

MOBILE WEB TO CONTROL FARMING SYSTEM

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SUPERVISOR'S DECLARATION

I hereby declare that I have checked this project report and in my opinion this report is satisfactory in term of term of scope and quality for the quality for the award of the degree of Bachelor of system computer and networking with honor.

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I hereby declare that the work in this report is my own except for the quotations and summaries which have been duly acknowledged. The report has not been accepted for any degree and is not concurrently submitted for award of other degree.

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ABSTRACT

In the present modern agriculture continues to grow by leaps and bounds. Many technologies have been developed agricultural systems in the new millennium era. Accordingly, IT technology (network) is also capable of developing modern agriculture with the use of IT systems. In addition, the IT facilities in agricultural systems can make employees work more comfortable and save energy. Peasant farmers Malaysia now many still use the old method and it causes them to need a lot of manpower to manage their agricultural park perfectly. Can they hire too many workers to keep their farms? So I am planning to build a system using technology IT. This is because mobile phone technology has been used extensively. By using a wireless network, all things can be overcome piping where the pipe system can be controlled to open and close the drain pipe for watering and fertilizing plants. Communication between sensor nodes and servers is achieved through wireless modules. The architecture of the whole system shows the advantages of cost, size, flexibility and power it is believed that the result of the project allows the opportunity to perform research and development.

ABSTRAK

Di masa kini pertanian moden terus berkembang dengan pesat. Banyak teknologi yang telah membangunkan sistem pertanian dalam alaf era baru ini. Justeru itu, teknologi IT (rangkaiannya) juga mampu membangunkan pertanian moden ini dengan menggunakan sistem teknologi IT. Di samping itu, kemudahan IT dalam sistem pertanian boleh membuatkan pekerja bekerja dengan lebih selesa dan menjimatkan tenaga. Petani petani Malaysia kini masih ramai yang menggunakan kaedah lama dan ianya menyebabkan mereka memerlukan banyak tenaga kerja untuk menguruskan taman pertanian mereka dengan sempurna. Mampukah mereka mengupah pekerja terlalu ramai untuk menjaga ladang mereka? Jadi saya merancang untuk membina sebuah sistem dengan menggunakan t. Ini kerana teknologi telefon mudah alih telah digunakan dengan luasnya. Dengan menggunakan rangkaian wayarles, segala urusan perpaipan dapat diatasi dimana sistem paip dapat dikawal untuk membuka dan menutup saluran paip untuk menyiram dan membaja tanaman. Komunikasi antara nod sensor dan pelayan dicapai melalui modul-modul wayarles. Seni bina sistem keseluruhan menunjukkan kelebihan kos, saiz, fleksibiliti dan kuasa ia dipercayai bahawa hasil projek membolehkan peluang untuk melaksanakan penyelidikan dan pembangunan

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LIST OF ABBREVIATIONS

No.	Short form word	Meaning
1	MFS	Mobile Farming System
2	RAD	Rapid Applications Development
3	SDLC	System Development Life cycle
4	SSADM	Structure System Analysis and Design Method

CHAPTER 1

INTRODUCTION

1.1 Introduction

Project engineering Bachelor chains (mobile farming system) is a system that will be developed to help of farmers to modernize agriculture system and to see how the system can help to save the number of employees of farmers, cost, time and so on. This system can help them to watering or fertilizing their crops just using the phone.

The rear end is a process that users cannot see how it's working with this part, I will help farmers of traditional or modern farmer to find out and check the status of the system whether it works well or not.

This process focuses on farming or agriculture. Using this system, it will explain how system can help farmers to become their complete farming to reduce the cost of recruitment. This transformation services to create a system to facilitate ways for watering, fertilizing crops without using a lot of manpower.

Systems can also be carried at all times by a variety of weather conditions such as rain and heat. By using mobile chains farmers can open and close the anointing water and temper them even if they are anywhere.

2.1 Problem statement

The purpose of this project is to identify problems of farmers who need more people to manage gardens and their plants. However, they face several problems with the current system is done manually. The basic hypothesis is that of farmers can save labor cost and use the money to further expand their farming system portable. It can also prevent workers from being exposed too long in the sun and can save time employees and will reduce energy applied to commute to the garden. The problem with the current system is done manually.

There have 2 problems in the current system will be reduced by using this system:

i. Watering and fertilizer management at the garden

The current system does not have a support system that can guarantee agricultural production will do a good job during bad weather such as rain and drought. Weather conditions such as these employees will be lazy for gardening like watering and fertilizing their crops as they were. The system now has a schedule for watering and fertilizing employees do on a daily, weekly or monthly. It could save their workforce as well as they can activate the system even if they are anywhere. This process is important for ensure their crop is in control despite being anywhere using portable agricultural system.

ii. Requires a lot of workers in every large garden

The current system requires a lot of labor to farm owners who have a lot where people have to go every gardener to open the tap to pour water or for fertilizing. With this system a farmer can reduce the manpower to monitor every farm and can reduce the time for employees to move from one place to another.

iii. Working environment

3.1 Objective

The implementation of this project is expected to reach the following objectives:

- To develop a system to control watering and fertilizer management via web mobile phone
- To reduce the time for staff to manages the gardens and reduce manpower.
- To propose computerize system

4.1 Scopes of Study

- Planning on using simple system and less number of hardware
- Analyze system available to build new system
- Design a web base system and coding to send instruction to GPIO at raspberry pi model B+ and used the relay to control switch.
- Build a complete system with software and hardware
- Testing to system
- Introduce the system to the user

CHAPTER 2

EXISTING SYSTEM

2.1 Introduction

Mobile farming system enhances everyday life of farmers. You would not believe the level of the superior comfort, convenience, control, security and energy efficiency until you have experienced it yourself. The Clipsal range of smart products, it is easy to be energy efficient.

This chapter discusses the research conducted over the past studies related to the project. The materials used in this study include manual piping and liquid fertilizer system manually. Only issues regarding the project sought, collected and analyzed to compare the methods and technology used in addition to finding the best solution to the problem.

Mobile Farming Systems is a creator and manufacturer of commercial and personal hydroponic systems. Our feature product is the Garden Stand, a patio sized hydroponic grow system. No more stooping and digging in the dirt to have a magnificent garden in your back yard. Our systems work with nutrients, water and gravity and will provide you and your family with an enjoyable and rewarding gardening experience without the dirty mess of typical gardening.

The development of mobile agricultural systems are usually based on the life cycle model using mobile chains for gardening has several stages of development and with a set of steps and rules for each level. The tasks involved in each step, the nature of each task, and the order in which tasks need to be done.

2.2 Existing System Description (Mobile Farming System)

The so-called mobile farming system to take advantage of automation technology and modern building techniques to deliver a new level of control of the owner of farmer's .Farmers can be built from scratch with automation as a key design goal, or built from existing farm during a major renovation. In both cases, mobile farming system offers several advantages over conventional farming.

2.2.1 Advantage of system

i. Convenience

Convenience is one of the biggest reasons that people build and buy mobile farming system. This field gives users remote access to the system, including heating and cooling systems throughout the farm. Integrated watering system allows landowners to gardening or farm manure everywhere easily. All of these agricultural systems technology portable coordinate common tasks.

ii. Accessibility

For farm workers, agricultural system portable display technology facilities. Voice-command system can do things like watering and fertilizing system operates using a mobile. Automation system allows an individual to set a schedule for automatic tasks such as watering the lawn, eliminating the need to perform these tasks remain labor intensive.

iii. Resale

When it comes time to sell mobile farming system, the seller will have many selling points effectually. Any chance of a portable agricultural system appeal to buyers is given; the seller can explain the system and discuss how it makes life easier. Farms with automated systems have the potential to sell for more than comparable conventional technology of agriculture. Automate farming systems can be a worthwhile investment in improving the market and attract buyers might in the future.

A mobile farming system allows you to save money and save the environment! If you're like me and getting forgetful in my old age of automation system to turn off the equipment for watering and fertilizing are turned on and draw little power. This saves the cost of hiring.

2.2.2 Disadvantage of system

i. Need networking

This system requires a string of internet all the time to the relationship between the spraying systems with portability. It can only work if the string of the internet works fine.

Networking is the process by with interconnected computers and users can speak to each other and transmit data back and forth. It is a great tool, but has disadvantages and vulnerabilities. Some of these disadvantages are viruses, poor system management, and dependency upon the network. Viruses can damage the network causing data to stop flowing; poor system management can cause similar issues. When programs and users depend on the network, when something happens, programs will stop running and the work flow will cease.

2.3 Existing System Description (manual farming system)

2.3.1 Advantage of system

Able to function even if there is no internet network using well able to monitor workforce estates are in good condition.

Helping people get jobs around the farm while helping employees from sleeping during the job.

2.3.2 Disadvantage of system

- Autonomy of the manual system of agriculture is that it cannot work if the employee is not in the field as to install the spraying and fertilizing.
- This system does not give users remote access to the system, an integrated water system and the difficulty of landowners to gardening or farm manure everywhere easily.
- It requires more labor than agricultural systems make easy to monitor the system performed perfectly. Besides, this system makes employees become tired to commute from one farm to another farm. It reflects the many farm owners. Labor difficulties for workers there is very high if not have many employee.


	Save cost	Save energy	Easy to manage the garden	Accessibility
Mobile Farming system	★★★★	★★★★	★★★★	★★★★
Manual Farming system	★★	★	★	★
 <p>★ very poor ★★ poor ★★★ good ★★★★ very good</p>				

Figure 2.1: Average the advantage use system and not use the system

1. Mobile farming system

- That mobile farming system are save cost that mean save cost to manage workers or can reduce number of workers to manage the garden.
- Save manpower to commute from farm to farm to open and close the water spraying system and application run its.
- That system to help the farmers to manage that garden with easy like easy to control the system piping.
- Those accessibility farmers can do that spraying activities in any ware they have. The worker can make observer and just info to farmers about current weather like hot or cool.

2. Manual farming system

- That manual farming system is useless save cost because that need use many workers in the gardens and the need manage many workers in that company.
- It manual system need more manpower to manage that garden to open an close the water spraying system without application run its
- Old system needs hard work to manage that garden and control the system piping and need to waiting until activities finish.

2.4 Step User Mobile Farming System

System using a mobile phone system gives many advantages to agricultural production. it saves energy and time employees in addition to the comfort of the employees.

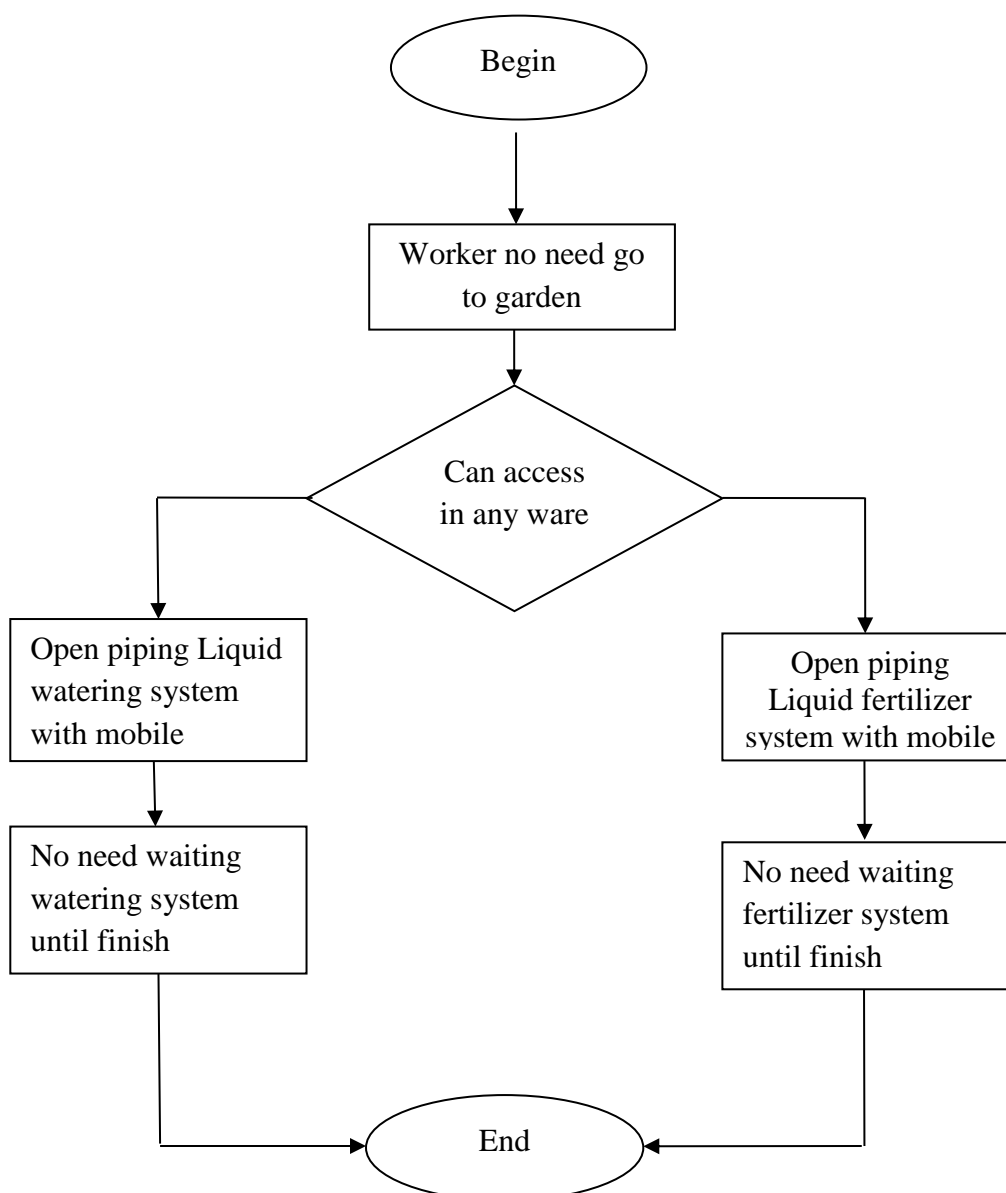


Figure 2.2: Flow chart about the use mobile farming system

2.5 Step User Manual System

Manual system does not provide a lot of advantages to agricultural production and it takes a lot of energy and time employees in addition to not give comfort to employees.

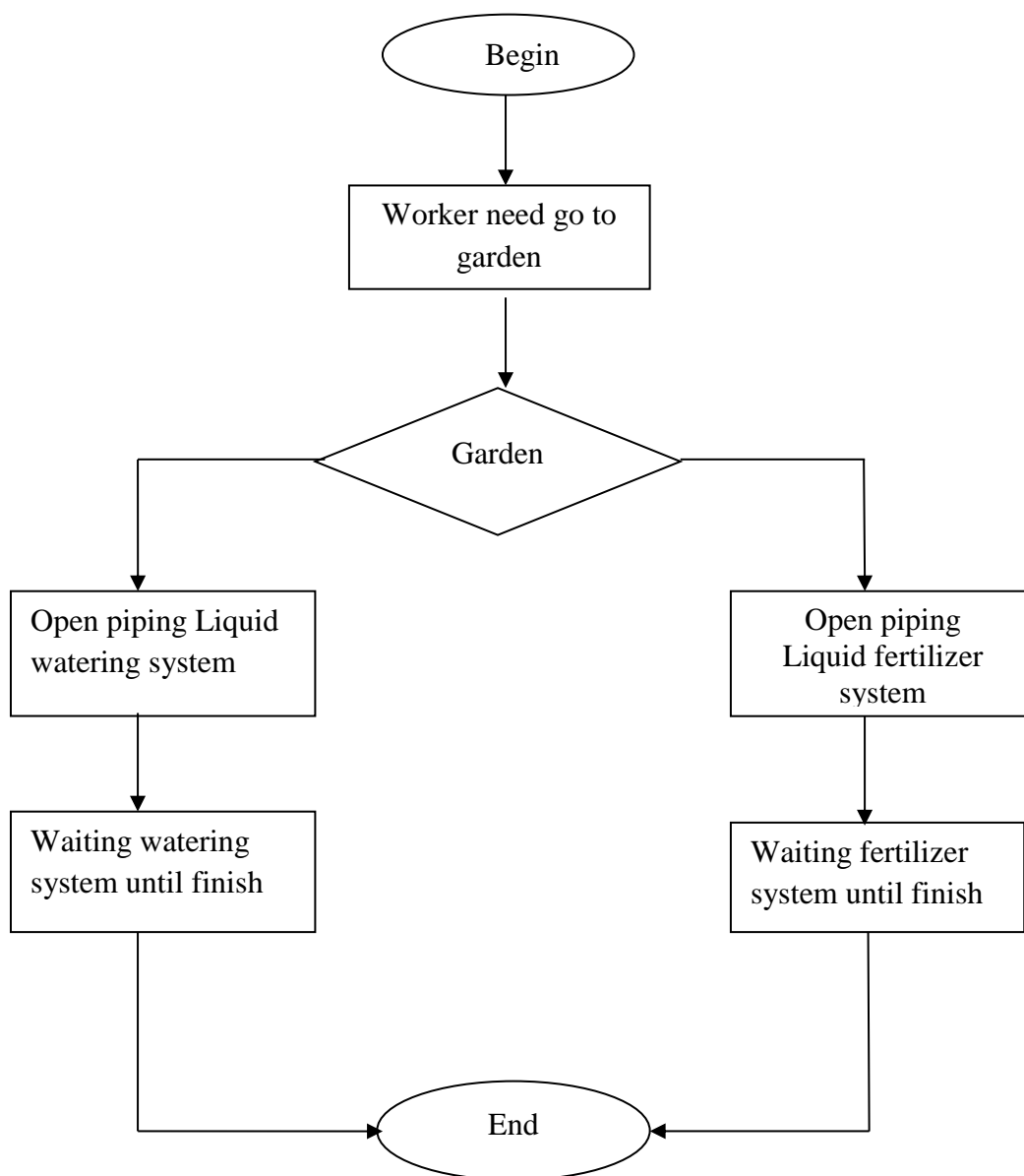


Figure 2.3: Flow chart about the use manual system

2.6 Conclusion

In conclusion, this chapter explains the agricultural system of mobile and existing systems. There are comparisons between farming systems and portable systems available and some of them have their own advantages and disadvantages. Based on the explanation and information about this chapter, the project is to improve and enhance the existing agricultural system better than existing devices. By making these portable agricultural systems with multi-function indicator, it will help to reduce the problems of farmers in the use of their many employees, performance, plenty of time to manage the spraying system, flexibility and so on. The new system can be used in two ways either want to do the watering or fertilizer to enable or disable the ejection system. In addition, by making this system, it will save money for agricultural production; especially the payment of salaries for the new system would reduce the number workers on a farm. It will meet the needs of farmers in the era of modern millennium.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter describes the methodology used to conduct this study. Methodology is the study of a systematic process to identify and summarize the set of objectives and methods to edit, compile, and calculate to find a solution. Besides, this objective seeks to create a mobile farming system and each project is to develop, including a discussion of the methodology using a methodology which is used to project the solution tree. This methodology is a process, standards and guidelines to be followed clearly involved in producing a product or software. The present study is composed of compatibility could be in a specified time.

3.2 Project Methodology

In network engineering and project management methodology is a set of practices which can be carried over to create the software. The system mainly consists of two parts: the mobile station and the micro control unit. Portable system is responsible for delivering and direct and control commands to devices and sensors and to get feedback from the system.

The next unit, a microcontroller unit, it is to control the device and process information obtained from the device as well as from the mobile station. Unit microcontroller is the brain of the control system and process information to and from various other units of

the system.
All methods in this field are collations device all these about disciplines.

The methodology is very important when developing specific software. it is an indicator that can affect the overall progress of the project . A use of appropriate methodology can guide the developer through the entire work to meet the needs of user. There are many different types of methodologies that have been created by researchers, such as the Rapid Application Development(RAD), it is the software development life circle (SDLC) ,waterfall model, structured systems analysis and design method (SSADM) and others.

Based on what I have reviewed, I feel RAD is the most appropriate methodology used in the project is a portable agricultural system. This methodology was chosen because it has a lot of my success to the project. This project will probably take quite some time to be completed successfully, which may take 4-6 months to develop. To develop, It carries a 7 phases this is project planning, project analysis, project design, project development build, project test, project implementation and project maintenance deploy.

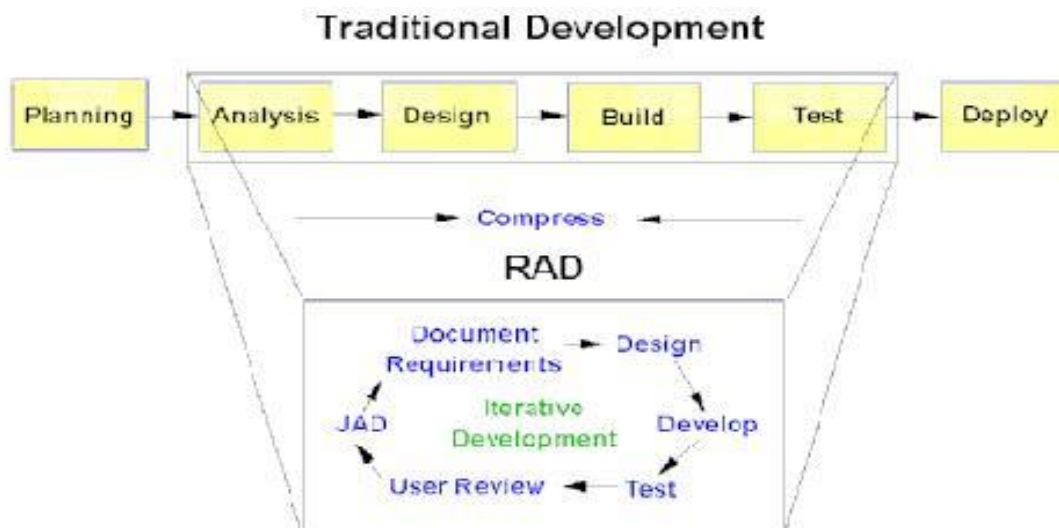


Figure 3.1 show about RAD process traditional development

3.3 System Planning

The System Planning phase starts from defining the problem and scope of the project. This activity is very important in providing the planning phase. Besides, the next step in this phase is to create the project schedule so that the project can be carried out properly. A detailed schedule use with task and the activity of mobile farming system is show in Gantt chart. The Gantt chart will be to apply in Microsoft project and it will be referred through the work and the time it will take. Besides, it is to facilitate and fulfill customer needs fully. The steps taken are;

- i. Using a string of technological facilities or research via the internet to get more information about the system to be developed
- ii. Use methods of communicating with others to get more ideas and new methods of experienced people as supervisors, lecturers, engineers and others to develop the system

3.4 System Analysis

Definition of requirements is the most important part of this project. Need an explanation of what the system should do. In this case, the software `s overall structure and degree defined and functional and non-functional requirements, what of the technology, the structural design of all the measured data in this case.

The development of a tool using this mobile device will be the beginning of the project by the test plan. Analysis required for this chapter will help to ensure that consumers understand the system requirements either the user or the system side. In this case, the problem must solve the defined project. The latest situation is analyzed, and the goal of this project should be decided.

3.4.1 Interface Design



Figure 3.2 Interface design for main and menu of mobile farming system



Figure 3.3 Interface design for open and close the watering and fertilizer

3.4.2 Flowchart

A flowchart is a moment type of diagram that represent an algorithm or process\, showing the steps as boxes of various kinds, and their order by connection these with arrows. Flowchart is used in analyzing, designing, documenting or managing a process or program in various fields. Figure 3.4 show the flow chart of the step mobile application to connect with hardware. On mobile application which Is the flow to search the wireless device between its range and figure 3.5 will show the process of output in the system.

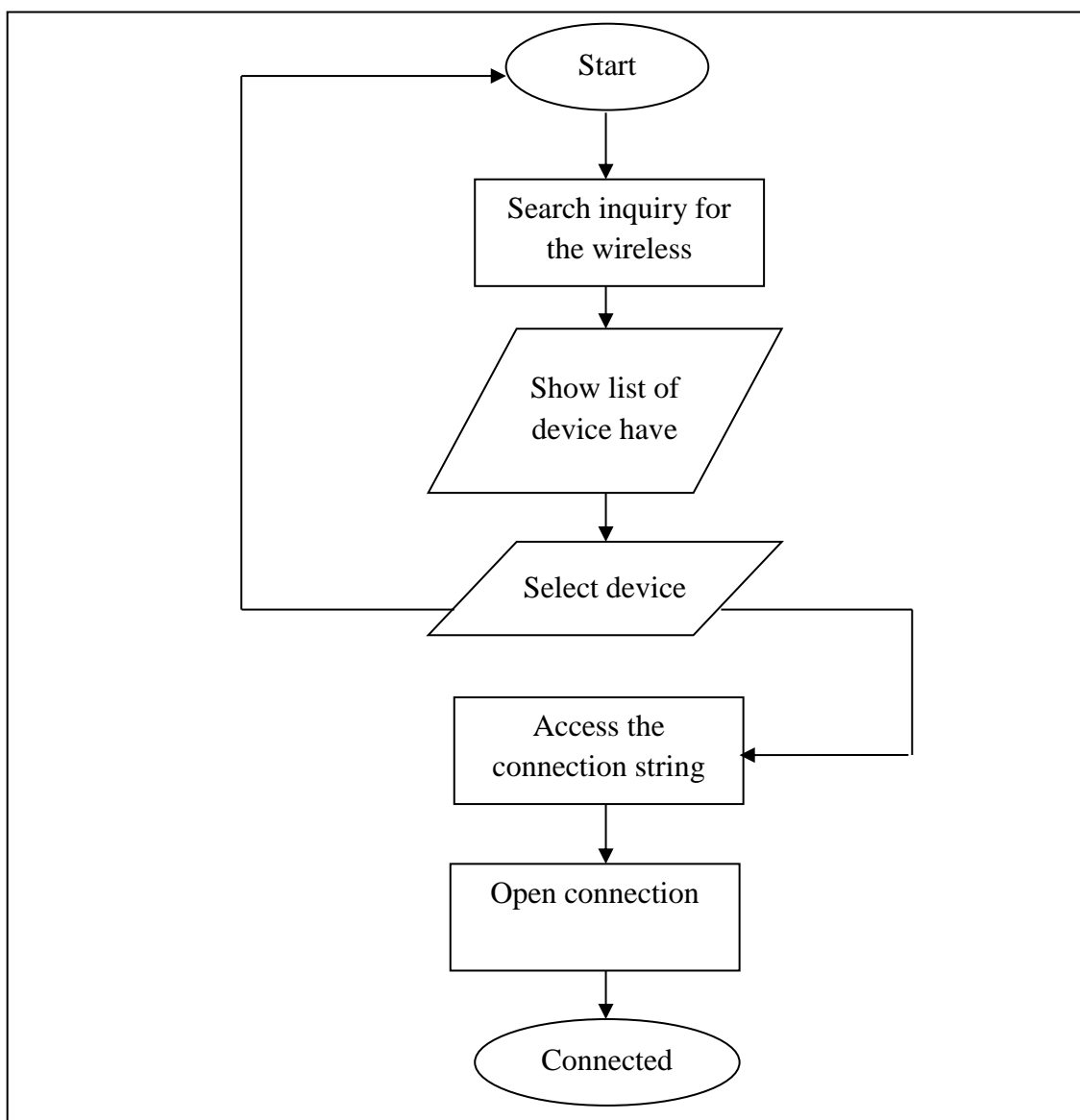


Figure 3.4 Flow chart shows about connection to device hardware

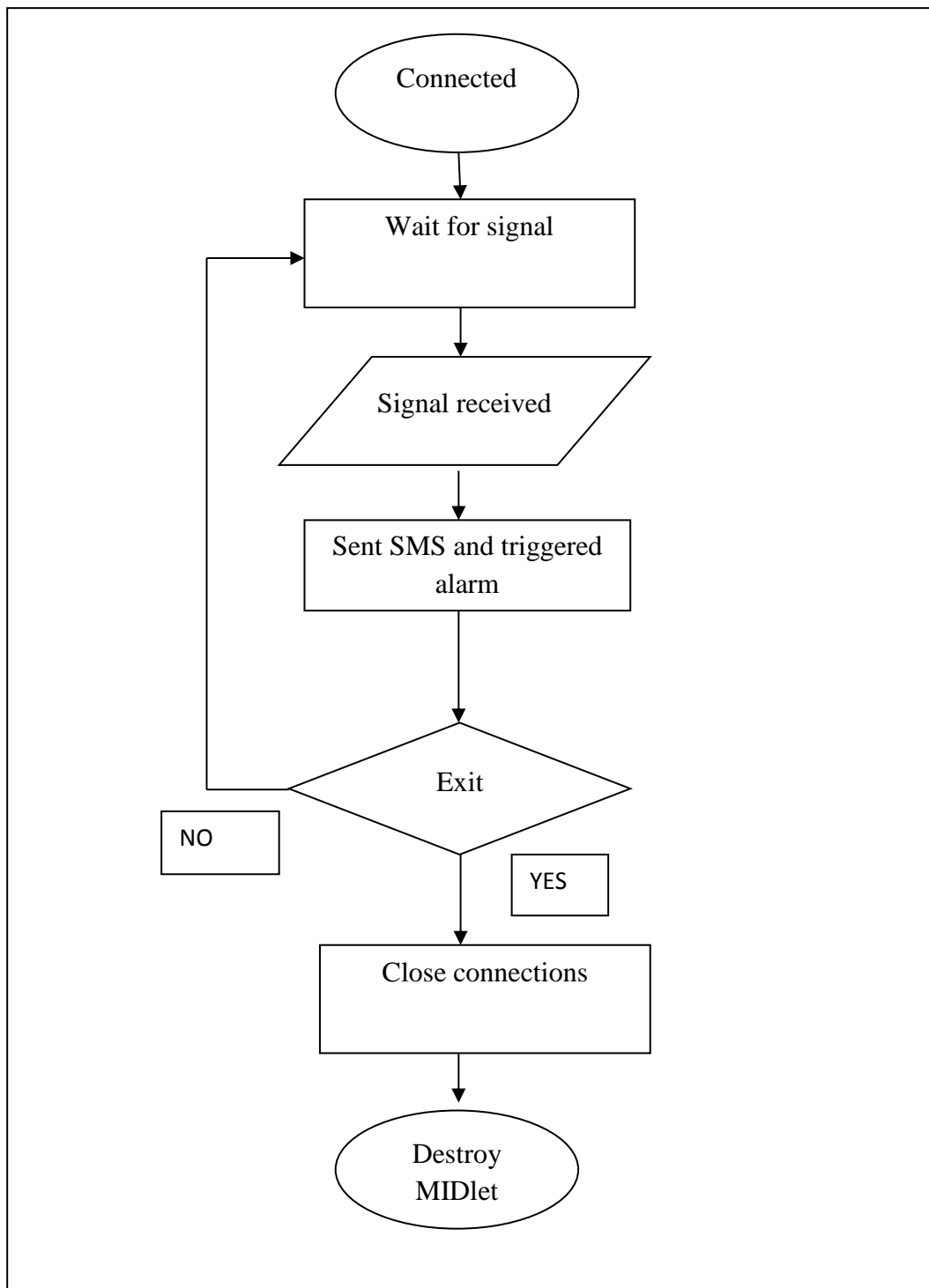


Figure 3.5 Flowchart shows about Mobile Application System

3.4.3 System and use Case Diagram

The chart below shows you how the system works. It started with mobile phone to find a string of internet and systems are in the phone can communicate with the hardware pipeline to give orders. With a system that is in the phone. they can choose which system may require something like a water sprinkling system or tempering system. With a system that farmers can open and close the pipe system.

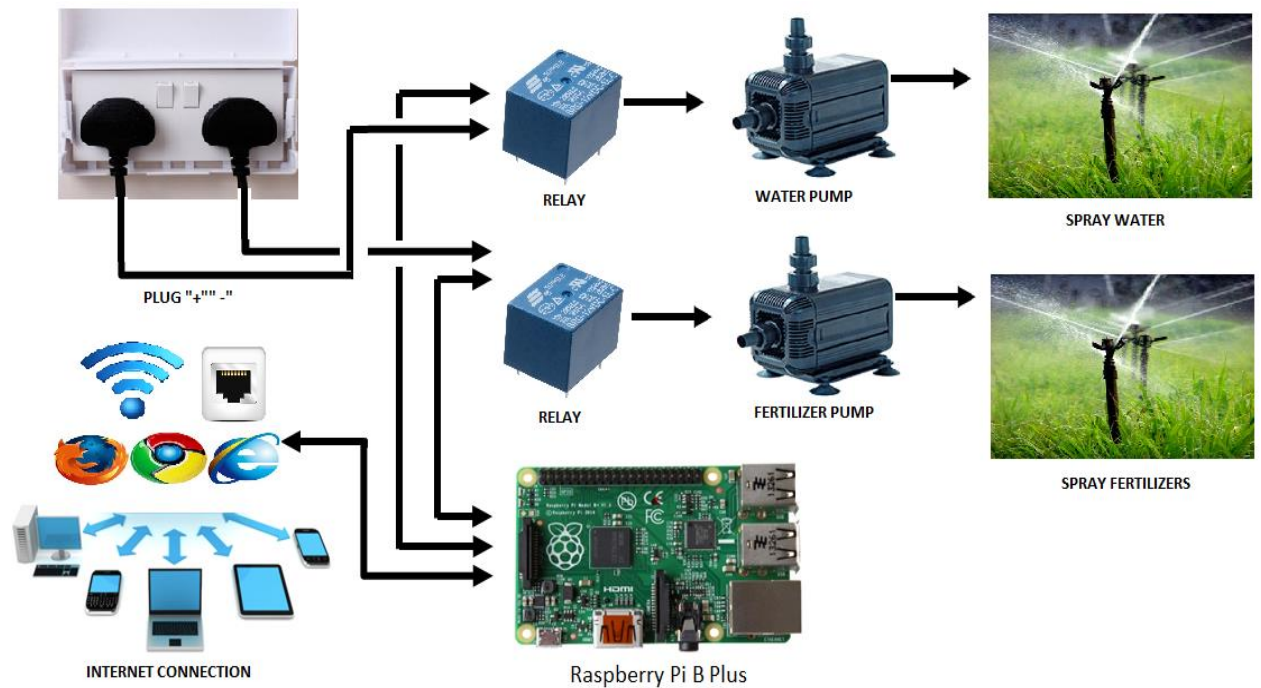


Figure 3.6: System and use Case Diagram

1. Input

Mobile phone can give the instructions to open or close the piping system.

2. Process

Phone system connected to the internet and connected with a router. The System through wireless commands for plumbing work

3. Output

Piping system to receive commands from the wireless and followed with watering system works.

3.4.4 System Development

System development life cycle (SDLC), it is referred to as the application development life cycle, is a term used in the systems engineering, software engineering and information systems to indicate a process of creating, designing, testing, and deploying information systems.

The development of a system of market research and it quickly became the framework around for all research techniques built: focus groups online, mobile tasks, questionnaires, one-on-one / portal ethnography, blogs, and creative whiteboard. After the design process is determined, after all information collected and designed and will be implemented. These are the steps to build an engine programming and interface design which will be incorporated in the module and testing will be carried out to ensure the application is running as determined in accordance with the requirements. Mobile Farming System will be implemented using net beans 6.8. by Mobile Farming system , rule -based system intended to be applied programming techniques , rule-based system for representing knowledge within a group of rules that tell that we need to do , or in a different conclusion . Rules should be selected based on the development of the system and this is because of the rule-based provides simple techniques appropriate to the functions in the application. A rule-based system consists of a group of if then rules, a bunch of facts and some interpreter controlling the application of the rules to get the facts.

3.4.5 System Testing

System testing for software is testing activity conducted on a complete, integrated system to evaluate the system's compliance with its specified requirements. System testing falls within the scope of black box testing, and as such, should require no knowledge of the inner design of the code or logic. In integrated security system for industrial: module on mobile application system, according to the RAD for this system, every phase of RAD will be test regularly which mean that during development of this application, every module will be tested so that it case the task maintenance in the future,

3.4.6 System Implementation (Deploy)

The sixth phase of RAD is implementation. In this phase the information system is coded tested, installed and supported in the organization. The objective of this phase is not only to have reliable, working information system but also to ensure that the users are all is ingrained and the business is benefiting.

3.4.7 Software Maintenance

Software will definitely undergo change once it is delivered to the establishment. There are many reasons for the change expectation values of the unexpected into the system. In addition, the change of the system that can directly to get the result in an impact on software operation. The software should be developed to meet the changes that may occur in the execution of the job, in the future, this request will be reviewed and investigated if there will be any additional

In the final phase, the system will be restored if there is still a shortage and error problems. Any changes of customer demand that has not been confirmed by the programmers of describing changes in business conditions. If there is too much of an issue, the system may need to be rebuilt. This is system will step up and meet the company's return on IT investment

3.4.8 Project Requirement

The need to complete this project and all items need to be used in the requirements analysis should implement and use the system to ensure the correct functioning.

3.5 Development Tools

Show the requirement to develop the system.

Software	Description
PHP HTML CSS	-To design interface and implement the coding inside the system
Windows 7	-As an operating system to run the system development tools.
Adobe Photoshop CS5	-To editing the system picture and designing the interface.
Microsoft office 2007 -Microsoft word -Microsoft PowerPoint -Microsoft project -Microsoft vision	-It is to make the system documentation such as system presentation, system manual and system planning and scheduling.

Table 3.1: Software Requirement to Develop the System

Mobile phone	To operate the system , java enable mobile phone
Water pump	Used to switch directly into the garden sprinkling irrigation

Table 3.2 Hardware Requirement to Develop the System

3.5.1 NetBeans 6.8

NetBeans IDE is a modular, it is the basis and standards-based Java integrated development environment (IDE), written in the Java programming language. NetBeans project has full open source IDE written in the Java programming language and a rich client application platform, which can be used as a generic framework to build any kind of application, NetBeans can run on any JVM is installed, including Windows, Mac OS, Linux and Solaris . JDK is required for Java development functionality, but is not required for development in other programming languages . NetBeans Platform allows applications to be the development of a set of modular software components called modules. Applications based on the platform NetBeans (including NetBeans IDE) can be extended by third party developers.

NetBeans is an Integrated Development Environment (IDE), which can be used to test, develop, and debugging Java ME applications. I will explain how to carry out this document as a sample WMADemo Java ME applications to demonstrate how to open a project, how to choose the Samsung emulator and how to run the sample application using Java ME WMADemo NetBeans IDE along with the Samsung SDK.

NetBeans team actively support the product and get future proposals for the wider community. Each is preceded by the launch of all time for testing and feedback Forum.

IDE	Integrated Development Environment
SDK	Software Development Kit
Java ME	Java Micro Edition
MIDP	Mobile Information Device Profile

Table 3.3: Table show about Abbreviations java developer

3.5.2 Adobe Photoshop CS5

Adobe Photoshop is a graphics editing program developed and published by Adobe Systems. It simply Photoshop, is one of a variety of graphics editing program (also known as DPD, Desktop Publishing Program) developed and published by Adobe systems. Photoshop has strong ties with other Adobe software for media editing, animation, and authoring. Files in Photoshop's native format, Adobe Encore DVD to make professional standard, Adobe Premiere Pro, after effects, and the PSD, can be exported to and from Adobe Illustrator and provides editing and special effects-linear services, such as backgrounds, textures, Television , movies, and so on.

3.5.3 Microsoft Office 2007

Microsoft Office 2007 is a set of desktop productivity programs to include processing applications for spreadsheets, e-mail, and word that integrate with servers, services and solutions in the Microsoft Office system. It will be used as a proposal and a thesis on this project.

3.5.4 Microsoft Windows 7 Ultimate

Microsoft Office 2007 (codenamed Office 12) [4] is a version of Microsoft Office, a suite of family office and productivity software for Windows, developed and published by Microsoft. It was issued to customers with volume license on 30 November, 2006 [5] and to retail customers on January 30, 2007, the same date of each release of Windows Vista. It is preceded by Office 2003 and replaced by the Office 2010 and Window 7 is the latest release of Microsoft window, a series of operating systems produced by Microsoft for use on personal computer, including home and business desktop, laptop, net books, tablet PCs, and media center PCs. Windows 7 was released to manufacturing on July 2009, and reached general retail availability on October 22, 2009, less than three years after the release of its processor, windows Vista.

Unlike its predecessor, windows Vista, which introduced a large number of new features, window 7 was intended to be a more focused, incremental upgrade to the

windows line, which the goal of being compatible with applications and hardware which window Vista was not at the time. Presentation given by Microsoft in 2008 focused on multi-touch support a redesigned window shell with a new taskbar, referred to as the super bar, a home networking system called Home Group, and performance improvement. Some standard application that have been included with prior releases of Microsoft window, including window calendar, window mail, window movie maker, and window photo gallery, are not included in windows 7, most are instead offered separately at no charge as part of the windows live essentials suits. Some of windows 7 benefit stated below.

3.5.5 Flexibility

That operating system designed by a designer to make sure the user in mind, so windows 7 function with many application and devices. In addition, it also provides you the flexibility to make your job easier

3.5.6 Instant Search

Windows are design Is such as way that they are very fast in searching so you can search the file, folder, application and whatever in seconds. This productive system comprises all similar types of document into libraries, even if the file are saved in different folder, so it helps to find them quickly.

3.5.7 Great connective and networking option

Window 7 professional gives mobile computing in which you can access the computer in all mobile with greater networking and connecting option. Using this you can share and access all your files, network resources etc, which is present in your in your work PC and likewise you have option to disconnect from network and to work in offline.

This operating system is helping on doing the thesis, as the software development, and easily to create the project system.

3.5.8 Project schedule

The project was following the RAD methodology and all the activity is listed the Gantt chart. From the Gantt chart there are five phases to show the progress of the project development. The first phase describes all the activity during project planning such as making chapter 1 and literature review. The second phase in the Gantt chart involved analysis of the project in making chapter 3. The next phase of the Gantt chart is design and the last phase is closing. This phase requires to complete the documentation of psm1 and final presentation of PSM 1. Refer to Appendix A to see the Gantt chart.

3.6 Conclusions

Methodology this study shows an effective way to ensure the project runs smoothly. I use RAD methodology for such systems to conduct research and develop a portable agricultural system. Some procedures, such as project planning, project analysis, project design, project development build, test project, project Implementation and maintenance project that should be discussed and deployed deliberately used to produce findings that are effective in this project.

3.7 Executives Summary

Farming systems technology today has become increasingly competitive for village farmers and modern farmers. Farmers should strive as much as they can, and gardening effectively. Today large farms need many workers to manage their farms and people working in the state who are tired of managing their farms. It is the job of engineers to improve technology to farmers with information on the most effective way possible. As the years passed, the systems will become more competitive, and the need for a method of using IT technology that will effectively increase. The key is effective for workers to do their work comfortably. That is why we have introduced a system of farming system called mobile device tools make employees can work comfortably and reduces workforce to commute from farm to farm.

Shortage in IT technology lead farmers does not concentrate on their work and help in the agricultural world. In fact, the majority of farmers found their fields of work

uncomfortable. With less diligent employee attitudes to move it resulted in less fertile farms while reducing the quantity of their agricultural produce. This must be handled and to find solutions to these problems and together with others.

Our product is a portable agricultural system designed with comfort and learning in mind. This system is attractive looking and facilities for workers to use the system more fun and experience working in the fields. We have made improvements very simple and effective agricultural system using a mobile phone that is not branded has been executed before, including green earth system. The result is that the system provides many advantages over regular manual system that requires many employees in every competitive field.

Our implementation plan is to produce a piping system with the concept of the network so that it is effective and efficient. We will buy our materials - water pumps, pipes, routers, and other synthetic - in bulk from a wholesale company, to build our own prototypes, and thoroughly test our prototype before beginning the mass installation. We estimate our starting time, the successful completion of the first prototype, a little over four months. I will be looking for an assistant with expertise in electrical engineering and networking, this is to ensure the development of a successful product.

As a network engineer to become more competitive, and are required to raise their standards, we believe farmers will become a very popular choice for development. We believe this will prove to be a very worthwhile investment and profitable in the future of modern farming

CHAPTER 4

DESIGN AND IMPLEMENTATION

4.1 Introduction

In this chapter will discuss on the design and implementation requirements

For that project, in general, this chapter describes the development of projects that have been design and covers that implementation phase and focuses on the development of the system activities. Those activities will include designing interface, coding, and guide in the development of the system. That system coding are the main activities in this implementation phase and that coding include the structure of the coding system than its can used to run the function in this system.

4.2 DATABASE CONSTRUCTION

Database is the most imperative things that need to be built amid the starting phase of usage. Database for versatile cultivating framework is developing utilizing PhpMyAdmin. PhpMyAdmin is device write in PHP planned to handle the organization of MySQL over the web. The database for this framework is to record a client information, control the GPIO exercises and for logging an exercises.

4.3 USER INTERFACE CONSTRUCTION

Client interface configuration is vital for a few reasons. Fundamentally, the instinctive of client interface is anything but difficult to utilize it and decrease the preparation drift because of the clear to prepare individuals to utilize this framework. Easy to understand the interface draws in more clients to utilize it and expanding the client fulfilment with the framework. PHP, HTML, and CCS scripts dialect is utilized as a part of add to the interface in this framework.



Figure 4.1: Login Interface



Figure 4.2: Main Page



Figure 4.3: Menu Page



Figure 4.4: Turn/Off Water Pump



Figure 4.5: Turn/Off Fertilizer Pump

4.4 PROCESS FLOW

The most vital part in any undertaking advancement or the implantation arrangement is creating the methodology stream is an outline usually utilized as a part of building to demonstrate the general stream of plant procedures and gear. The procedure stream shows the connection between significant capacities of the framework. Ordinarily, process stream graphs of a solitary unit process. Without methodology stream, engineer is not ready to focus the careful aftereffect of the framework and subsequently attaining to the article set for the venture. Taking into account this task there is one procedure to show how the undertaking streams.

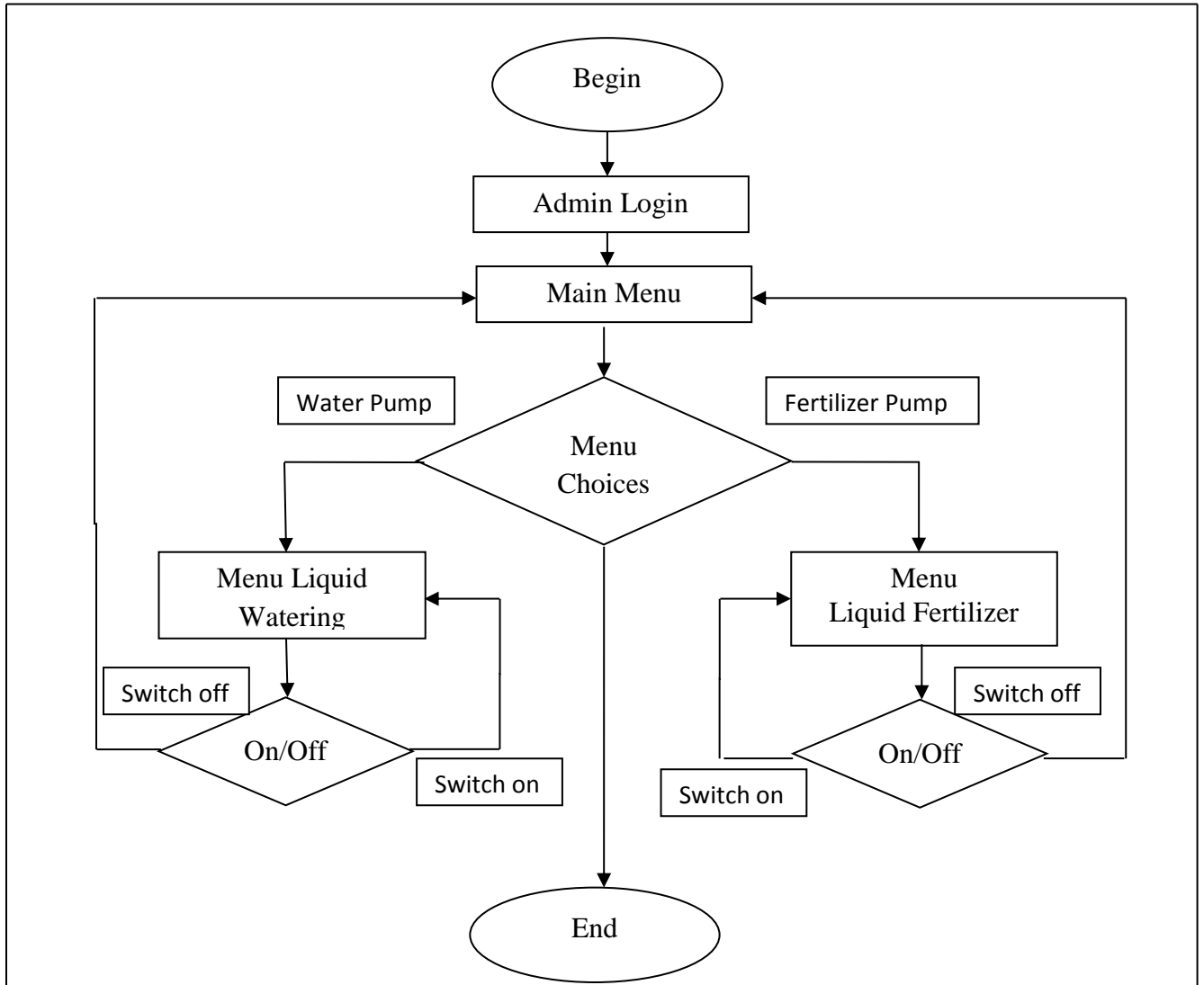


Figure 4.6: Process Flow of the System

4.5 SYSTEM ARCHITECTURE

Raspberry Pi will unite with the home switch to permit client to get to the home system and web association. Client will access to Mobile Farming System by means of web program with Raspberry Pi with ip address or if the client need to access outside of greenhouse system client can enrol at free Domain Name Server (DNS), Raspberry Pi can read which sensor and control the hand-off when the client demand or Port some activity in web framework.

The controller board will actualize close to the patio nursery dissemination board. Generally the electrical switch (CB) at greenery enclosure will impart to two or more electrical gadget such machine water pump and machine manure pump. Thus, if the client needs to controller every machine the electrical switch ought to be discrete as such.

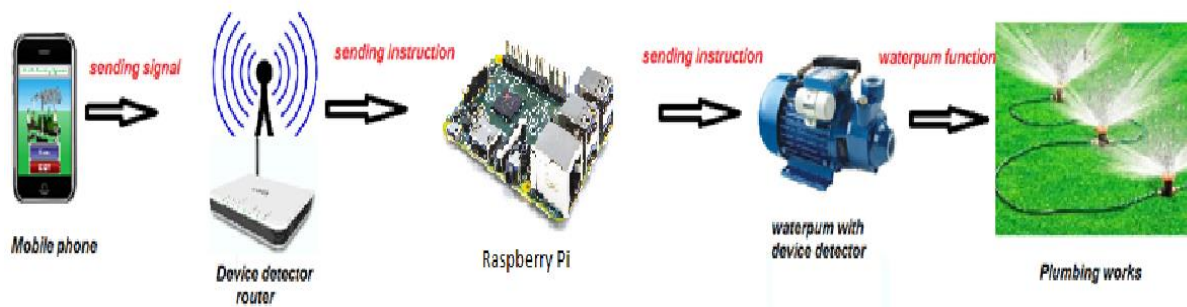


Figure 4.7: System Architecture

4.6 CODING

```

1  <!DOCTYPE html>
2  <html>
3  <head>
4    <title></title>
5
6  <!-- <link href="style/cssTable.css" rel="stylesheet" type="text/css" />
7    Template 2046 Blue Flame
8    by www.tooplate.com
9  -->
10 </head>
11 |
12 <body>
13
14
15
16 <div>
17 <table style="width:100%" border="0">
18 <tr>
19   <td colspan="3"></td>
20 </tr>
21 </table>
22 </div>
23
24 <div>
25 <form action="login.php" method="post">
26
27 <table style="width:100%" border="0">
28 <tr>
29 <tr >
30 <td width = "10%">Name: </td>
31 <td><input type="text" name="username" ><br/></td>
32
33 </tr>
34
35 <tr> <td>Password: </td>
36 <td><input type="text" name="password" ><br/></td>
37 </tr>
38
39 <tr>
40 <td>
41 <input class="button" type="submit" value="Log In"/> </td>
42 </tr>
43 </table>
44
45 </form>
46 </div>
47 </body>
48
49 </html>

```

Figure 4.8: Interface for login


```

2
3 <?php
4 session_start();
5 include("connectdb.php");
6
7 echo "<br>";
8 echo "Welcome";
9 echo "<br>";
10 echo "<br>";
11 echo $_POST["username"];
12 echo "<br>";
13 echo "<br>";
14 echo $_POST["password"];
15
16 //to make a connection with database
17 $conn = mysql_connect("localhost", "root", "") or die(mysql_error());
18 //to select the targeted database
19 mysql_select_db("mfs", $conn) or die(mysql_error());
20 //to create a query to be executed in sql
21 $un = $_POST["username"];
22 $pwd = $_POST["password"];
23
24 $_SESSION['un'] = $un;
25
26 $query = "SELECT * FROM loginTable WHERE un = '$un' AND pwd = '$pwd'";
27 $result = mysql_query($query, $conn) or die(mysql_error());
28 //to run sql query in database
29 //check whether the query was successful or not
30 if(isset($result)) {
31     if(mysql_num_rows($result) == 1)
32     {
33         //login Successful
34
35         header("location: home.html");
36         exit();
37     }
38     else
39     {
40         //login failed
41         header("location: login-failed.html");
42         exit();
43     }
44 }
45 }
46 else {
47     die("Query failed");
48 }
49
50 ?>

```

Figure 4.9: Database Connection for logging

```
2
3 <html>
4 <head>
5   <meta charset="UTF-8" />
6   <link rel="stylesheet" type="text/css" href="css/style.css">
7 </head>
8
9 <style>
10  body {
11    background-image: url("/home/pi/tree.jpg");
12    background-color: #cccccc;
13  }
14 </style>
15
16
17
18
19 <form action="menu.php" method="post">
20   <input type='submit' name='submit' value='Fertilizer Pump' />
21 </form>
22 <form action="menu1.php" method="post">
23   <input type='submit' name='submit' value='Water Pump' />
24 </form>
25
26 <body>
27
28
29 </html>
30
```

Figure 4.10: Menu for Water and Fertilizer Pump

```

2
3 <html>
4 <head>
5   <meta charset="UTF-8" />
6   <link rel="stylesheet" type="text/css" href="css/style.css">
7 </head>
8
9 <style>
10  body {
11    background-image: url("/home/pi/tree.jpg");
12    background-color: #cccccc;
13  }
14 </style>
15
16
17
18 <body>
19 -----
20 wellcome Fertilizer pump system
21 -----
22 </body>
23
24 <?php
25  if (isset($_POST['SwitchON']))
26  {
27    exec("sudo python /home/pi/switchon_1.py");
28  }
29  if (isset($_POST['SwitchOFF']))
30  {
31    exec("sudo python /home/pi/switchoff_1.py");
32  }
33  ?>
34
35 <form method="post">
36  <button class="btn" name="SwitchON">Switch ON</button>&nbsp;  
37  <button class="btn" name="SwitchOFF">Switch OFF</button><br><br>
38 </form>
39
40 <form action="index.php" method="post">
41  <input type='submit' name='submit' value='BACK' />
42 </form>
43
44

```

Figure 4.11: Interface Fertilizer Pump System

```

2 <html>
3 <head>
4 <meta charset="UTF-8" />
5 <link rel="stylesheet" type="text/css" href="css/style.css">
6 </head>
7
8 <style>
9 body {
10     background-image: url("/home/pi/tree.jpg");
11     background-color: #cccccc;
12 }
13 </style>
14
15
16
17 <body>wellcome water pump system
18 </body>
19 <?php
20 if (isset($_POST['SwitchON']))
21 {
22     exec("sudo python /home/pi/switchon_2.py");
23 }
24 if (isset($_POST['SwitchOFF']))
25 {
26     exec("sudo python /home/pi/switchoff_2.py");
27 }
28 ?>
29
30 <form method="post">
31 <button class="btn" name="SwitchON">Switch ON</button>&nbsp;
32 <button class="btn" name="SwitchOFF">Switch OFF</button><br><br>
33 </form>
34
35 <form action="index.php" method="post">
36 <input type='submit' name='submit' value='BACK' />
37 </form>
38
39
40 </html>
41

```

Figure 4.12: Interface Water Pump System

```
1  #!/usr/bin/python
2
3  # Import required Python libraries
4  import RPi.GPIO as GPIO
5  import time
6
7  # Use BCM GPIO references instead of physical pin numbers
8  GPIO.setmode(GPIO.BCM)
9
10 # init list with pin numbers
11
12 pinList = [15]
13
14 # loop through pins and set mode and state to 'low'
15
16 for i in pinList:
17     GPIO.setwarnings(False)
18     GPIO.setup(i, GPIO.OUT)
19     GPIO.output(i, GPIO.HIGH)
20
21 def trigger() :
22     for i in pinList:
23         GPIO.output(i, GPIO.HIGH)
24     #     GPIO.cleanup()
25     break
26
27
28 try:
29     trigger()
30
31
32 except KeyboardInterrupt:
33     print " Quit"
34     # Reset GPIO settings
35     GPIO.cleanup()
```

Figure 4.13: Switch On Water Pump Control (Python)

```
1  #!/usr/bin/python
2
3  # Import required Python libraries
4  import RPi.GPIO as GPIO
5  import time
6
7  # Use BCM GPIO references instead of physical pin numbers
8  GPIO.setmode(GPIO.BCM)
9
10 # init list with pin numbers
11
12 pinList = [15]
13
14 # loop through pins and set mode and state to 'low'
15
16 for i in pinList:
17     GPIO.setwarnings(False)
18     GPIO.setup(i, GPIO.OUT)
19     GPIO.output(i, GPIO.HIGH)
20
21 def trigger() :
22     for i in pinList:
23         GPIO.output(i, GPIO.LOW)
24     #     GPIO.cleanup()
25     break
26
27
28 try:
29     trigger()
30
31
32 except KeyboardInterrupt:
33     print " Quit"
34     # Reset GPIO settings
35     GPIO.cleanup()
```

Figure 4.14: Switch Off Water Pump Control (Python)

```
1  #!/usr/bin/python
2
3  # Import required Python libraries
4  import RPi.GPIO as GPIO
5  import time
6
7  # Use BCM GPIO references instead of physical pin numbers
8  GPIO.setmode(GPIO.BCM)
9
10 # init list with pin numbers
11
12 pinList = [18]
13
14 # loop through pins and set mode and state to 'low'
15
16 for i in pinList:
17     GPIO.setwarnings(False)
18     GPIO.setup(i, GPIO.OUT)
19     GPIO.output(i, GPIO.HIGH)
20
21 def trigger() :
22     for i in pinList:
23         GPIO.output(i, GPIO.HIGH)
24     #     GPIO.cleanup()
25     break
26
27
28 try:
29     trigger()
30
31
32 except KeyboardInterrupt:
33     print " Quit"
34     # Reset GPIO settings
35     GPIO.cleanup()
```

Figure 4.15: Switch on Fertilizer Pump Control (Python)

```
1 #!/usr/bin/python
2
3 # Import required Python libraries
4 import RPi.GPIO as GPIO
5 import time
6
7 # Use BCM GPIO references instead of physical pin numbers
8 GPIO.setmode(GPIO.BCM)
9
10 # init list with pin numbers
11
12 pinList = [18]
13
14 # loop through pins and set mode and state to 'low'
15
16 for i in pinList:
17     GPIO.setwarnings(False)
18     GPIO.setup(i, GPIO.OUT)
19     GPIO.output(i, GPIO.HIGH)
20
21 def trigger() :
22     for i in pinList:
23         GPIO.output(i, GPIO.LOW)
24     # GPIO.cleanup()
25     break
26
27
28 try:
29     trigger()
30
31
32 except KeyboardInterrupt:
33     print " Quit"
34     # Reset GPIO settings
35     GPIO.cleanup()
```

Figure 4.16: Switch Off Fertilizer Pump Control (Python)

4.7 TESTING

Amid the advancement methodology, testing is a piece of approach and continues going do amid this improvement process. Testing by every part or module is the best approach to keep and staying away from framework mistake amid improvement

4.8 CONCLUSION

In this execute part demonstrate to framework that has been grow in the PSMII. Database of the framework is the first step that has been made before beginning the advancement process. The database of this framework is utilization MySQL in MyPHP administrator in MySQL server in Raspberry Pi. After done make database, interface has been grow by utilizing PHP, HTML, and CSS. After interface configuration is finished, motor of the framework that is PHP will work in the interface to run the framework easily. The python script is the motor that works with MySQL to execute the operation of gadget and sensors.

CHAPTER 5

RESULT AND DISCUSSION

5.1 INTRODUCTION

In this chapter, it describes the achievement of the project objectives based on the result of the system. Detail about the outcome, assumption and further research about this system also discussed in this chapter.

5.2 EXPECTED RESULT

The expected result from the project and development of this system are distributed as below:

- i. The web systems run successful without any error and have capability to give result toward user.
- ii. Users are able to use the web system based on following the system flow.
- iii. All the of the data information will be easier to handle and managed by using this system

5.3 RESULT OF THE SYSTEM

After the web system have been finished developed, it needs to analysed from the form of the pages so that it meets the objectives. The Mobile Farming System have met the all the objective of this project.

When the user start using the system, there will be a login form that ask user to login first before user can use the system. The login interfaces is important for this system from unauthorized users for trying to control the garden appliances as a monitor. The username and password is already set by developer in the database. Only authorized user can use the system



Figure 5.1: Login Interface

After user have successfully login, the home page of the system will appear for user to start controlling the device as water pump controller and fertilizer pump controller. User can use to turn on and off from the button already. User also can monitor the garden when the temperature is changes like hot or cloudy. Every activity that user do the system will logging the information to the data base.

The systems have logging interface for user to monitor to control the device activity which is a control machine switch. When user turn on of the button, the system will be log into the database and it will help to owner garden know when the garden flush with water or fertilizer. The python scrip was running background on Raspberry Pi to control machine and pushing the data into database.



Figure 5.2: Controlling Devices Interface

This system also has function to control the water pump for easy worker to working in the garden. Form the interface that can control to switch on and off the machine of the water pump. So the admin can manage water pump system using this system to manage their garden.



Figure 5.3: Function for Water Pump

This system also has function to control the fertilizer pump for easy worker to working in the garden. Form the interface that can control to switch on and off the machine of the fertilizer pump. So the admin can manage fertilizer pump system using this system to manage their garden.



Figure 5.4: Function for Fertilizer Pump

5.4 SYSTEM CONSTRAINTS

This system has several constraints but does not affect the main modules of the system. Raspberry Pi needs an expanded microcontroller to control more than twenty-six inputs and output devices. This means the user can only control the main device that they usually use.

5.4.1 NETWORK CONNECTION

This priority of this system must have a network communication to communicate between the user and Raspberry Pi to control the controller board. The internet connection gives the user access and control of the system anywhere, but when the internet is down, the system can only be accessed locally by Local Area Network (LAN). Both of these connections do not operate well, so the system cannot be accessed.

5.4.2 LIMITED HOME DEVICES CONTROLLER

The Raspberry Pi model B+ has twenty-six GPIO ports to control data and yield. So the Raspberry Pi has the most extreme number of data and yield ports. Clients need to arrange for what number of gadgets they need to control in light of the fact that Raspberry Pi can extend their information and yield ports by utilizing extended miniaturized scale controllers.

CHAPTER 6

CONCLUSION

6.1 INTRODUCTION

Taking everything into account part, it will generally explain what had been proposed so far including developer`s trusts and feeling on this task and also the commitment that can be carried out after the undertaking. Various expected qualities and weakness of to be produced framework can be or made. For the normal weakness, change can be made to guarantee the final created application runs in administrator request and fit for the market. In any case, great information and understanding about the stream of the framework will help engineer to create and enhance the framework. The accompanying are examined as underneath.

Portable Farming Framework is a web base application framework to control and observing utilizing a Raspberry Pi. This framework helps client to control garden appliances and also integrated with water controller and fertilizer controller. This framework can control on off gadget to start the machine from the force supply. This versatile farming framework is easy to use, affordable and important thing it is secure framework. This framework also can access by utilizing any pc, laptops, smartphone and tablet because this framework is web base platform

6.2 SUMMARY OF LITERATURE REVIEW

Literature survey is a necessary stream that helps the engineers to give the idea in building up an undertaking. In building up the versatile farming framework, heaps of researches have been investigated to get as many information as conceivable. The information that related to the venture is gathered and talked about in details. The current framework are being analyzed and compared to get the advantages and flaw

6.3 SUMMARY OF METHODOLOGY

This framework utilized rapid application advancement (RAD) procedure because Rad is suitable for venture in a brief time of time and it also lowers expense. There is several phase in this improvement which is Undertaking Initiation and Planning, Analysis, Framework plan, and Testing and Troubleshooting

This framework is planned to be produced utilizing word processor just by utilizing Notepad++ normal content manager which is "Nano" for creating python scrip to interact with GPIO port on Raspberry Pi. PHP, HTML and CSS for interface plan and programming as it gives in Framework Configuration phase. These task also utilize MySQL at data base for login admin.

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APPENDIX A

Gantt chart

A WORK PROGRESS OF UNDERGRADUATE RESEARCH PROJECT

		Task Mode	Task Name	Duration	Start	Finish	Predecessors
1			Identify reseach issue	3 days	Thu 2/20/14	Mon 2/24/14	
2			deciding the topic and research objective	30 days	Tue 2/25/14	Mon 4/7/14	1
3			approve of the topic and research objective	3 days	Tue 2/25/14	Thu 2/27/14	1
4			preparation of project research proposal	30 days	Fri 5/23/14	Thu 7/3/14	7
5				1 day?	Fri 4/25/14	Fri 4/25/14	6
6			chapter 1	1 day?	Thu 4/24/14	Thu 4/24/14	1
7			introduction	19 days	Tue 2/25/14	Fri 3/21/14	1
8			backgroud of study	1 day	Mon 4/28/14	Mon 4/28/14	5
9			problem statement	1 day	Tue 2/25/14	Tue 2/25/14	1
10			research objective	2 days	Tue 2/25/14	Wed 2/26/14	1
11			scope of study	1 day	Fri 2/28/14	Fri 2/28/14	3
12							
13			chapter 2				
14			literature review	35 days	Fri 2/28/14	Thu 4/17/14	3
15							
16			chapter 3				
17			research methodology	25 days	Fri 2/28/14	Thu 4/3/14	3
18							
19			final complication	2 days	Tue 4/8/14	Wed 4/9/14	2
20			prepair presentation	2 days	Tue 4/8/14	Wed 4/9/14	2
21			presentation	1 day	Tue 2/25/14	Tue 2/25/14	1

