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SECD2613 – SYSTEM ANALYSIS

AND DESIGN

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Community Garden Management Application System

PHASE 2:

Information gathering and requirement analysis.

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1.Introduction:

In the continuation of the progress that we made in phase 1 by setting the feasibility studies and setting the base plan for the project. In this phase, we will continue to gather Identify the necessary information and analyze the current system performance. Mistakes and problems, collecting information from gardeners, and specifying the information gathering methodologies. We are going to use two methods: interactive, with interacting directly with the participants, and unobtrusive, which focuses on observation, Also, all will be defined functional and non-functional requirements. Our main objective from this phase 2 research is to capture the gardener's expectations for the new application system. Critically analyzing the current system and engaging with the garden manager, we wish to gather valuable insights that will inform the implementation of a simple and efficient system in the development of the project. The emphasis is on creating interfaces for the application that provide seamless communication in line with our goals and objectives.

2.Problem Statement:

1-knowing of community gardens in Johor that are operating, out of operation, or even operating seasonally. Many gardeners and volunteers face difficulty in knowing the locations of community gardens and accessing their locations through Goul maps.

2-hardest to knowing who runs the community garden, the system, and the information that is important for gardeners before joining a community the garden. The difficulty of knowing the system it is working with, whether it is. the system using plots or planer beds or other, and to know the complete and basic information about the garden in terms of its area, quality, and nature of the soil in terms of whether it is organic or uses fertilizers, or whether it is a

garden for growing vegetables, fruits, or other products).

3-Difficulty contacting the landowner or the garden director. To reserve the plots, it is difficult for gardeners to quickly find the garden owner to communicate and choose a plot and its area and location within the garden.)

4- the difficulty of remaining fully informed about both the gardeners and the owner. Without a permanent means of communication between people, it is difficult for them to follow up the work and keep control of all the steps that are accomplished in the garden such as plowing the soil, sowing the seeds, or periodically cleaning the garden, fighting plant pests in the garden, or even when the date of harvesting the fruits or products comes.

5-The lack of a platform among gardeners to exchange expertise and experiences, share the results and feedback of their work, create and save reports for those who willing to join the later the garden community can get the real benefits from them, easily and smoothly, with the availability of recorded data and reports about the history of the garden in terms of the quality of the soil and the environment surrounding the garden.

6-non-involvement of the volunteers and beginners. The need of volunteers and beginners in this field to learn how to contribute to the community garden and take care of their plots which could be planted with various types of plants so that they will be ready for been a volunteer in the community garden whenever volunteer opportunities open.

7-Poor advertising and promotion of the community garden. The community garden's lack of advertising weakens its importance and its main goal of being a community place in which most members of society contribute.

3. Proposed Solution

After conducting an interview with many gardeners and admins of garden

community in Johor Baharu. And conducting survey and observation We decided to create a mobile application for community garden that would help in managing, improving and sharing the garden community benefits and help gardener in their tasks.

What will be provide in the app:

Communication Tools: Allow members to stay connected, share updates, and work together on garden activities through messaging, notifications, and group chats.

Photo Sharing: Allow users to upload and share photos of their garden plots, harvests, projects, and events within the community.

Community Forum: Facilitate discussions, Q&A sessions, and knowledge. sharing among members on gardening topics, challenges, and successes.

Sustainability Tracker: Track the garden's environmental impact, water usage, waste reduction efforts, and carbon footprint to promote eco-conscious practices.

Partner Directory: Feature local businesses, organizations, and sponsors that support the garden community with discounts, resources, or collaborative opportunities.

The app for a community garden will enhance communication, increase engagement, streamline organization, foster community building, and facilitate knowledge sharing, promote sustainability, and generate financial support. and it will serve as a centralized platform for community members to stay connected, share updates, and collaborate on gardening projects. as will the app provide access to resources, educational content, volunteer opportunities, and interactive features, promoting environmental stewardship and fostering a sense of belonging.

4.Method of Gathering Information:

4.1 Method 1: interactive method

4.1.1 Interview:

Here are one of our interview with Mr.Alex Kee :

Type of questions	Interview questions
Welcoming introduction	<p>Tagwa: "Good evening, Mr. Alex Kee, manager of the garden community at Johor Green. I appreciate you taking the time to be interviewed. I'm Tagwa, a first-year student at the UTM Faculty of Computing, and I'm working on creating a new application that will make it easier for gardeners like you to organize your work and interact with one another. We value your opinions and experiences much and are grateful that you are willing to share them with us.</p> <p>Tagwa: "I'm glad to be here. I am excited to share with you my experiences. I've had a strong passion for gardening, and working in a community garden has been an excellent experience. I'm excited to share ideas about how we can further develop our gardening activities by better communication tools and managing</p>
Open ended question	<p>Tagwa: Could you briefly describe your experience with community gardening? What roles do you usually play and how long have you been getting involved?</p> <p>Mr. Alex: "I've been a community gardener for the past three years or so. Initially, I</p>

	<p>worked with planting and weeding as a volunteer. I progressively accepted more responsibilities, such planning planting schedules and coordinating volunteer activities. I serve in training new members to the principles of sustainable gardening."</p>
Open-ended question (board question)	<p>Currently, how do you organize and handle your gardening tasks?</p> <p>Mr. Alex: "I try to stick to my to-do list, which I normally make at the start of the week. Sometimes, I make immediate choices based on what needs the most consideration."</p>
Open-ended question] (board question)	<p>Tagwa: What methods do you use to communicate with gardeners about gardening-related matters?</p> <p>Mr.Alex : "We mostly use WhatsApp or sometimes just talk in person when we meet at the garden.so there's no formal system."</p>
Open-ended question	<p>Tagwa: Without the use of any digital tools, could you explain a normal day working in the garden?</p> <p>Mr.Alex: "I start by checking on the plants, watering them, and then moving on to tasks like weeding or planting new seeds. I coordinate with other gardeners if they're around, but often it's just me working on my own."</p>
Open-ended question	<p>Tagwa:What are the biggest challenges you're facing with the way the garden is now managed?</p> <p>Mr. Alex: "There's no denying that communication is the largest obstacle. It's challenging to keep everyone informed and in harmony. Tasks are occasionally overlooked</p>

	or repeated.
Open-ended question	<p>Tagwa:How do you handle task assignments and scheduling among the gardening team?</p> <p>Mr.Alex: "We usually discuss tasks informally when we meet or through our WhatsApp group, but it's not very efficient. It would be better to have a more organized system."</p>
Open-ended question	<p>Tagwa:How do you keep records of gardening activities, such as planting dates, watering schedules, and harvest times?</p> <p>Mr.Alex: "I keep a personal notebook where I jot down important dates and notes, but it's not shared with others, so there's no centralized record."</p>
Open-ended question	<p>tagwa:How do you ensure that anybody who gardens is informed of any noteworthy additions or changes to the garden?</p> <p>Mr. Alex "We depend on our WhatsApp group for updates, but it's easy for messages to get lost or missed, especially when someone isn't checking regularly."</p>
Open-ended question (follow-up)	<p>Tagwa:Can you provide an example of a situation where miscommunication led to problems in the garden?</p> <p>Mr.Alex: "Once, we had an issue where we over-watered a section of the garden because different people thought it hadn't been watered. It ended up damaging some plants."</p>
Open-ended question	<p>Tagwa:How do you currently share gardening knowledge and tips among the team?</p> <p>Mr.Alex: "Mostly through informal conversations when we meet at the garden. Sometimes we share links or articles in our WhatsApp group."</p>
Open-ended (more specific question)	Tagwa: What do you feel about the time and effort required for manual task organization

	<p>and communication?</p> <p>Mr. Alex: "It takes a lot of time and frequently seems ineffective. A more effective system in place, in my opinion, would allow us to be far more productive."</p>
Open-ended question	<p>Tagwa:What features do you believe an application could offer to help you with the problems you're now facing?</p> <p>Mr. Alex: "It would be great to have a task management system, an events calendar that is consolidated, and real-time communication tools. Important update notifications would also be very helpful.</p>
Close ended question	<p>Tagwa:Do you prefer receiving updates about garden activities via email or a mobile app notification?</p> <p>Mr.Alex: Mobile app notification.</p>
Close ended question	<p>would you like the option to share photos of plant progress and issues within the gardening app?</p> <p>Mr.Alex: Yes</p>
Close ended question	<p>Tagwa:Do you think having a pest and disease tracking feature would improve garden management?</p> <p>Mr.Alex: Yes.</p>
Close ended question	<p>Tagwa:Would you be willing to participate in a trial period to test the new gardening management application once it's developed?</p> <p>Mr.Alex: Yes</p>
Closing the interview	<p>Tagwa: "I really appreciate you taking part in this interview, Mr. Alex Kee. We will be able to create a better gardening management application with your crucial insights. We hope to keep you informed of our</p>

	<p>developments and maybe include you in a trial period. Your opinions are very important to us. Once again, I appreciate your time and effort.</p> <p>Anything you want to add?</p> <p>Mr.Alx: Nothing to add thanks.</p>
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4.1.2 Questionnaire:



garden community application

this questionnaire is part of our project under the course of system analysis and design. We are sure that your response will help us in developing a new mobile application for all gardeners in Johor.

for more information on our project and our vision,
Contact us at (+18086720) or bashirbdulla@graduate.utm.com

tagwaabdulkubur1999915@gmail.com [Switch account](#)



Not shared

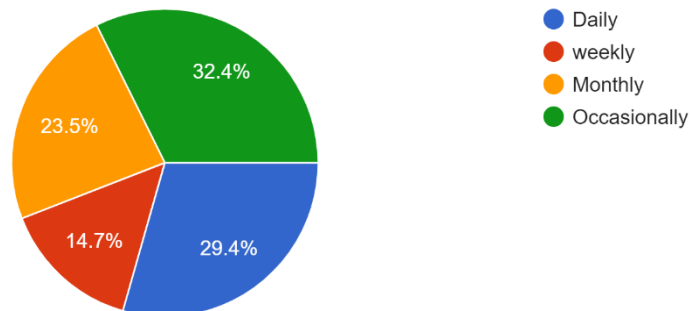
* Indicates required question

How often do you participate in community garden activities? *

- ☐ Daily
- ☐ weekly
- ☐ Monthly

How often do you participate in community garden activities?

34 responses



Daily (32.4%): Approximately one-third of the participants regularly participate in community garden activities. This shows a high degree of dedication and implies that gardening is probably an important aspect of these people's everyday lives.

Rarely (14.7%): The people who participate infrequently make up the smallest group. This could include individuals who would like to garden fewer times or who are interested in it by just be as a volunteer ,we also we considered their needs in our project.

As gardener What are the main communication challenges you face in the community garden? *

☐ Coordinating schedules

☐ Sharing updates and information

☐ Tracking tasks and responsibilities

Which features would you find most useful in a gardening management app?

☐ task reminders

☐ Shared calendar

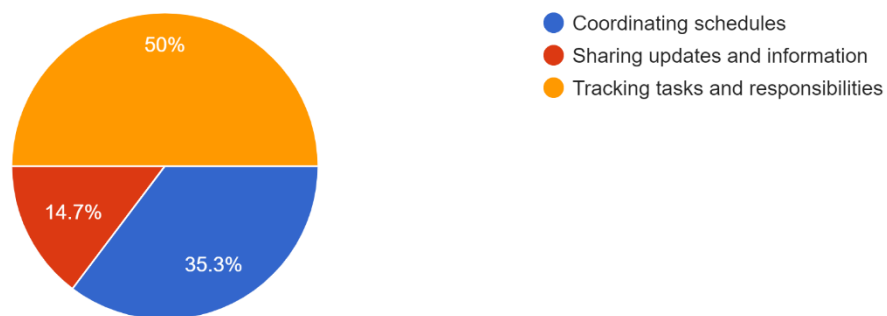
☐ Real-time messaging

☐ Photo sharing

☐ Pest and disease tracking

As gardener What are the main communication challenges you face in the community garden?

34 responses



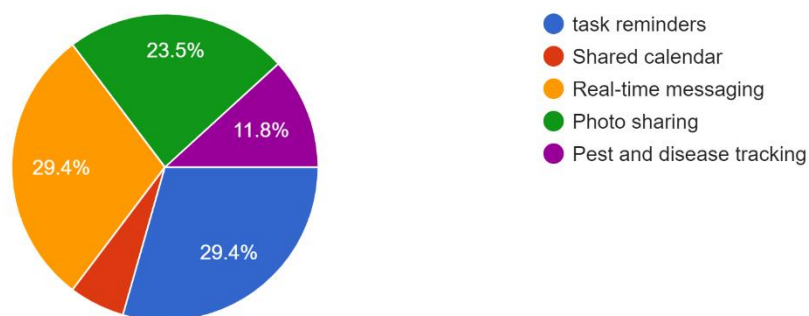
Coordinating Schedules (50%): This is the main communication problem mentioned by half of the respondents. This suggests that organizing and coordinating different gardeners' availability for group projects or activities can be quite challenging.

Sharing Updates and Information (35.3%): Sharing updates and information is difficult for more than one-third of gardeners. This raises concerns about the efficient distribution of pertinent and timely information among community members, which is essential to a community garden's seamless operation.

Tracking Tasks and obligations (14.7%): The percentage of people who find it difficult to track tasks and obligations is slightly lower, at 15%. This suggests that it may be difficult to keep track of who is in charge of what, which could cause confusion or neglected tasks.

Which features would you find most useful in a gardening management app?

34 responses



The feature that respondents like the most is Task Reminders (29.4%). This indicates that over 30% of respondents value having reminders for gardening activities, underscoring the significance of timely task management in gardening.

-Shared Calendar (28.4%): This feature, which is almost as popular, facilitates gardeners scheduling schedules together, highlighting the need for cooperative planning in communal gardens.

-Real-time Messaging (23.5%): More than half of gardeners think it's important to be able to talk to other gardeners instantaneously, as this is important for exchanging updates and making decisions right away.

- Photo Sharing (14.7%): A lesser percentage of respondents thinks photo sharing is helpful for

communicating plant conditions, tracking progress, and seeking guidance on gardening-related problems.

- Pest and Disease Tracking (11.8%): This feature, which is the least popular but yet significant for some, entails keeping an eye on and controlling the health of plants, signaling a specific need for dealing

How do you currently keep track of gardening tasks and schedules?

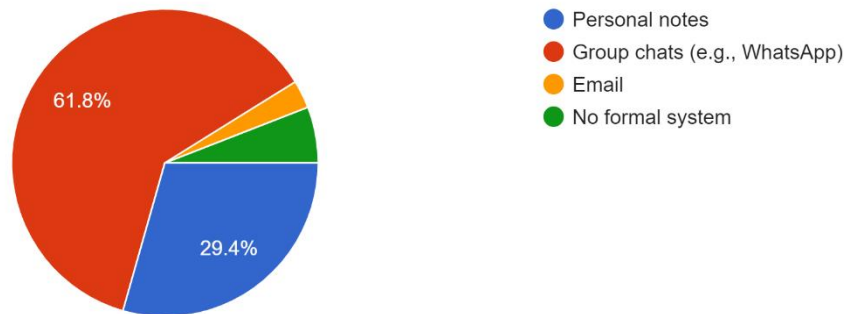
- ☐ Personal notes
- ☐ Group chats (e.g., WhatsApp)
- ☐ Email
- ☐ No formal system

How important is it to have a centralized system for managing garden tasks and communication?

- ☐ Very important
- ☐ Important
- ☐ Neutral
- ☐ Not important

How do you currently keep track of gardening tasks and schedules?

34 responses



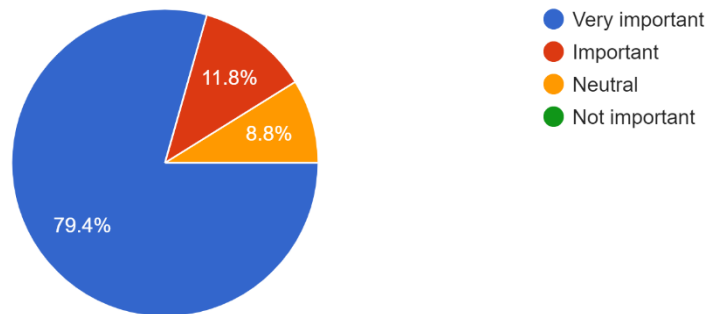
-Personal Notes (61.8%): More than 60% of respondents said they use personal notes to remember gardening chores and appointments. This implies a preference for conventional, individual organizational techniques, which can differ in efficacy and accessibility.

-Group conversations (like WhatsApp) (29.4%): Approximately 30% of respondents use group conversations to coordinate. This suggests that instant messaging services are widely used for group activities and real-time update sharing in collaborative communication.

-Email (8.8%): A lesser percentage of gardeners manage their chores using email. This is probably a more formal technique, and people who prefer a more structured way of exchanging information may utilize it for less urgent conversations.

How important is it to have a centralized system for managing garden tasks and communication?

34 responses



The pie chart displays the views of 34 participants regarding the significance of a mobile application for communication and work management in gardens:

- Very Important (79.4%): Almost 80% of respondents, or a dominant majority, think that having a mobile application is crucial. This suggests that an integrated approach to effectively manage gardening activities and communications is strongly felt to be necessary.

- Important (8.8%): Although less people may not believe a mobile software application is essential, they do recognize its significance.

- Neutral(11.8%): A modest group is neutral, suggesting that they may be undecided regarding the necessity of such a system or potentially content with the ways things are done now.

The statistics makes it abundantly evident that the majority of gardeners consider mobile application systems to be quite beneficial, indicating that putting one in place could.

Would you be willing to use a mobile app to manage and communicate about gardening tasks?

☐ yes

☐ no

☐ maybe

What type of notifications would you prefer for updates about garden activities?

☐ Mobile app notifications

☐ Email notifications

☐ SMS messages

☐ in-app notifications only

And finally would you be interested in participating in a trial of the new gardening management application

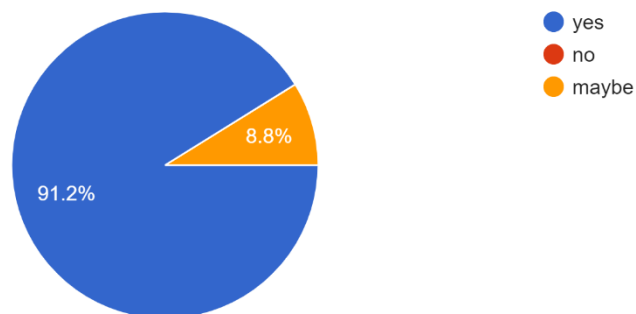
☐ yes

☐ no

☐ Maybe

Would you be willing to use a mobile app to manage and communicate about gardening tasks?

34 responses



Willingness to Use the Mobile App:

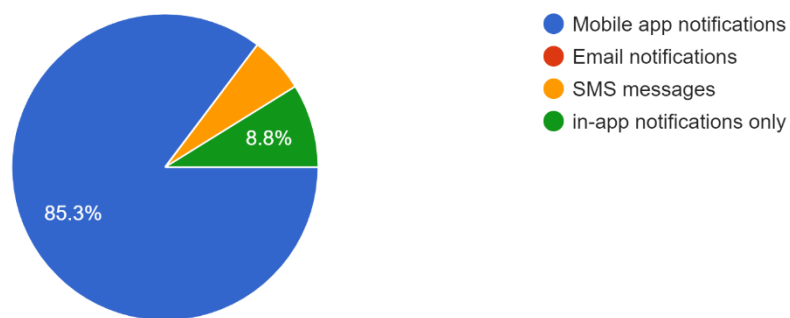
- Yes: 31 out of 34 respondents, or 91.2% of the sample, said they would be interested in using a mobile app to keep track and discuss gardening-related tasks.

- No: 0% gave a negative response.

Maybe: Of the 34 respondents, 8.8% (3 are not sure if they would use such an app).

What type of notifications would you prefer for updates about garden activities?

34 responses



-notification via Mobile App: 85.3% of respondents would rather get updates via alerts within the mobile app.

-E-mail Notifications: 8.8% of respondents said they prefer email updates.

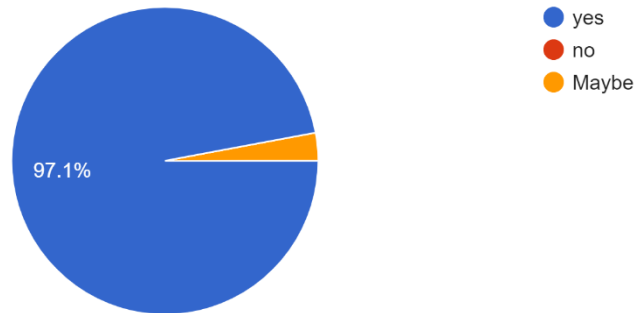
- SMS Messages: 5.9% of respondents prefer receiving updates via SMS.

- In-app Notifications Only: 0% of respondents selected this option, indicating a preference for more straightforward means of communication.

The results show that, while some were accepting to receiving updates via emails and SMS messages, respondents strongly preferred using a mobile application to manage garden tasks and to receive updates largely through notifications on the application.

And finally would you be interested in participating in a trial of the new gardening management application

34 responses



- Yes: Of the respondents, 33 out of 34 or 97.1%, indicated that they would be interested in taking part in the experiment.

- No: 0% gave a negative response.

- Maybe: Of the 34 respondents, 2.9% are unsure whether to participate.

The above chart shows a strongly positive response to the new gardening management application's test, indicating high potential user engagement and project passion.

Method 2: unobtrusive

Observation:

Our Attending the community garden and making some observations provided us with valuable insights that greatly aid in identifying the actual needs in our app. Here are some of the observations we take throughout our visit to the community garden in Johor.

1.Communication Methods:

Communication Methods: Face-to-face interactions, WhatsApp groups, and occasional email updates are the primary informal ways that gardeners communicate.

2.Organizing Tasks:

Tasks are frequently distributed directly or in the form of handwritten notes. Confusion and conflicting duties may result through this.

3.Scheduling and Planning:

Arranging volunteer activities like gardening clean-ups and planting sessions is challenging without a shared calendar.

4.Recording:

A lot of gardeners record planting dates, watering schedules, and harvest times in physical notebooks or in their own handwritten notes. These documents are not widely available to others and are not documented.

5.Knowledge Sharing:

suggestions and advice are shared between gardeners, but there is no formal system in place to record and distribute this important knowledge.

5.Pets:

Addressing issues such as pest infestations or plant diseases is done reactively, often without a systematic approach.

7.Engagement and Inclusivity:

While the community garden is active and vibrant, some members feel left out due to a lack of structured communication and coordination.

8.Tools and resources:

Members share tools and resources, but improper inventory management means they aren't always available when needed.

Requirement in the application based on observation:

1. To facilitate information sharing and guarantee that everyone is informed in real time, a centralized communication platform is required.
2. An app with a well-organized task management feature might make it easier to assign, track, and update assignments effectively, which would reduce miscommunication and missed deadlines.

3. Adding a shared calendar could be useful for organizing events and encouraging greater engagement by sending out timely reminders.
4. A digital log or journal feature in our app could centralize these records, making them accessible to all members and ensuring continuity.
5. Adding a feature for sharing tips, tutorials, and experiences could enhance learning and improve gardening practices across the community.
6. Adding a feature for sharing tips, tutorials, and experiences could enhance learning and improve gardening practices across the community.
7. The app could enhance engagement by providing an inclusive platform where all members can contribute, share, and stay updated on garden activities.
8. To make sure that tools and resources are available when needed, an inventory management function in the app might track their availability and consumption.

4.3 Summary:

These gathering information methods underscore first what the gardener facing in the current system (AS-IS) and their expectations in having new system, also information gathering clarify the comprehensive need management system in shape of mobile application to address the current communication and management challenges in the community garden.

5. Gathering Insights Into Desired Features of the New System (TO-BE)

To comprehend what functions users hoped to see in the upcoming Community Garden Administration Application System, we performed an exhaustive examination of present workflows and accumulated patron necessities through both engaging and subtle techniques. This stage necessitated engaging with primary stakeholders, like gardeners, volunteers, and administrators, to understand their anticipations and find pain points in the present arrangement.

Current process/workflow:

The current procedures in the community gardens involve several manual and casual methods. Gardeners generally oversee their assignments using personal reminder lists, and communication is generally handled through casual paths like WhatsApp or face-to-face interactions. This absence of a formal system brings about inefficiencies, for example, failed to communicate important information between parties. Another issue is volunteers often show up at the same time, leaving other time slots unattended. This comprehensive review allowed us to recognize opportunities to enhance functionality and streamline operations through a digital solution.

Functional Requirements (AS-IS):

We used the operations of the existing system to identify functional requirements. For example, ones that include: task management tools, Gardeners messaging each other about work they have done or plan to do the next morning; a record of what has been planted and what has been harvested on any given weekend with help from volunteers. Today, there is no tool for gardeners that allows for assigning and tracking of tasks centrally — this makes it difficult to ensure all required work has been done to the standard needed in a rapid manor. In addition to that communication is scattered and there's no standalone medium in place where a Gardner can follow up for further information or help. Individual record-keeping means that gardeners keep notes and track progress on paper or in personal records, which results in an absence of uniform information about the activities of a community garden.

Non-Functional Requirements (AS-IS):

As for the non-functional requirements, they were also performance indicators like system reliability, usability, and security. One such instance could be that the absence of a central

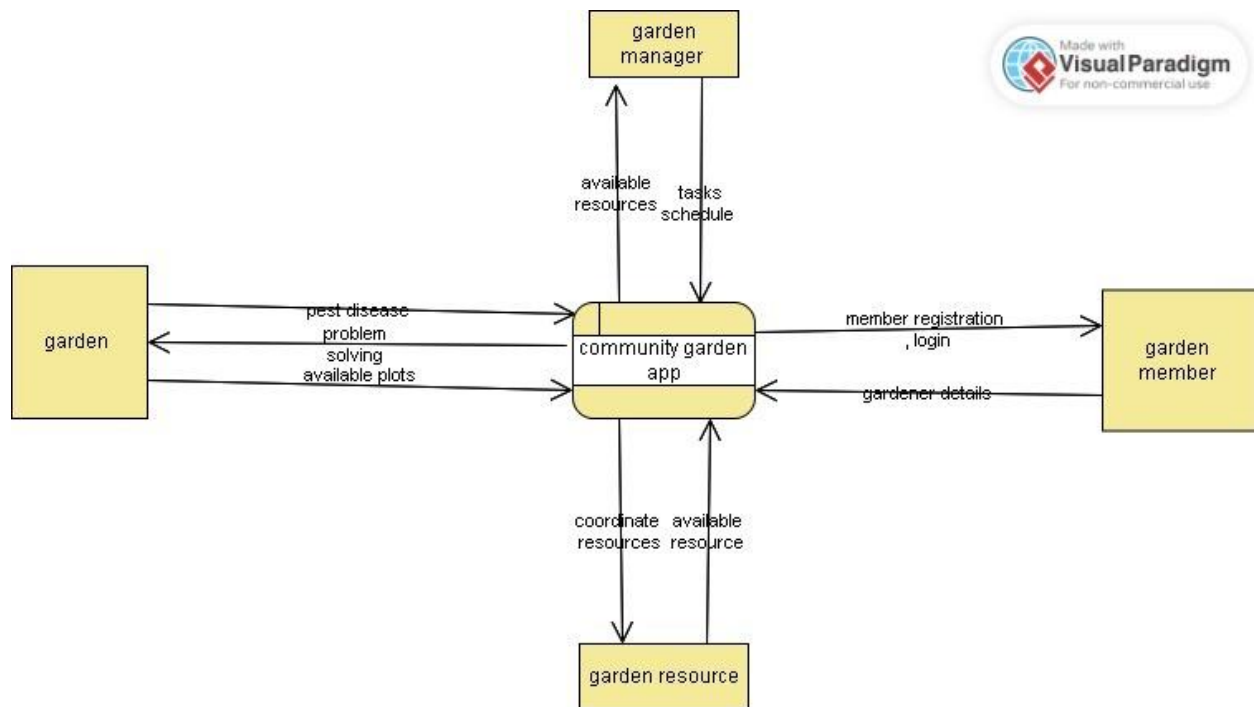
communication platform in our current system leads to uneven distribution of information, causing miscommunication and mistakes. There are also concerns surrounding usability. The unwritten culture of the garden and its existing planning tools do not provide a way in which new members can understand, let alone be involved with, the community. Another critical aspect is security. At the moment, all personal information about gardeners and volunteers ends up shared informally, with no guarantees or safeguards. It is of the utmost importance to address such non-functional requirements because an effective system must also be secure and user-friendly.

Logical Data Flow Diagrams (DFD) (AS-IS):

To show the current system, we made big pictures and basic data flow charts, these Show how info moves in the garden group, and the links between gardeners, helpers and garden leaders. The big picture gives an overview of the system, while the basic DFD breaks down the steps into more parts and shows how data is worked on and kept.

This way of showing info helped us find spots where the current system is not good and where the new system can make things better. By collecting and looking at this info, we tried to get a full view of the current system (AS - IS) and set up a good base for setting the needs for the new system (TO - BE). This way makes sure that the new community Garden App System will be made to fit the needs of its users and make garden work better.

5.4.1 Context diagram



5.4.2

