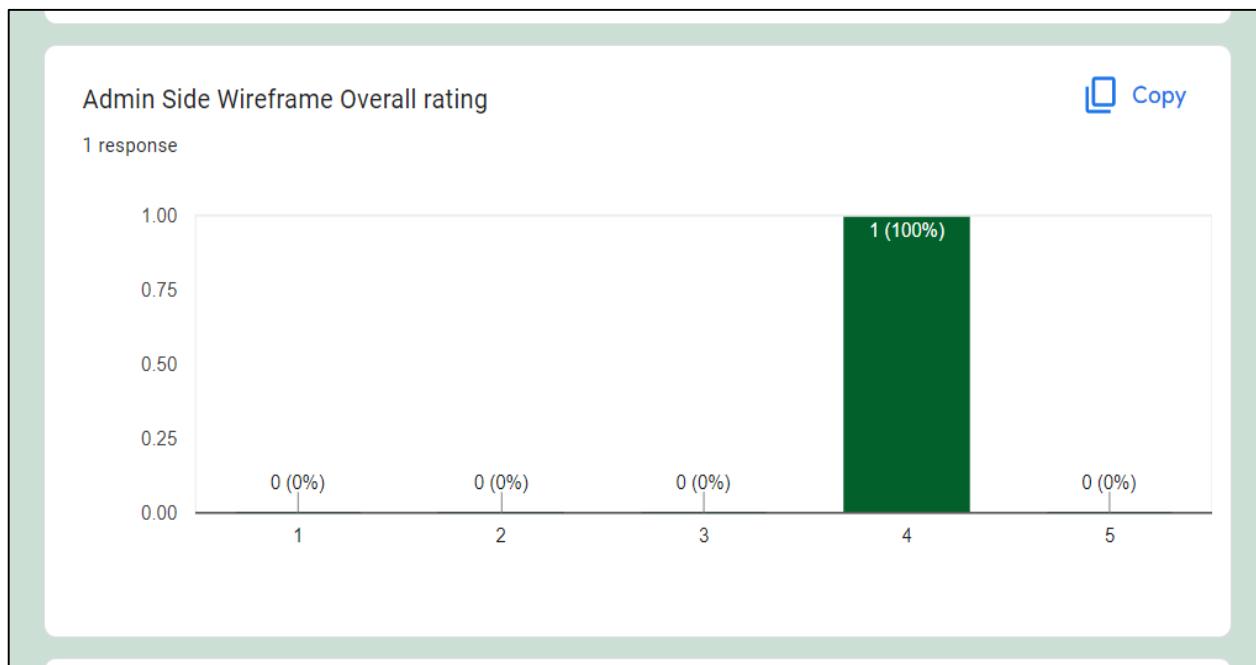
1 response

button name should be rename as update

Any other comments ?

1 response

good luck for the project



IT20136710

Prototypes Links

The link below is the link to the prototype video of our project. You can navigate to my functionalities and go through the process and give feedbacks.

9.1 User Side prototype

<https://www.figma.com/proto/SmC1k3Ay8HRIqHOVpFhnd3/Untitled?node-id=10%3A170&scaling=min-zoom&page-id=0%3A1&starting-point-node-id=16%3A375>

9.2 Admin Side prototype

<https://www.figma.com/proto/SmC1k3Ay8HRIqHOVpFhnd3/Untitled?node-id=16%3A807&scaling=min-zoom&page-id=16%3A693&starting-point-node-id=16%3A932&show-proto-sidebar=1>

Soil Conservation Categories

Soil conservation



Soil Conservation and Soil Erosion



Share Your Thoughts



Soil Conservation



Soil conservation
Introduction



Various ways to soil
conservation



Soil conservation
benefits



Soil conservation
methods

User side: Soil conservation category main page

User side: Soil conservation sub category
page 2

Methods of controlling soil erosion

Search



Agronomic practices



View

Contour farming



View

Crop rotation



View

Soil Conservation Methods

Search



Contour Farming



View

Crop Rotation



View

Windbreaks

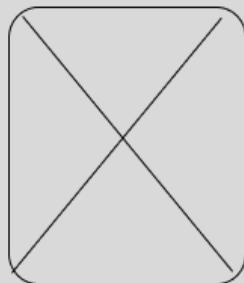


View

User side: Methods of controlling soil erosion page.

User side: Soil conservation method page.

Crop Rotation



More Details

Crop Rotation is a tool that enables farmers to increase soil organic matter content, soil structure and rooting depth. This is accomplished by growing secondary crops which enhance soil health.

Causes of Soil Erosion

Wind



[View](#)

Water



[View](#)

Overgrazing



[View](#)

User side: Soil conservation methods viewing page.

User side: Causes of soil erosion page

Benefits Of Soil conservation

Search



Boosts earth quality and productivity



[View](#)

Aids air and water purification



[View](#)

Gives food and shelter for wildlife



[View](#)

Various Ways To Conserve Soil

Agricultural Soil Conservation



[View](#)

Refraining from the practice of till farming



[View](#)

The practice of contour plowing



[View](#)

User side: soil conservation benefit page.

Share Your Thoughts

Organic Farming →

Soil Types an Information →

Soil Conservation →

Soil animals,bacterials , fungal Infection →

Title

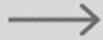


Type Here

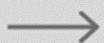
Add

Sub Categories

Soil conservation



Soil Conservation and Soil Erosion



View More



Soil Conservation and Soil Erosion

Add Soil conservation
Introduction

Add Casues of soil erosion

Add Methods of controlling soil
erosion

User side: Share your thought page.

User side: Soil conservation feedback and
experience add page.

10 Milestone 5: Wireframes, Prototype

This is where you showcase all the prototypes (low-fidelity and high-fidelity). Include as many significant low-fidelity designs as you developed. i.e. links to your Figma website.

10.1Design 1

10.2Design 2 - accepted

10.3High Fidelity Prototype

10.4Design 1

10.5Design 2 - accepted

11 Milestone 6: User Feedback for your Prototype

11.1 IT 20125066

Video link -: https://drive.google.com/file/d/1q0jCFsoOsSkTYdw3CJdfp_cyAr5ENXy8/view?usp=sharing

11.2 IT20147082

Video link -: [UEE-Milestone-05 - Google Drive](#)

11.3 IT 20258030

Video link -: [Dropbox - prototypeV2-video-IT20258030.mp4 - Simplify your life](#)

11.4 IT 20136710

Video link -: [IT20136710.mp4 - Google Drive](#)

12 Milestone 7: Implementation

Github link : https://github.com/SLIIT-FacultyOfComputing/final-project-uee_fp_ser028/tree/main/Milestone%2006

13 Requirement Specification

13.1 Usability Goals

Easy Navigation

Before developing the mobile we try to use inbuilt mobile application already in the market in using this app. The common issue is poor navigation in the mobile app. We want to think the easy navigating. So, in our requirement uses like to get their user requirement easily. after downloading the app, the want to easy navigation with friendly manner and we want to think about the struggle thing and how to effect to the users by using struggle things in here we focus to start to bottom by using.

Minimize the number of steps

Mobile application development Every time user come to the app to complete the action quickly. They want to state forward way to complete an action easily. think user want to search some organic farming method user had a barrier it is very harmful to searching quickly and getting the result . So we reduces step to the app and try to get quick inputs. as well as in here. We reduce our cognitive load by using difficult in the function part

Remove Unwanted Things

Every additional buttons images and icons make screen complicated. It's better to eliminate anything isn't necessary. in here we try to getting the mobile app with the best practices by keeping content and interfaces element to a minimum, only the present the user with what they want. design a mobile app is very important rather than design the web App. so we have the small size, and we want to give a good news output with better User experience.

Clear and concise content

Developing mobile app, it's common to simplify the content. So we want to think about the how to complete the user goals by given the sample size version. We should be tolerating our content for mobile rather than copying it from the web. So other thing it is our content should have little pinching and zooming as possible by presenting the information clear and consistency.

Reduce Scrolling

In here always we have to limit the screen. we avoid the scrolling. but try to avoiding side Scrolls its may hide the details

13.2 User Experience Goals

A satisfactory user experience is one in which the user's purpose of using a product is fulfilled. We mainly focused on this. Designing the user interface is not enough, if the user is not satisfied in the first use, the app will fail. Therefore, we focused on this as user experience goals.

13.3 Functional Requirements

A functional requirement is a service to be provided by the system. It describes the inputs to the software system, its behavior, and outputs. It gives a clear idea of the entire process of the system

- The system should be able to include agricultural details and their content (soil type, soil conservation, farming, etc.). Including real world images of the relevant functions.
- In this the login process is secure and password protected.
- Ability to provide feedback to a user.
- Feedback report can be processed by the system.
- The user can proceed by clicking on the category he wants.
- user can view Relevant information.

13.4 Non-Functional Requirements

Non-functional requirements specify the quality attribute of a software system. And non-functional requirements are essential to ensure the usability and effectiveness of the entire software system. • Eco bash is an agricultural app. This system is a community-based app. Therefore, this method can be used by any user. Employees can be used. You can use this app. System admin can enter details of agricultural information. Administrators can also search, delete and update records.

- Efficiency: This app can do almost everything efficiently.
- Availability: The system must be available 24/7 to perform the tasks. So we had to upgrade the system so that it runs smoothly while working.
- Scalability: The system should have the ability to work when the speed or scope of work increases or expands.
- Maintainability: This app is very easy to maintain. If there is a problem we can solve it easily.
- *Reliability: This system provides accurate agricultural details.

13.5 Hierarchical Task Analysis

13.5.1 Topic Selection

13.5.2 Requirement Analysis

13.5.3 Find real user to gather details

13.5.4 Create personas

13.5.5 Create Empathy maps

13.5.6 Create User scenarios & User flows

13.5.7 Conduct meetings with real users

13.5.8 Create Sketches

13.5.9 Create Low fidelity wireframes and prototypes

13.5.10 Create High fidelity UIs and prototypes

13.5.11 Implemented the code

14 Design Principles

Sizes of Touch screen Targets

People use their fingers and maybe their toes to engage with touch screens, but it's none of our business. Making interface components large enough to record these actions is crucial. But how large can you make them given the limited size of the screen?

When using their smartphones, people use their thumbs more frequently than any other finger. Small touch targets can be challenging since they need greater precision and are more prone to mistakes. The minimal goal size recommended by Apple's iPhone Human Interface Guidelines is 44 pixels wide by 44 pixels tall. Microsoft recommends a minimum touch target size of 7mm/26px and a touch target size of 9mm/34px in the Windows Phone UI Design and Interaction Guide.

The distance between targets is equally as essential as the target's size. When action buttons are placed too closely together, you run the danger of frustrating the user by having them take unintended actions. To prevent mistakes, it's especially crucial to leave room between action buttons that contradict one other, like the save and delete buttons.

Provide User Control

People enjoy having a sense of control over their behavior. You must thus give them that.

Permit consumers to customize their travels by making choices. The user feels in control of the system when they can modify settings, manage notifications, and stop actions. Apps can make recommendations or issue alerts, but they shouldn't make decisions on your behalf.

Inform the user whenever they require an update! Integrate feedback such as status and other types into your interface without interfering with the user's workflow. If an app requires signup, let users test it out beforehand or use it as a guest to try it out before committing. The user feels more liberated and transparent as a result of this.

Visible Interface Elements

Everywhere you go, people use their phones. They are using their phones everywhere—indoors, out, on buses, trains, and automobiles—as well as in underground and overground transportation (did you get that?).

Your designs must have enough contrast between the information and background for it to be readable in any environment, including outside in the sun. But it's not always simple to achieve the correct level of contrast. For both images and text, the WC3 Web Content Accessibility Guidelines provide recommended contrast ratios. Testing it out with users is crucial when choosing your text and background.

Reduce Data Input

Have you ever started typing on your phone and discovered a few extra letters that don't relate to what you're trying to say? The best of us experiences this. Unfortunately, there isn't a straightforward fix for the problem of typing on small devices except autocorrect, which isn't always accurate. However, you can get around the issue by reducing the amount of data that needs to be entered into your designs. Users are constantly looking for time-saving techniques and effective workarounds. By condensing forms, eliminating blank spaces, and utilising "remember me" choices for future usage, you can assist them in reducing the amount of typing required. Provide autocomplete, recent search history, and location

detection to users to ease their burdens and speed up the process. When entering phone numbers, for instance, show the numeric keypad instead of the standard keyboard to speed up entry. All of these adjustments can significantly impact task completion rates and duration, but more importantly, they can keep users interested in and satisfied with your product.

Prioritise the user

The user should always come first in any design project, and on mobile devices, user needs are even more crucial (and specialised). This should go without saying. Users of mobile devices will easily switch to other websites, apps, or distractions if designers fail to address their needs. Here are a few strategies designers can employ to cater to the unique requirements of mobile users.

Make Navigation Intuitive

Your design's success depends on its capacity to be learned. Users should be able to execute all key actions without needing any explanations and should be able to navigate through your program naturally using clear paths. Users lack the perseverance to follow lengthy stages to accomplish their goals. You will likely lose people if it takes too long or too much work to determine how to utilize your product. User journeys must be reasonable enough to allow the completion of a task in a single app. Avoid requiring users to navigate between pages and apps to complete tasks. Simplify the procedure and ensure access to all the information you require. The user should never be lost while browsing your app, wondering how they got there or what they should do next.

15 Project Management

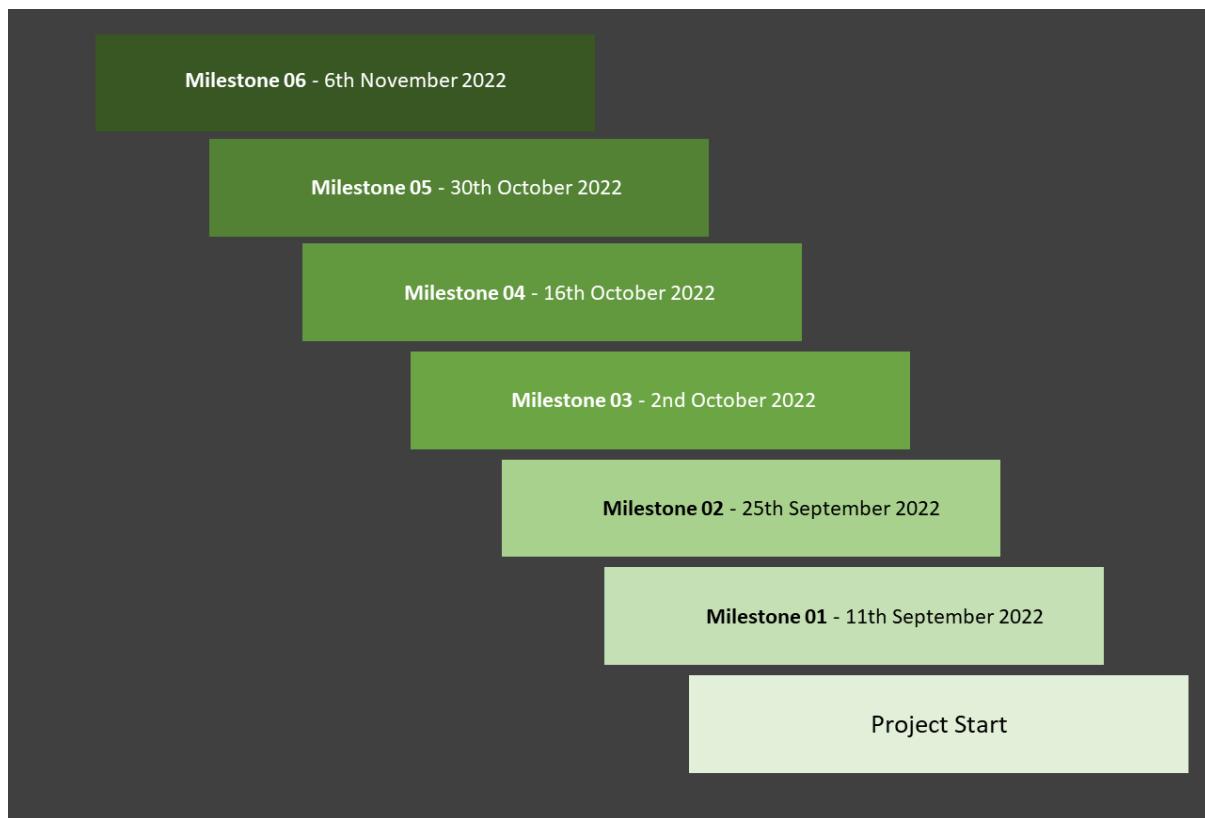
15.1 Meetings

Mainly, there were several ways of conducting meetings. Basically, we went and met with the people related to the selected persona. then conducted meeting as physically . In addition, a meeting was conducted using Microsoft team and zoom technology with persona people who could not be conducted on the physically and the necessary information was collected.

15.2 Risk Management

Technology risk is the main risk is while we are doing this project. already We have idea in here. We use flutter as our Technology choosing for our frontend technology . running a project is complex deliverable . so face risk in while implementing and running our project in flutter . We have risk of gathering the back end and to the frontend by using the rest API.

15.3 Milestones



15.4 Problems Encountered

While creating this application, there were almost several challenges which can be described as below. Basically there were cases where we could not go to meet the people physically and collect information from the person selected for the project. Then as a solution we had to organize the online meeting. There were times when due to busy schedule and various personal issues the person was not able to contact the selected people related to him. Apart from that, busyness and time management difficulties arose. After that we were tempted to share our work and deal with it. We were motivated to find the people we wanted and collect their relevant information again. Accordingly, we were able to face all those challenges and finally overcome them all and create a successful app.

16Conclusion

There are people who love agriculture and the environment as well as people who do agriculture as their livelihood. There are researchers who gather information about this. We can conclude that this app has been designed to be suitable for all these people. Our conclusion is that it has been designed to be easy for all of them to use. It is our conclusion that this app can be used in a very easy and comprehensible way for anyone who asks for information. This app has been created from the admin side so that the admin can do his management tasks easily. This app is rich in efficiency and user-friendliness and it is an ideal app for someone who is looking for information about soil type, soil animals, soil conservation, farming nowadays. This is the final conclusions about our eco bash app.

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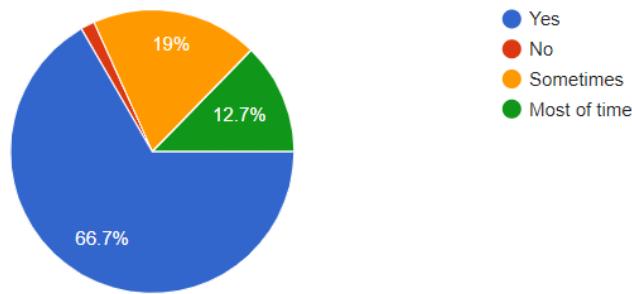
Appendix

16.1 Initial User Survey Responses

Do you think farmers or gardeners must think more about the land above the profit or harvest?

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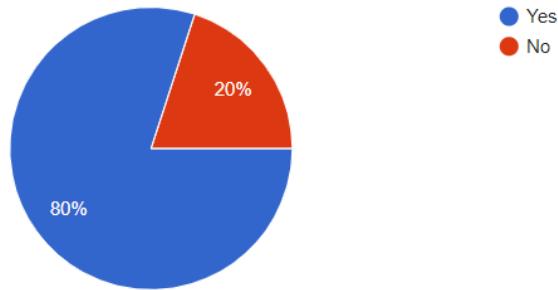
63 responses



Do you engage in gardening?

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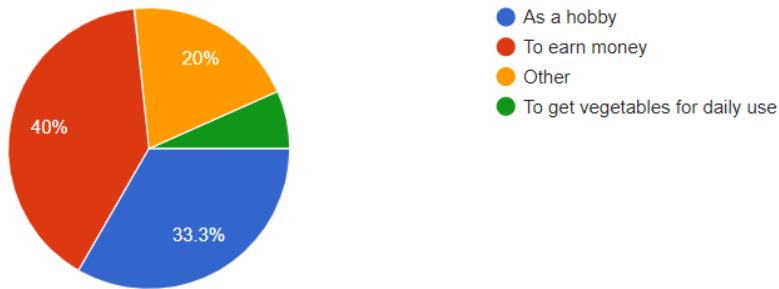
15 responses



If so, under which of the following reasons is it done?

 Copy

15 responses

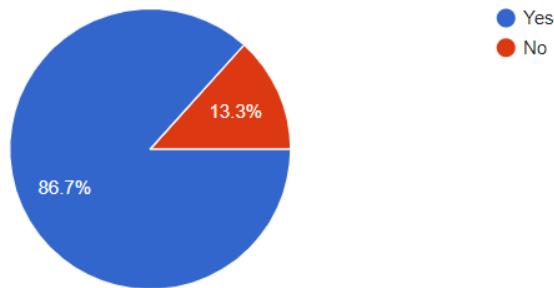


- As a hobby
- To earn money
- Other
- To get vegetables for daily use

Do you think a proper understanding of soil nature is essential for gardening?

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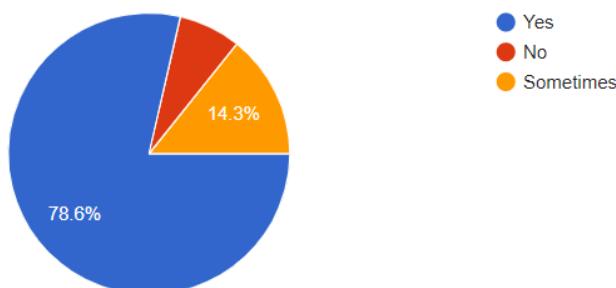
15 responses



Are you concerned about the nature of the soil when you are engaged in gardening?

 Copy

14 responses



16.2 Links to Google Docs / MS Teams

<https://forms.gle/1wb36DD4AYDTyRtZA>

16.3 Contribution Table

IT number	Name	Contribution
IT20125066	Chandrasena. A.P.M	<ul style="list-style-type: none">• Equally contributed to the document creation• Developed Own functionality of the app• Make own millstone documents
IT20147082	D.H.S.V. Dhanapala	<ul style="list-style-type: none">• Equally contributed to the document creation• Developed Own functionality of the app• Make own millstone documents
IT20258030	Gunawardhana H.P.M.N	<ul style="list-style-type: none">• Equally contributed to the document creation• Developed Own functionality of the app• Make own millstone documents
IT20136710	Kariyapperuma K.M.K.R	<ul style="list-style-type: none">• Equally contributed to the document creation• Developed Own functionality of the app• Make own millstone documents